

Food and Agriculture Organization of the United Nations

REPORT

Technical Workshop on Locusts In Caucasus and Central Asia (CCA)

20-24 November 2023



©FAO/ E. Pechurin

Participants in the "Technical Workshop on Locusts in Caucasus and Central Asia" Bishkek, Kyrgyzstan, 20 – 24 November 2023

CONTENTS

ABBREVIATIONS AND ACRONYMSiv
NTRODUCTION1
OFFICERS OF THE SESSION
AGENDA
SESSION 1: NATIONAL 2023 LOCUST CAMPAIGNS AND FORECASTS FOR 2024
National locust campaigns in 2023, forecasts for 2024 and preparation of the next campaigns (Item 4) 3
SESSION 2: PROGRAMME IMPLEMENTATION AND CAPACITY STRENGTHENING IN 2023
Overview on Programme implementation in 2023 (Item 5)9
Regional cooperation: Cross-border surveys egg-bed surveys (Item 6)12
National capacities development in 2024 (Item 7)15
Exposure visits on locust management in the national anti-locust center in Morocco (Item 7.1)15
National training sessions and briefing sessions on locust management: Afghanistan, Armenia, Azerbaijan, Georgia, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan (Item 7.2)
Update on background literature on the locust pests in CCA (monthly bulletins, practical guidelines, leaflets, posters, monographs, calendars) (Item 7.3)
Equipment delivered in 2023 to strengthen operational capacities (Item 7.4)
Development of a national locust contingency plan – pilot activity in Tajikistan (Item 8)22
SESSION 3: DEVELOPING MONITORING AND ANALYSING SYSTEMS
ASDC and CCALM In-depth introduction to Turkmenistan (Item 9)22
Developments of ASDC in 2023 (situation update, issues encountered, lessons learnt and recommendations) and next steps for 2024 (Item 10)23
Developments of CCALM in 2023 (progress made, issues encountered, lessons learnt and recommendations) and next steps for 2024 (Item 11)25
New Human Health and Environmental Monitoring (HH&Env) Form in ASDC (Item 12)28
SESSION 4: TOWARDS THE USE OF BIOPESTICIDES IN CCA
Sub-regional demonstration/trial on biopesticides use for Central Asia and the Russian Federation (Jizzakh, Uzbekistan) (Item 13)28
Sub-regional demonstration/trial on biopesticides use for Caucasus (Kakheti, Georgia) (Item 14)29
Summary and review of results of the two demonstrations (Item 15)
Post-application environmental monitoring and taxonomic identification of collected material (non-target arthropods), Uzbekistan. (Item 16)31
SESSION 5: RISK REDUCTION FOR HUMAN HEALTH AND THE ENVIRONMENT
Monitoring impact of locust control operations (Item 17)
Human Health and Environment (HH&Env) Monitoring Teams' work in Azerbaijan, Georgia (incl. pesticide residue analysis), Kyrgyzstan and Tajikistan (Item 17.1)
Country-to-country visits: participation of Uzbek Experts in the work of the Tajik HH&Env Monitoring Team and visit of Tajik Experts to the Laboratory for Quarantine and Plant Protection, Uzbekistan (Item 17.2)

Development of a national monitoring system of the impact of locust control on human health and the environment in Turkmenistan (Item 17.3)
Progress made on control operations, pesticides and biopesticides, and on safety and environmental precautions (Item 18)
Further testing/use of the Locust Pesticide Management System (Locust-PMS) – pilot activity in Georgia (Item 19)
SESSION 6: LOCUST PROGRAMME IN CCA: WHAT IS NEXT?
Towards the establishment of a FAO Commission on locusts in CCA - Update (Item 20)
Programme of work during 2024 (Item 21)40
CLOSING
Any other business (Item 22)44
Adoption of the report (Item 23)46
Closing address (Item 24)
ANNEXES
Annex I - List of participants
Annex II - Agenda53
Annex III - Tentative expenditures for Programme Year 12 (1 st October 2022 – 30 September 2023)57
Annex IV - Tentative budget for Programme Year 13 (1 st October 2023 – 30 September 2024)59
Annex V - List of FAO publications related to the Locust Programme in CCA (bilingual)61
Annex VI - List of National Focal Points (bilingual)66

Tables

Table 1. Surveyed, infested and treated areas in 2023 in CCA	4
Table 2. Forecasted treated areas for 2024 in CCA countries.	9
Table 3. Number of ASDC records and users during Programme Year 12 (2023 campaign in CCA	.24
Table 4 Endorsed workplan for Programme Year 13 (2024 campaign) in CCA	.41

ABBREVIATIONS AND ACRONYMS

AChe	Acetylcholinesterase
a.i.	Active ingredient
ASA	Agrarian Services Agency (Azerbaijan)
ASDC	Automated System of Data Collection
AQPP	Agency for Quarantine and Plant Protection (Uzbekistan)
CBS	Cross-border survey
CCA	Caucasus and Central Asia
CCALM	Caucasus and Central Asia Locust Management System
CIT	Calliptamus italicus (Linnaeus 1758), Italian Locust
CLCPRO	Desert Locust Regional Commission for the Western African Region (FAO)
CNLAA	National Anti Locust Center - Centre National de Lutte Antiacridienne (Morocco)
DCPPQ	Department of Chemicalization, Plant Protection and Quarantine (Kyrgyzstan)
DMA	Dociostaurus maroccanus (Thunberg 1815), Moroccan Locust
EC	Emulsifiable concentrate
ET	Economic Threshold
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
g	grams
GIS	Geographic Information System
GLI	Global Locust Initiative (Arizona University)
GPS	Global Positioning System
ha	Hectare
HH&Env	Human Health and Environmental Monitoring Team
HiH	Hand-in-Hand Initiative (FAO)
IGR	Insect Growth Regulator
ISTT	Institute of Space Techniques and Technology (Kazakhstan)
IT	Information technology
JICA	Japan International Cooperation Agency
L	Liters
Kg	Kilograms
Locust-PMS	Locust-Pesticide Management Stock (FAO)
LMI	Locusta migratoria migratoria (Linnaeus 1758), Asian Migratory Locust
LV	Low Volume
m	meters
MAEP	Ministry of Agriculture and Environmental Protection (Turkmenistan)
MoA	Ministry of Agriculture

MoE	Ministry of Economy
MT	Master-Trainers
NFA	National Food Agency (NFA)
NSPMD	"Locusts and Transboundary Plant Pests and Diseases" Team (FAO)
PSC	Project Steering Commitee
PG 3P	Practical Guidelines on the three locust pests in Caucasus and Central Asia
PG RR	Practical Guidelines on pesticide risk reduction for locust control in Caucasus and Central Asia
PPE	Personal Protective Equipment
RP	Regular Programme (FAO)
SFERA	Special Funds for Emergency and Rehabilitation (FAO)
SE-LCE	State Entity "Locust Control Expedition" (Tajikistan)
SMAP-L4	Soil Moisture Active Passive (SMAP) Level-4 (L4)
SNCO	State Non Commercial Organization (Armenia)
SUV	Sport Utility Vehicle
ТоТ	Training-of-Trainers
TW	Technical Workshop
UAV	unmanned aerial vehicles (drones)
ULV	Ultra-Low Volume
UN	United Nations
USAID	United States Agency for International Development
USD	United States Dollar

INTRODUCTION

- 1. The Technical Workshop on Locusts in Caucasus and Central Asia (CCA) took place in Bishkek, Kyrgyzstan, on 20-24 November 2023. 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. Delegates from the following nine CCA countries participated in this Technical Workshop (TW), Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, the Russian Federation, Tajikistan, Turkmenistan and Uzbekistan. In addition, a staff from the FAO Representation in Afghanistan joined online, together with a technical resource person. Participants included representatives from the Japan International Cooperation Agency (JICA) Office in Kyrgyzstan, from the United States Agency for International Cooperation (USAID online) as well as from FAO and a few observers. The list of participants is provided in Annex I.
- The TW was opened by Mr Aliyaskarov Mail Aliyaskarovich, Deputy Minister for Agriculture of 3. Kyrgyzstan, who welcomed participants from all countries as well as from JICA and USAID. He expressed sincere gratitude to FAO for organizing this regional workshop allowing to exchange experiences and coordinate actions in managing locusts. He indicated that Central Asian countries, including Kyrgyzstan, are threatened by locusts, which damage agriculture and have negative impact on food security, beyond borders. He recalled that between 2006 and 2008, Caucasus and Central Asian countries requested FAO assistance and that in response, FAO had collected data and produced an analytical report. This had served as a basis for developing the locust Programme, which was then launched in 2011 in Tbilisi, Georgia. Programme's objective is to contribute to food security by limiting the locust threat. In this framework, JICA and USAID projects were approved improving the locust management at regional level, and activities were implemented successfully, including in Kyrgyzstan, where national activities were also conducted and where above 63 000 hectares (ha) were treated in 2023. He expressed gratitude to JICA and USAID for the support allowing to enhance capacities in controlling locusts and wished participants a successful workshop.
- 4. Mr Kawamoto Hiroyuki, Chief Representative of JICA in the Kyrgyz Republic, after having greeted all participants, said that locusts pose significant challenges for food security. Such challenges are massive, complex and of a transborder nature, thus calling for a coordinated response. JICA gives high importance to locust management, the reason why it works in collaboration with FAO. The TW aims at supporting regional cooperation, by bringing together practitioners for sharing lessons leant, discussing and identifying solutions. This is an example of regional cooperation in action. He expressed gratitude to FAO and all countries for all joint efforts in tackling such problem, reminding that locusts do not know borders. Highlighting the importance of this work to ensure long-term food security, he wished a productive TW to all.
- 5. Mr Yene Belayneh, Senior Technical Adviser, USAID, expressed his pleasure to meet all remotely, although he regretted he could not joined in person due to some circumstances. He said that the Programme, since its start in 2011, was the result of joint efforts concurring to disaster risk reduction. Resource partners, i.e. USAID, JICA, Türkiye, collaborated with FAO for the implementation of a number of projects and activities. He stressed that such support has brought many improvements for more effective, safer and expeditious locust management. Having participating in a number of field activities, such as cross-border surveys (CBS) or this year, a regional demonstration on biopesticides, he could tell that a lot of progresses had been made in the recent years. He mentioned the information analysis system developed by FAO and the Ultralow Volume (ULV) technology, more effective than water-based Emulsifiable Concentrate (EC) formulation for locust control. He could say that the implementation of new technologies with these projects were really making a change in terms of capacity strengthening. He encouraged countries to continue regional cooperation by sharing technical knowledge and personnel. He acknowledged the gap due to covid and indicated that support would continue in the coming years. He wished all the best to all.

- 6. Mr Kuvatbek Bapaev, Deputy Representative *ad interim*, International Technical Advisor on Forestry, Rangeland and Governance, FAO Representation in the Kyrgyz Republic, welcomed the participants in the TW. He reminded that the workshop aimed at finding solutions against the locust threat, relevant to all countries in the region. Italian, Moroccan and Asian Migratory Locusts can damage not only the agricultural sector but the whole economy. In fact, livelihood in rural areas depends on crops and locusts are a threat on production. As preventing a fire is easier than fighting it, he stressed the importance of working in key periods of locust development. He also indicated that all efforts are needed to collaborate in regional activities, to be successful in locust management, as locusts do not have borders. He emphasized the importance of the technical network which has been created within the ten countries participating in the FAO Programme and which is effective, with regular exchange of information among the countries. He wished countries and FAO to further develop their cooperation and a fruitful discussion during the workshop.
- 7. Mr Shoki Al Dobai, Team Leader, Locusts and Transboundary Plant Pests and Diseases (NSPMD), FAO, welcomed all participants in this thirteen annual regional TW on locusts in CCA, organized as part of the FAO Locust Programme in CCA. He thanked the Deputy Minister for Agriculture of Kyrgyzstan for opening the workshop and the country for hosting this event, actually for the third time. He thanked the representatives of JICA and USAID for their presence and also acknowledged the valuable support of the FAO Office in Kyrgyzstan for the organization of this event. He regretted that out of the ten CCA countries, Afghanistan locust experts could not attend in person.
- 8. The Team Leader indicated that this TW would allow discussing many important topics, such as the 2023 national anti-locust campaigns and preparations for the 2024 ones as well as the implementation of the Programme, including the latest developments regarding use of the "Caucasus and Central Asia Locust Management System (CCALM)". In this regard, he stressed that a lot of progresses had been made, the number of data collected through the Automated System for Data Collection (ASDC) having more than doubled with respect to last year; such efforts should be pursued in the next years, until the Geographic Information System (GIS) is operationally used in all or most CCA countries. Risk reduction associated with locust control operations is another important topic to be addressed during the TW. In this respect, major events occurred in 2023, two regional demonstrations/trials on the use of biopesticides against locusts. FAO is giving the highest priority to the promotion of biopesticides in locust control, as part of the preventive control strategy. Biopesticides have indeed a key role to play in anti-locust campaigns respectful of human health and the environment and should be more and more used.
- 9. The Team Leader underlined that the implementation of the Programme would not be possible without the outstanding support of resource partners, namely JICA and USAID. Therefore, on behalf of FAO, he expressed deep gratitude to those partners for continuous trust and support.
- 10. Last, the Team Leader provided information on the structure of this five-day TW, indicating that the Project Steering Committee of the JICA-funded "Project for the improvement of locust management (Phase 2)" for Central Asia would also be held during the week. He concluded by noting that this specific workshop was organized thanks to the projects funded by JICA and USAID as well as to a contribution from the FAO Regular Programme (FAO RP). He wished a fruitful workshop to all.

OFFICERS OF THE SESSION

11. The following officers were elected:

Chairperson:	Mr Almaz Alakunov, Head, Plant Protection and Control Unit, Department of Chemicalization, Plant Protection and Quarantine (DCPPQ), Ministry of Agriculture, Kyrgyzstan	
Vice-Chairperson:	Mr Andrey Zhivykh, Head, Plant Protection Department, Federal State Institution "Russian Agricultural Centre", Ministry of Agriculture, Russian Federation	
Drafting Committee:	Mr Andrey Zhivykh, Head, Plant Protection Department, Federal State Institution "Russian Agricultural Centre", Ministry of Agriculture, Russian Federation	
	Mr Alexandre Latchininsky, International Consultant, Senior Locust Management Expert , NSPMD (FAO)	
	Ms Marion Chiris, Locust Programme Officer, NSPMD (FAO)	
	Ms Bahromiddin Husenov, Agricultural Officer (Plant Protection/ Locusts), NSPMD (FAO)	
	Ms Nadiya Muratova, International Consultant, Geographical Information System (GIS) Expert, NSPMD (FAO)	
	Ms Greta Graviglia, International Consultant, Operations Expert, NSPMD (FAO)	

AGENDA

12. The Agenda, as endorsed by Delegates, is provided in Annex II.

SESSION 1: NATIONAL 2023 LOCUST CAMPAIGNS AND FORECASTS FOR 2024

National locust campaigns in 2023, forecasts for 2024 and preparation of the next campaigns (Item 4)

13. The Delegates from CCA countries reported on the locust situation and anti-locust campaign in 2023. The surveyed, infested and treated areas per country as well as the outstanding points from the presentations are below.

Country	Area (in hectares)			
country	Surveyed	Infested	Treated	
Afghanistan	n/a	n/a	42 762 (+28 116 mechanically)	
Armenia	60 000	n/a	1 350	
Azerbaijan	58 454	24 098	10 816	
Georgia	297 000	89 000	83 900	
Kazakhstan	37 663 056	7 659 217	1 615 923	
Kyrgyzstan	90 780	63 950	63 010	
Russian Federation	11 663 450	2 843 280	247 770	
Tajikistan	568 465	129 021	129 021	
Turkmenistan	171 396	45 152	45 152	
Uzbekistan	846 400	509 100	495 900	
Total	5 1 419 001	11 362 818	2 763 720	

Table 1. Surveyed, infested and treated areas in 2023 in CCA.

- 14. The resource person from Afghanistan reported (by zoom) that the main locust pest in the country is the Moroccan Locust Dociostaurus maroccanus (DMA) while the Italian Locust Calliptamus italicus (CIT) has a limited distribution only in the north. Because of the very low locust control effort in 2022 (only 22 595 ha treated), DMA expanded its infestations in 2023. During the 2023 anti-locust campaign, the total area treated with pesticides amounted to 42 762 hectares (ha) in 48 districts of 13 provinces. Pesticides used were mostly in ULV formulations with active ingredients (a.i.) deltamethrin (pyrethroid) and diflubenzuron (Insect Growth Regulator, or IGR); on limited areas, they were in EC formulation. In addition, 28 116 ha were treated mechanically (catching with canvas sheets and digging trenches on the way of hopper bands). Thirty-one plant protection experts participated in community awareness efforts in eight provinces, that reached 5 469 people. The 2023 anti-locust campaign suffered from a lack of dedicated budget and no assistance could be received either in the context of the United Nations (UN) sanctions. As a result, there was deficit of transportation means, equipment, pesticides and trained staff. An egg-bed survey funded by an FAO emergency project took place in August 2023 to contribute to the locust situation assessment and forecast for 2024. Over 30 000 ha were surveyed in 11 provinces out of which 3 864 ha were infested; 51 percent of the infestation occurred in Baghlan, Kunduz and Balkh provinces. To ensure an adequate response to DMA infestations in 2024, the country desperately needs to build operational capacity of the locust management service, including 80 000 Liters (L) of pesticides, 500 Personal Protection Equipment (PPE) sets, 300 hand-held sprayers and inputs for mechanical control. Operational budget should cover locust survey from the onset of DMA hatching, and expenses for both chemical and mechanical control. Human capacity building in terms of training on locust biology, monitoring and spraying is also desperately needed.
- 15. In the ensuing discussion, the resource person from Uzbekistan informed that the Institute of Plant Quarantine and Protection in Tashkent has a long history of training Afghan specialists and offered to provide such trainings with FAO support. Responding to questions from the Delegates, resource persons from Afghanistan explained that mechanical control is done mostly by local rural communities, while chemical control is in the hands of the trained plant protection professionals.

- 16. The FAO Team Leader, NSPMD, underlined that FAO is aware of the difficult situation in Afghanistan. The FAO Locust Programme Officer explained that because of the sanctions, the UN agencies are not allowed to work directly with the de-facto authorities, except for emergency/humanitarian purposes, directly with communities. In the context of reported increase of infestations during spring 2023, a six-month long emergency project could be approved, which funded the above-mentioned egg-bed survey with a view to support preparedness for the 2024 campaign. A need assessment was also conducted and a short concept note prepared, for identification of resources for the next campaign. A good news is that the ongoing JICA project, which was put on hold for Afghanistan for two years, is partially resumed with an agreement of the resource partner to hand-over the sprayers which had been stored in FAO warehouse for the past two years and to deliver trainings next year.
- 17. The Delegate from Turkmenistan reported that locust monitoring in 2021 covered an area of 171 396 ha out of which 45 152 ha were infested and treated. Geographically, the treatments took place in Lebap (20710 ha), Balkan (14 040 ha), Akhal (9 724 ha), Mary (350 ha) and Dashoguz (328 ha) regions. The most economically important species were Moroccan Locust Dociostaurus maroccanus (DMA, 37 334 ha treated, together with Dociostaurus kraussi) and saxaul grasshopper Dericorys albidula (7 818 ha treated). Overall, the treated area in 2023 was higher than in 2022 by 17 percent). As for the insecticides, alpha-cypermethrin, a binary mixture of imidacloprid and alpha-cypermethrin and lambda-cyhalothrin were used, all in water-based formulations. They were applied by vehicle-mounted Micron AU8115M, tractor-driven Wind 634 Flexigun and knapsack sprayers. Among the shortcomings, the Delegate mentioned the low coverage of survey and control operations by ASDC and the need for further training as it has been introduced in the country in 2023 only. Answering the questions from the audience, the Delegate indicated, on the DMA infestations near the border with the Islamic Republic of Iran, that no migration had been observed and that they had been an official exchange of letters for cooperation between the two countries. He also explained that in Turkmenistan, water-based EC and Suspension Concentrate (SC) formulations are diluted with 10 L of water per ha when used with Micron AU8115M sprayers. He emphasized that all survey and control expenses are covered by the government; about 250 people participate in locust surveys, which are led by the Ministry of Agriculture and the Ministry of Nature Protection.
- 18. According to the Delegate from Uzbekistan, in 2023 the locust survey covered an area of 846 400 ha out of which 509 100 ha were infested and 495 900 ha treated, which is 22 percent higher than in 2022. The largest areas were treated in Kashkadarya (101 800 ha, mostly DMA), followed by Surkhandarya (97 200 ha, mostly DMA), Karakalpakstan (92 000 ha, CIT and saxaul grasshopper), and Jizzak (88 800 ha, DMA and CIT). As for the species, the largest area was treated against DMA (278 400 ha) followed by saxaul grasshopper (92 700 ha), CIT (81 700 ha) and non-swarming grasshoppers (43 100 ha). Overall, 48 987 L of insecticides were used including lambda-cyhalothrin (27 991 L), a binary mixture of imidacloprid + lambda-cyhalothrin (10 376 L), imidacloprid (7 048 L) and alpha-cypermethrin (3 572 L), all in water-based formulations. The largest area was treated by vehicle-mounted ULV sprayers (35 units, 285 800 ha) followed by tractor-driven sprayers (135 units, 161 600 ha), knapsack and handheld sprayers (170 units, 37 600 ha) and ultra-light aircraft (2 units, 10 900 ha). During the campaign, Uzbek specialists actively used ASDC and made 1 680 records. In total, 499 staff were involved in the 2023 campaign.
- 19. During the discussion, a resource person from Uzbekistan emphasized the increased economic importance of the saxaul grasshopper, which became pest number one in the Aral Sea zone. At the same time, because of the severe drought in 2023, no Asian Migratory Locust (LMI) *Locusta migratoria migratoria* infestations were recorded. Replying the questions from the audience, the Uzbekistan resource person denied the occurrence of insecticide resistance in CCA locusts, because of the single annual generation and low number of annual treatments of the same areas. He also explained that the often-made connection between the drought and locust outbreaks is misleading, and it is necessary to take into account the weather conditions of the year preceding the outbreak. An explanation was also given regarding the allocation of surveyed and treated areas to different locust and grasshopper species, as usually they occupy different habitats.

Discussion concerned the potential use of unmanned aerial vehicles (UAV, or drones) for locust spraying. The FAO Team Leader, NSPMD, explained that while FAO has developed technical specifications for survey fixed-wing drones, the specifications for the rotary spraying drones are still to be finalized, as such UAVs need to have a high payload (at least 20 L) and sufficient battery life. In this respect, a first trial is planned in February 2024 based on which, recommendations will most probably be formulated for further adapting the drone to the needs. He indicated that after resulting drones' improvement, trials could also be made in CCA. The Delegate of the Russian Federation proposed that the question be addressed within the next TW. Finally, the resource person from Uzbekistan mentioned the DMA immigration swarm flight to Tashkent region from the adjacent Turkestan region of Kazakhstan, which resulted in a treatment of 3 000 ha of egg-laying adults. The Delegate from Kazakhstan indicated that no reports on swarm flight were produced from Turkestan region. Delegates agreed that a cross-border survey in this area would be instrumental to resolve the issue.

- 20. The Delegate from Tajikistan reported that locust monitoring was conducted on an area 568 465 ha in 2023, which is 17 676 ha more than was initially planned. The infested and treated area amounted to 129 021 ha (ten percent higher than in 2022) including 113 681 ha (88 percent) against DMA, 6575 ha against CIT and 8765 ha against non-swarming grasshoppers. The largest area was treated in Khatlon region (78 801 ha) followed by Sughd region (32 445 ha), Districts of Republican Subordination (17 475 ha) and Gorno-Badakhshan (300 ha). Roughly equal areas were treated by vehicle-mounted, tractor-driven, motorized knapsack and handheld sprayers. All treatments were done with EC formulations of insecticides such as chlorpyrifos+cypermethrin binary mix (38 percent of the total area), lambda-cyhalothrin (33 percent) and alpha-cypermethrin (29 percent); in total, 30 180 L of insecticides were used. In addition to the treatments done by the State Entity "Locust Control Expedition" (SE-LCE), local administrations in locust-affected areas provided 7 845 L of insecticides, which allowed to treat 26 150 ha. In the campaign, a total of 970 staff were involved. In terms of difficulties, the Delegate mentioned transborder political issues with Kyrgyzstan and low level of locust control in Afghanistan resulting in potential locust migration towards Tajikistan. The available budget for 2024 campaign (about United States Dollar -USD- 400 000) is insufficient, and at least 20 000 L of pesticides, as well as vehicles, sprayers and other inputs are needed to ensure the adequate response to locust infestations. Delegates thus appealed to the help of international organizations and donors to provide the resources necessary for the 2024 campaign. During the discussion, the Delegates from Tajikistan mentioned the increased altitude of DMA infestations in the recent years due to climate change and explained that the treatments target early nymphal instars, although this is not always possible because of complicated relief and lack of inputs.
- 21. According to the Delegate from Kyrgyzstan, DMA and CIT hatching in 2023 started ten days earlier than in 2022. Despite unfavourable, cool and wet weather during the first DMA instars, the level of infestations in 2023 was higher than in 2022. The campaign lasted from 22 April to 28 August. Locust survey was conducted on 90 780 ha out of which 63 950 ha were infested. The total area treated in 2023 amounted to 63 010 ha including 20 530 ha in Naryn, 14 000 ha in Jalal-Abad, 17 600 ha in Batken, 6500 ha in Osh, and 4380 ha in Tchui. Most treatments were applied to populations of 3rd to 4th instar hoppers. They were done with vehicle-mounted Micron AU8115 sprayers (93 percent) and tractor-driven ventilator sprayers (seven percent). Pesticides used (32 053 L in total) included chlorpyrifos, deltamethrin in ULV (42 percent) and alphacypermethrin EC (58 percent) formulations. The biological efficacy of ULV insecticides (91-96 percent) was higher than of EC formulations (88-93 percent), while the costs of ULV application was significantly lower that EC. Vehicle-mounted ULV sprayer can treat 100-400 ha daily while tractor-driven sprayers with EC formulations can cover 20-40 ha per day. The International Consultant, FAO Senior Locust Management Expert, NSPMD, stressed that more than 40 percent of the treatment was conducted using ULV formulation, underlining that if the cost of the ULV pesticides is higher, the overall cost is not considering that there is no need for water, water-tank lorries, mixing, etc. Answering a question on ASDC training, the Delegate explained that Master Trainers conduct national training sessions as well as one-day briefings

before the campaign, where ASDC issues are covered. He also mentioned bilateral cooperation agreement between Kyrgyzstan and Uzbekistan.

- 22. The Delegate from Kazakhstan explained that 37.7 million ha were surveyed against locusts in 2023. Infested areas with densities above the Economic Threshold (ET five individuals per square meter) were recorded for DMA (78 790 ha), CIT (1 334 200 ha) and LMI (202 900 ha). All these areas (1 615 920 ha in total) were treated, with the bulk of the treatments (69 percent) taking place in Aktyubinsk and Kostanai regions. All three locust species experienced an increase in infestations for the second year in a row, probably because of continuing drought. In addition to locusts, an area of 211 453 ha was treated against non-swarming grasshoppers. Spraying was done by 212 spraying equipment, including 130 land-driven ventilator, 35 gas generators, 26 ultra-light aircraft and 21 airplanes. It was specified that a national monitoring system is being used although it needs improvements as not all areas are covered by internet. For the 2024 campaign, Kazakhstan created a reserve of insecticides allowing to treat 753 000 ha, i.e. 30 percent of the forecasted area. The Delegate mentioned the long-standing cooperation with the Russian Federation as well as a recent agreement with China, with which exchanges should take place on drones especially which would be very useful for difficult to access areas.
- 23. During the discussion, the Delegate from Kazakhstan explained that the forecast for the next year is based on the results of the summer survey during mating and egg-laying. Egg-pod surveys (in autumn and spring) are conducted on limited areas and serve to adjust the forecast. The Delegate also underlined that the currently adopted 85-percent level of treatment efficacy is not sufficient for locusts, which occur at very high densities.
- 24. The Delegate from the Russian Federation said that overall, 11.7 million ha were surveyed in the Russian Federation in 2023, out of which over 2.6 million ha were infested (54 percent higher than in 2022); the level of infestations increases steadily since 2020. Anti-locust treatments were conducted on 247 770 ha. They targeted CIT (102 980 ha), DMA (57 550 ha), LMI (31 650 ha) and non-swarming grasshoppers (55 590 ha). Most treatments took place in North Caucasus Federal District (86 550 ha), Volga Federal District (54 670 ha) and South Federal District (48 680 ha). Anti-locust treatments used 44 different insecticides with numerous active ingredients; the largest area was treated with imidacloprid products. During the campaign, over 800 records were made using ASDC. However, the Delegate explained that in the future, because of the development of the national data collection system "AgroExpert," the Russian AgroCenter plans to stop entering data into ASDC to avoid duplication of efforts. Instead, data collected with AgroExpert will be transmitted to CCALM via the recently developed exchange module. He mentioned that more than 15 000 and 49 000 records had been transmitted into CCALM in 2022 and 2023 respectively, showing that this module was working well. The excellent cooperation with Kazakhstan was also praised, a high number of joint surveys covering over 150 000 ha and involving 171 staff having taken place in 2023. For 2024, an insecticide reserve of imidacloprid allowing to treat 142 000 ha is created. The Delegate also shared information on new trainings with simulation exercises on locust issues implemented in 2023 and a new, publicly available internet mapping resource showing locust distribution. In order to increase the awareness of locust situations in the countries neighbouring CCA, the Delegate proposed to invite specialists from China, the Islamic Republic of Iran, Mongolia and Türkiye (in person or remotely) to the next Technical Workshop. Finally, the Delegate proposed to organize a two-day training on locust identification and methods of monitoring in Orenburg in mid-April 2024 conducted by FAO staff; he invited specialists from all CCA countries should such event be approved. Answering the question from the audience, the Delegate explained that biopesticides, for example Green Barrier, are not yet used in the Russian Federation.
- 25. The Delegate from Armenia stated that in 2023, mostly non-swarming grasshopper infestations were reported from the country while CIT was not found. Cool and rainy weather in May hampered locust development. The total surveyed area was 60 000 ha; 33 staff were involved. In some regions high numbers of crickets and tettigoniids were recoded, as well as non-swarming grasshopper species. Anti-grasshopper treatments covered 1 350 ha and were implemented using a water-based formulation of cypermethrin. Main challenges include lack of trained staff

and equipment (vehicles, sprayers and PPE). While a training on locust monitoring and information management, including ASDC and CCALM, was delivered in Jermuk by FAO experts in May 2023, it is planned to deliver further training on ASDC use, especially to older specialists, in 2024.

- 26. The Delegate from Azerbaijan informed that 58 453.5 ha were surveyed in 2023, out of which 24 098 ha were infested and, based on the economic threshold (ET), 10 816 ha were treated, including 65 percent against CIT and 35 percent against DMA. The treated area is three times lower than in 2022. No treatments against LMI took place. Anti-locust campaign started on 10 May; in total, three insecticides were used, i.e. alpha-cypermethrin ULV (17 100 L), cypermethrin EC (1 520 L) and deltamethrin EC (2 830 L). Most of the spraying (60 percent) was done in ULV from 12 vehicle-mounted Micron AU8115 sprayers; for EC formulations, ten Scout 28-s 300 and 51 tractor-driven ventilator sprayers were used. Regarding the use of ASDC, in 2023 this system covered 80 percent of the surveyed and 92 percent of the treated areas. The Delegate mentioned bilateral cooperation with Georgia and Russia with respect to pest identification and management. To strengthen international cooperation, the Delegate proposed to resume the joint surveys in Georgia, which were not implemented in the past years because of Coved-19 epidemic. Overall, the main challenge is related to human resource, with the need to attract and train younger staff. Also, a need to diversify the anti-locust insecticides by using IGRs and biopesticides was expressed.
- 27. The Delegate from Georgia explained that the main economically important locust species in the country is CIT, while DMA has localized distribution. The total surveyed areas was 297 000 ha out of which CIT infested 85 000 ha and DMA – 4 000 ha with densities exceeding ET. DMA hatching started on 7 May and CIT hatching started on 18 May; cool and rainy weather during this period was unfavourable for locust development. Anti-locust treatments covered 83 900 ha, which is lower than in 2022. The treatments took place in Kvemo-Kartli (45 810 ha), Kakheti (23 870 ha), Mtskheta-Mtianeti (3 340 ha), Shida Kartli (9 090 ha), and Tbilisi (1 850 ha) regions. The following insecticides were applied: lambda-cyhalothrin ULV (56 700 L) and EC (17 070 L), teflubenzuron ULV (10 000 L) as well as smaller quantities of deltamethrin and biopesticide Metarhizium acridum. Treatments were done by 12 ULV sprayers (Micron AU8115) and 12 LV sprayers (Scout 34-s 400, WIND 640 FLX, TIFONE, MMT HUNTER). The proportion of areas treated with ULV formulations with respect to areas treated with water-based formulations was 80/20 percent. The Delegate underlined that an IGR teflubenzuron showed very good results. ASDC forms were widely used in the country: in total, over 1 700 records were sent during surveys and treatments. In terms of difficulties, the Delegate noted primarily the lack of qualified staff as well as the absence of the pesticide warehouse in the country. Some Low-volume (LV) sprayers are old and need replacement. The need to pay higher attention to areas bordering the Russian Federation was also expressed.
- 28. Delegates presented areas subject to treatments in 2023 (forecast) as below.

Table 2. Forecasted treated areas for 2024 in CCA countries.

Country	Area (in ha) - subject to control operations
Afghanistan	80 000
Armenia	~2 000
Azerbaijan	~15 000 To be confirmed in spring
Georgia	65 000
Kazakhstan	2 538 035
Kyrgyzstan	65 000
Russian Federation	434 050 Preliminary figures
Tajikistan	124 550
Turkmenistan	75 000
Uzbekistan	581 400
Total	3 980 035

SESSION 2: PROGRAMME IMPLEMENTATION AND CAPACITY STRENGTHENING IN 2023

Overview on Programme implementation in 2023 (Item 5)

- 29. Ms Marion Chiris, FAO Locust Programme Officer, provided an overview of the implementation of the CCA locust Programme during year 12, from 1st October 2022 to 30 September 2023, against the available funding sources. They included: the project funded by JICA for Central Asian countries (GCP/INT/384/JCA); the project funded by USAID for nine CCA countries¹ (GCP/GLO/963/USA); a contribution from the FAO RP. In addition, a six-month emergency project funded by the FAO Special Funds for Emergency and Rehabilitation (SFERA), with funding from Norway, was approved for Afghanistan in June 2023 (OSRP/AFG/132/NOR). The main achievements for year 12, under the different Programme results, were summarized as described below, with a particularly high number of activities implemented (unless specified otherwise, they were funded by JICA project for Central Asia and by USAID project for Caucasus).
- 30. Under Result 1 of the Programme, "Regional cooperation developed", 60 national bulletins were prepared by all ten countries as well as seven regional monthly bulletins by FAO, for the fourteenth consecutive year. The annual TW was held in person for the first time after the pandemic, in Dushanbe, Tajikistan, in November 2022. Three CBS were organized during spring, involving Uzbekistan with Kyrgyzstan, with Tajikistan and with Turkmenistan and a total of 28 experts; 131 000 ha were surveyed overall. A new project activity, two country-to-country visits, started, with the double objective to strengthen the regional network and allow technical exchanges on specific aspects: three Uzbek Experts participated in the last monitoring mission of the Tajik Human Health and Environmental Monitoring Team, in Tajikistan in August 2023; the following month, three Tajik Experts visited the laboratory of the Agency for Quarantine and Plant Protection (AQPP), Uzbekistan, to get acquainted with the research and practical works carried out on locusts by the Lab and AQPP as a whole.

¹ All except the Russian Federation.

- 31. In terms of capacity strengthening, 700 persons benefited during Programme year 12 under all results. Under Result 2 "National capacities strengthened" specifically, 627 persons benefited from the Training-of-Trainers (ToT) on locust management. This includes two regional sessions for Central Asian countries and the Russian Federation delivered by FAO experts to 30 Master-Trainers (Uzbekistan, October 2022); as well as 38 national, briefing or information sessions (Armenia, Azerbaijan, Georgia, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan), delivered by the national Master-Trainers to 597 locust experts/manpower/persons (between November 2022 and June 2023) and two national sessions delivered in Afghanistan to 51 persons (July/August 2023 - under the SFERA project). In addition, an exposure visit/internship was organized for two experts from Turkmenistan and Uzbekistan to the National Anti-Locust Center of Morocco, in February/March 2023. This was complemented by background literature. An important achievement for Year 12 was the publishing of a monograph on the Moroccan Locust (FAO RP mainly, with a small contribution of the USAID project). Also, the Turkmen version of the Practical Guidelines on pesticide risk reduction for locust control in CCA (PG RR) was made available and dispatched to the country while the layout of both the Turkmen and English versions of the Practical Guidelines on three Locusts Pests (PG 3P) in CCA was under finalization.
 - 32. Concerning Result 3, "Locust issues better anticipated", an egg-bed survey was conducted in Afghanistan in July/August 2023, on above 30 000 ha in 11 infested provinces, with use of ASDC to provide an overview of location and extent of infested areas, for preparedness for the 2024 campaign. Additionally, two egg bed surveys were carried out in June 2023 by Tajik experts, in Khatlon, Tajikistan, in adjacent areas to Afghanistan. Based on a request from Uzbekistan, technical support was also provided for egg bed surveys of an emerging pest, the Large Saxaul Humpback Grasshopper *Dericorys albidula* in Karakalpakstan and Bukhara region, as well as of Moroccan Locust in Tashkent region, near Kazakhstan, on 20 000 ha in total, in presence of the FAO Senior Locust Management Expert, NSPMD, with a view of developing a preliminary forecast of saxaul grasshopper infestations in 2024. Procurement continued during Programme Year 12, with most of the planned items delivered or under delivery under both JICA and USAID projects, including vehicles, motorbikes and other items provided to six countries. Under this Result, with a view to enhance preparedness for locust risk management, the drafting of a national contingency plan was pursued in Tajikistan, as a pilot activity.
 - 33. Concerning ASDC and CCALM, support was provided for their use at the national level with a training delivered in Armenia to 20 experts as well as CCALM in-depth introduction in Turkmenistan, including a training of 16 Turkmen Experts, in May 2023. Tablets were also delivered to Armenia and Georgia. At the regional level, the fourth GIS Workshop on Locust Data Analysis, Forecast and Reporting in CCA was held online on 16-17 February 2023 with 56 participants while the E-Committee on CCALM was held on 26-27 July with more than 40 participants. On this basis, the functionalities of the two systems were improved, a new ASDC form for Human Health and Environmental monitoring was developed and ASDC data were made available on the FAO website "Locust Watch in CCA", i.e. accessible to any user in Russian and English, with the help of the FAO Hand-in-Hand Initiative (HiH) for data sharing. Last, an important step was an official agreement to link CCALM and the national Kazakh database. As a result, the use of ASDC continued to increase, from 4 285 records from eight countries in 2020 to 11 014 records from the ten CCA countries (including tests from Turkmenistan). It was also remarkable that the number of hectares with ASDC coverage reached almost 80 percent and 90 percent in two CCA countries.
 - 34. Under Result 4, "Response mechanisms to locust outbreaks improved", procured equipment included minibuses (Tajikistan) as well as biopesticides and other material for the two sub-regional demonstrations/trials on biopesticide use against locusts. Such key events were organized for the first time under the FAO Locust Programme in CCA, as follows: in Central Asia on 25-29 April 2023 in Jizzakh, Uzbekistan, with 33 participants from the five Central Asian countries as well as from the Russian Federation (at own costs) and Georgia, in addition to representatives from FAO and Micron; in Caucasus, on 8-11 June 2023 in Kakheti, Georgia, with 32 participants from the three Caucasus countries, Uzbekistan and Sardinia, Italy (at own costs), in addition to representatives from USAID, FAO and Micron. This was completed, in Uzbekistan,

by environmental monitoring and taxonomic identification of collected non-target arthropods. To promote biopesticides, a leaflet and a poster on their operational use were published and dispatched, together with a leaflet on the ULV technology.

- 35. Under Result 5, "Impact on human health and the environment mitigated and monitored", support was provided to Turkmenistan to develop a national system for health and environmental monitoring of locust control, during the mission of the FAO Environmental Expert in April 2023, including on-the-job training on monitoring techniques for four experts. Technical and operational support continued to the already established Human Health and Environmental Monitoring Teams in Azerbaijan, Georgia, Kyrgyzstan and Tajikistan; in this context, Georgia conducted pesticide residue analysis of vegetation samples as well as review of the analysis conducted over the past five years. In addition, the Locust-Pesticide Management System (Locust-PMS) was further tested by Georgia as a pilot country for CCA. Two extension products were published to the attention of technical staff involved in locust control and pesticide handling: a Poster on the use of PPE and another on the management of empty containers in locust control, complementing the already published PG RR. Last, PPE were delivered to Georgia as well as nitrile gloves for five countries, cholinesterase kits to Kyrgyzstan and Tajikistan and environmental monitoring equipment to Georgia, Uzbekistan and Turkmenistan.
- 36. Under Result 6, "Public information and awareness increased", the 2023 Calendars on safety measures associated with locust control (published the previous year) were dispatched to populations in locust-affected areas in Armenia, Azerbaijan and Georgia. Efforts to ensure visibility were further increased, with news regularly published on the FAO website "Locust Watch in CCA" (21 in total), dispatch of the brochures on the JICA and USAID projects at any important occasions, press-releases (eight) prepared for major activities, especially in Georgia, Tajikistan and Uzbekistan. Equipment hand-over ceremonies were organized in Tajikistan (March 2023) and in Uzbekistan (September 2023), with media coverage. Banners and other visibility materials were also prepared for some events as well as stickers for equipment, mentioning the relevant resource partner.
- 37. On top of the above, the national emergency project for Afghanistan entitled "Mitigate the impact of Moroccan locust on most vulnerable rural populations in the North and Northeast of Afghanistan" (OSRO/AFG/132/NOR) was approved under SFERA, to be implemented from mid-June to December 2023. The project includes two components, the first one being related to Moroccan Locust surveillance and preparedness. Under this component, the project, implemented by the FAO Representation in Afghanistan in close liaison with NSPMD, allowed conducting the above-mentioned training sessions and egg-bed survey in July/August together with a need assessment.
- 38. In terms of constraints met during Programme year 12, the envisaged joint survey in Caucasus had to be cancelled. No regional meeting on the possible establishment of a Locust Commission in CCA (tentatively inserted in the workplan of Year 12) could be held in 2023. The preparation of an additional Practical Guidelines on locust monitoring, posters on the Asian Migratory Locust and of a tutorial video on CCALM, as well as the setting up of a Human Health and Environmental Monitoring Team in Uzbekistan were postponed to 2024 due to time constraints and very high number of activities in CCA in 2023.
- 39. Other constraints included the political situation in Afghanistan and related resolutions of the UN Security Council: as during the previous year, no activities could be implemented in Afghanistan; nevertheless, resource persons from Afghanistan continued sharing national monthly bulletins and participating in most online events. The pending signature of JICA project by Kazakhstan also did not allow implementing activities on the Kazakh territory neither delivering equipment nor background literature. However, Kazakh experts actively participated in all activities implemented at the regional level: sharing of national monthly bulletins, participation in ToT regional sessions, regional demonstration/trial on biopesticides against locusts and online events related to ASDC and CCALM, in addition to providing the above-mentioned official agreement to exchange locust data between the national database and CCALM. The question of the project signature was discussed during the meeting with the Minister

for Agriculture, in July 2023 in FAO-Headquarters, and was again addressed positively soon before the TW. Regarding the exposure visit/internship in Morocco, unfortunately, only two of the three planned countries (Turkmenistan and Uzbekistan, not Tajikistan), and two out of the six envisaged participants, participated, despite all arrangements, deployed logistics and human resources involved, both by FAO and the hosting National Anti-Locust Center in Morocco. Last, procurement encountered some delays for some items.

- 40. Based on the results achieved during the year, a number of recommendations were made by FAO for the next year, including:
 - Further training sessions on all aspects of locust management;
 - Extensive use of ASDC and CCALM;
 - Focus on most efficient technologies (such as ULV) as well as less harmful pesticides and alternatives to conventional pesticides (biopesticides);
 - Setting up of Human Health and Environmental monitoring systems/teams in two additional countries, Turkmenistan and Uzbekistan
 - Completion of the remaining procurement under the JICA and USAID projects.
- 41. Next, the FAO Locust Programme Officer briefly presented the funding situation of the Programme. The situation has not changed much since 2022, with a grand total of USD 19 million made available since Programme start (in addition, some funds were allocated for locust component under the emergency project approved for Afghanistan in 2023). Regarding the tentative expenditures for Year 12 of the Programme, from 1 October 2022 to 30 September 2023, they amounted to USD 1.5 million against all funding sources. More specifically, expenditures amounted to USD 1.3 million for JICA project (GCP/INT/384/JCA) during Programme Year 12 (i.e. project third year), for a total of USD 4.6 million since project start, representing 61 percent of the total budget of USD 7.5 million for five years. Concerning USAID project (GCP/GLO/917/USA), expenditures amounted almost to USD 0.4 million during Programme Year 12 (i.e. project second year), for a total of a bit less than USD 1.2 million since project start, representing 64 percent of the total budget of USD 1.8 million for three years. A substantial contribution of the FAO RP was also ensured with respect to the envisaged budget and limited availability of funds, of more than USD 61 000. Annex III provides, for each available funding source, an overview of expenditures by Programme Results and activities during Programme Year 12.
- 42. In reply to a question from an observer on the update of the guidelines on pesticide risk reduction, it was explained that such guidelines had been published in 2019 for CCA and therefore did not need any update. However, the volume of the Desert Locust Guidelines devoted to this topic had been updated, thus the new version would be published soon.

Regional cooperation: Cross-border surveys egg-bed surveys (Item 6)

- 43. A total of three CBS occurred during Spring 2023 in Central Asia. They were complemented by three egg-pod surveys in Afghanistan, Tajikistan and Uzbekistan. All such activities were covered by the JICA-funded project, except for the egg-bed survey in Afghanistan, funded by the FAO SFERA project.
 - Cross-border survey between Tajikistan and Uzbekistan, April 2023
- 44. The Delegate from Tajikistan reported on the CBS that took place between Tajikistan and Uzbekistan on 3-8 April 2023. Participants included four specialists from Tajikistan and five from Uzbekistan, and the FAO Agricultural (Plant Protection/ Locusts), NSPMD. From the Tajik side, 30 000 ha were surveyed in Rudaki district (Districts of Republican Subordination, DRS) and Shahritus and N. Khusrav districts of Khatlon region. From the Uzbek side, 40 000 ha were surveyed in Surkhandarya region. DMA early-instar hoppers with densities 150-200 individuals

per m² were found on both sides of the border. The main recommendation was to continue close cooperation and information exchange, with particular attention to historical breeding areas in N. Khusrav district, Pakhtaabad site of Shakhritus district of Khatlon region in Tajikistan and Jaikhun site of Kumkurgan district of Surkhandarya region in Uzbekistan. The resource person from Uzbekistan underlined that this area is one of the biggest breeding areas in the southern Central Asia. Complicated relief with abrupt rocks and a river makes it difficult to monitor and manage local DMA populations. Because of that, the CBS is a key event to ensure monitoring in this region. He also pointed out that there is another border area with Tajikistan, between Sughd region and Jizzak and Syrdarya regions, that needs a close attention. Therefore, it would be beneficial to conduct two separate CBS in the future, in the southern and in the northern regions. Answering the question from the Delegate from the Russian Federation, it was explained that the absence of face masks during the treatments shown in the presentation photos is due to the fact that they mock treatments with water only.

- Cross-border survey between Kyrgyzstan and Uzbekistan, May 2023
- 45. The Delegate from Kyrgyzstan presented the CBS conducted between Kyrgyzstan and Uzbekistan on 15-20 May 2023 in the Fergana Valley, in three Kyrgyz (Osh, Jalal-Abad and Batken) and three Uzbek (Andijan, Namangan, Fergana) regions. The total area surveyed was 18 000 ha. The survey involved four Kyrgyz and six Uzbek specialists. The survey was conducted in all historical breeding sites in the border areas. DMA infestations were not found neither on Kyrgyz nor on Uzbek side of the border. A Protocol was signed sat the end of the survey. The main recommendation is to continue close cooperation, information exchange and regular contacts between the two countries. The resource person from Uzbekistan emphasized the importance of this near-border area as a potential source of DMA infestations threatening agriculture in both countries.
 - Cross-border survey between Turkmenistan and Uzbekistan, May/June 2023
- 46. A CBS between Turkmenistan and Uzbekistan took place in three districts of Lebap region of Turkmenistan on an area of 18 000 ha on 31 May–1 June. Four Turkmen and four Uzbek specialists participated. In the surveyed area, adult DMA was recorded with densities between 10 and 15 individuals/m² on 500 ha. Experts from both countries established close contacts and agreed to exchange locust information on a regular basis. Besides DMA, saxaul grasshopper was also present in the area. Although unfortunately, the Turkmen participants could not come to Uzbekistan, the survey continued on the Uzbek side of the border by the four Uzbek specialists, on 2-4 June in Nishan and Dehkanabad districts, covering 25 000 ha. The resource person from Uzbekistan underlined the importance of this big DMA breeding area, which is situated on both sides of the border between the two countries. Another serious problem is the growing infestation of the saxaul grasshopper; so, in the future, it would be beneficial to repeat this CBS covering both DMA and saxaul grasshopper.
 - Moroccan Locust egg-bed survey in Tajikistan, June 2023
- 47. Taking into account the high risk of DMA immigration flights from Afghanistan into southern regions of Tajikistan, and the impossibility of conducting a CBS between Afghanistan and Tajikistan in the current context, an egg-bed survey took place in June 2023 in south Khatlon area, near the border with Afghanistan. On 12-14 June, the Kulob zone of Khatlon region (Shakhin, Parkhar and Khamadoni districts) was surveyed on an area of 4 500 ha. On 19-21 June, the Vakhsh zone of Khatlon region (Pyanj, Jaikhun and Shakhritus districts) was surveyed on an area of 13 000 ha. Six staff from SE-LCE participated. DMA egg-pods were found on 500 ha in the Kulob zone where egg-pod density varied between 10 and 12/m², and the average number of eggs in an egg-pod was from 18 to 31 eggs. Because of immigration flights from Kunduz province of Afghanistan in late May/early June, treatment of 500 ha had taken place in Jaikhun district using 30 L of insecticide lambda-cyhalothrin. The Delegate emphasized that of particular concern is the "neutral" zone between the village Parkhar and the Afghanistan border, which can be a

source of future DMA infestations in both countries. It was also mentioned that there are important DMA breeding areas in Shakhritus district, near the borders between Afghanistan, Tajikistan and Uzbekistan, so a three-partite cooperation on DMA monitoring and management is urgently needed for this zone. During the discussion, it was agreed that hopper survey, during spring, would be conducted in the same area.

- Moroccan Locust egg-bed survey in Afghanistan, July/August 2023
- 48. A resource person from Afghanistan presented the results of the DMA egg-bed survey carried out from 20 July to 15 August. Conducted immediately after the delivery of two trainings to build the capacity of local plant protection experts in identification of DMA egg-laying sites, the survey was carried our with the objective to provide a basis for DMA forecast for 2024, which would be followed by needs assessment and resource identification. In total, 65 officers took part in 20-day long survey in 11 Northern, Northeastern and Western provinces of Afghanistan: Kunduz, Takhar, Badakhshan, Baghlan, Samangan, Balkh, Sar-i Pul, Faryab, Herat, Badghis and Ghor. Overall, 30 196 ha were surveyed, out of which 1 164 surveyed points were found infested by locust eggpods, representing 3864 ha in 46 districts. All survey information was entered in ASDC. Survey results show that the Northern and Northeastern regions host the largest infested sites by locust egg-beds. More specifically, 31 percent of the egg-bed infested area is in Baghlan province, followed by Balkh, Kunduz, Sar-i-Pul and Takhar. Viability of the eggs was close to 90 percent; in some areas egg parasitism by blister beetles and bombyliid flies was recorded. The lowest eggbed area was observed in Ghor, Western region of the country. Baghlan ranked first in terms of egg-pod density, with an average of 323 to 413 egg-pods/m². The average number of eggs per pod was in the range of 28 to 32, except in Badakhshan, where the number of eggs per pod was 22, which is the lowest among all the surveyed provinces. The results of the survey demonstrated that the DMA population was in a vigorous and healthy state, and the level of infestation in 2024 should be same or higher than in 2023. Based on all available elements, including the surveyed and infested areas, the very high egg-pod density/m² and historical data over the past years, it is expected that between 70 000 and 80 000 ha will be infested in 2024.
- 49. Recommendations included conducting early-spring survey during hatching in February-March 2024 followed by hopper survey; prioritizing highly-infested areas where hatching starts first; conducting refresher course for 66 plant protection officers; conducting training on ULV use for technicians; timely procuring the necessary inputs for the 2024 campaign, including tablets and Global Positioning System (GPS) devices. During the discussion, the participants underlined the importance of natural enemies of locust eggs, which were found in the egg-pods during the survey. The resource person from Uzbekistan pointed out that the survey results clearly indicated that the threat to Tajikistan, Turkmenistan and Uzbekistan is quite high because extensive egg-beds with high egg-pod densities were found in Afghanistan areas near the borders with these three countries. He offered assistance for delivering trainings to Afghan experts and indicated that his country, if possible, may provide pesticides. It was clarified that such assistance should be provided on a bilateral basis.
 - Saxaul grasshopper and Moroccan Locust egg-bed survey, Uzbekistan, September 2023
- 50. Upon request from AQPP, Ministry of Agriculture, Uzbekistan (May 2023), an egg-bed survey of Large Saxaul Humpback grasshopper *Dericorys albidula* (Audinet-Serville) (DAL) was conducted in September 2023 with a view to develop a preliminary forecast for DAL infestations in Uzbekistan for 2024. It involved the FAO Senior Locust Management Expert, NSPMD, and National Environmental Expert, who presented the work conducted. More specifically, egg-bed survey of DAL was conducted in two separate zones: Karakalpakstan on 11-15 September (dried Aral Sea bottom, 12 000 ha) and Bukhara region on 16-18 September (Kyzylkum desert, 6 000 ha). The egg-pod density varied from 40 to 120 egg-pods per m² in Karakalpakstan and from 25 to 70 egg-pods per m² in Bukhara region. While DAL prevailed in the Bukhara region, another species from the same genus, *Dericorys annulata*, was prevalent in Karakalpakstan. Both

saxaul grasshoppers feed predominantly on saxaul (*Haloxilon* spp.) shrubs, which form natural forests in the Kyzylkum desert (about 250 000 ha) and are planted on 1 700 000 ha to prevent soil erosion on the dried bottom of the former Aral Sea in Karakalpakstan. In 2023, out of 495 891 ha treated against locusts in Uzbekistan, 92 674 ha (19 percent) targeted saxaul grasshoppers. Based on the findings of the egg-bed survey, the preliminary forecast for saxaul grasshopper infestations in Uzbekistan in 2024 is 110 000 ha, including 100 000 ha in Karakalpakstan. In the Bukhara region, particular focus should be made on areas adjacent to the border with Turkmenistan, where transboundary swarm flights are possible. Additionally, in Tashkent region, areas with DMA infestations near the border with Kazakhstan were surveyed on 19-20 September (2 000 ha). Egg-pod density of this pest exceeded 110 per m². These infestations possibly resulted from immigrant swarms from South Kazakhstan.

National capacities development in 2024 (Item 7)

Exposure visits on locust management in the national anti-locust center in Morocco (Item 7.1)

51. The Delegates from Turkmenistan and Uzbekistan reported on the exposure visit/internship undertaken in the National Anti-Locust Center of Morocco (Centre National de Lutte Antiacridienne – CNLAA) from 26 February to 12 March by two national experts, Mr Utkir Mirzaev, Chief Specialist, Department for Locust and Mulberry Pyralid Control, AQPP, Uzbekistan and Mr Handurdy Garayev, Head, Akhal velayat department, Plant Protection Service, MoA, Turkmenistan. The visit allowed the experts to have an overview of the organization, management and functioning of a performing Anti-Locust Centre outside CCA, applying the locust preventive control strategy. The training was conducted by Mr Said Lagnaoui, FAO Consultant, Logistics Expert and Spraying and Locust Management Specialist. Participants familiarized with different topics including main habitats of the Moroccan Locust, locust campaign management, survey, control operations with focus on ULV spraying, pesticide storage, calibration and monitoring of locust control impact on human health and the environment. The internship included both theoretical and practical parts, the latter being conducted in the field in Askaoun (High Atlas). In particular, participants showed interest in the equipment available by the center and their digital inventory/management system. In conclusion, the experts expressed their high interest and satisfaction in this activity and in a reply to a question raised by FAO Officers, confirmed to have reported about this visit by sharing this experience with the local services in Uzbekistan via online meeting and with other specialists in Turkmenistan during the national training session.

National training sessions and briefing sessions on locust management: Afghanistan, Armenia, Azerbaijan, Georgia, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan (Item 7.2)

- 52. Eight countries presented training and capacity building activities conducted during Programme Year 12
 - Afghanistan
- 53. A resource person from Afghanistan presented information on the two trainings on locust eggpods surveys, with the support of FAO SFERA Project to the benefit of 63 participants. The first training was conducted in Mazar-i-Sharif on 16-17 July (51 participants) and the second in Herat on 1-2 August (12 participants). Participants with basic knowledge of plant protection or agronomy were selected. Topics mainly covered locust surveillance and data collection, using ASDC. The main challenges for the locust control activities were the lack of required funds and UN sanctions towards the de-facto Government, due to which external support is not received. However, the reporter thanked FAO for its overall support, especially for the emergency project in 2023. As a recommendation, it was indicated to conduct such training in the spring, increase the duration of the training and include more field practice. The reporter highlighted the topics where more trainings are needed, such as DMA biology and survey, pesticide use against locusts, ULV spraying techniques, etc. He also mentioned a possible CBS in 2024.

- 54. The FAO Locust Programme Officer, NSPMD, thanked the reporter and staff from the FAO Representation in Afghanistan for participating and she asked whether the data entered into ASDC during the egg-bed survey (which followed the training) were inserted directly on tablets in the field or later through a computer. The reporter replied that most of the data were entered in the field; only in some cases, paper forms were used with a subsequent entering into the web interface from a computer. In reply regarding the CBS, crossing borders would be difficult, the Locust Programme Officer indicated that survey could be conducted on both sides of the border by the Tajik and Afghan experts in their respective countries. This was supported by the Delegate from Tajikistan who wished to have close contacts with the local experts in neigbouring provinces of Afghanistan.
 - Armenia
- 55. The Delegate from Armenia informed about the training sessions conducted in 2023 thanks to the USAID project. On 18 April 2023, a training on the use of ASDC was conducted for ten agronomists of the State Non Commercial Organization (SNCO) "Agricultural Services Centre", Ministry of Economy (MoE), each of whom received tablets from FAO; the training also covered other topics, such as locust biology, survey and monitoring. From 25 to 29 April, experts of the SNCO "Agricultural Services Centre", MoE, conducted training for local farmers and responsible staff at local administrations in ten regions. The main capacity-building activity for Armenia in 2023 was the training delivered by FAO Senior Locust Management expert and GIS expert, NSPMD, on 9-13 May in Vayots Dzor region for the benefit of 20 experts and agronomists of MoE. The Delegate indicated that in addition, three Armenian experts participated in the regional demonstration of biopesticides in Georgia; the knowledge gained and information was shared back home with the experts and agronomists of the MoE.
- 56. During the discussions, the Delegate stressed the importance is to train new specialists, calling for a new similar training with FAO Experts. The FAO Locust Programme Officer, NSPMD, indicated that since Armenia benefited from such training in 2023, it would be difficult to conduct similar training next year, as other countries also required it. However, an online training could be organized. The FAO GIS Expert commented that pre and post-tests of knowledge of participants were conducted, showing a 6 percent increase. When trainees were asked to self-evaluate the gained knowledge it was also up by 7.5 percent. The Delegate from Armenia reported about the difficulties encountered in using ASDC, specifically the mistakes in filling the forms by the specialists. The FAO GIS Expert advised to continue filling the forms and mistakes can be corrected and experience will come in time.
 - Azerbaijan
- 57. The Delegate from Azerbaijan thanked FAO for overall support, especially for capacity building. He highlighted that the sessions at the national level were delivered by three Master-Trainers (MT), who had been trained in the regional ToT sessions, thanks to the USAID project. Further information on training sessions conducted in five regions for the benefit of 95 staff from the Agrarian Services Agency (ASA), MoA, and experts was presented. On 26 April in Barda (for representatives of six districts and 21 participants in total); on 27 April in Shamkir (from six districts and 18 participants); on 4 May in Saatli (from seven districts and 21 participants); on 5 May in Fizuli (from seven districts and 21 participants) and on 11 May in Shabran (from five districts and 14 participants). Training materials and publications provided by FAO, in the national language, were distributed. Further, briefing sessions on locust control and risk reduction were conducted in five regions for 80 staff and manpower, as follows: on 26 May in Agstafa (16 participants, from four districts), on 2 June in Goygol (14 participants, four districts), on 23 June in Saatli (16 participants, 3 districts), on 3 July in Sheki (17 participants, three districts) and on 7 July in Guba (17 participants, four districts). The resulting improved knowledge of the experts was acknowledged. The Delegate suggested to increase the duration of trainings and include more field practice in the future. The FAO Locust Programme Officer, NSPMD, confirmed that the Programme can support more trainings, including the possibility of increasing the national sessions up to 4-5 days and one or two-day briefing sessions conducted immediately at the start of control operations in different regions.

- Georgia
- 58. The Delegate from Georgia stressed the importance of regular trainings and coordinated measures at regional, national and local levels for early warning and effective locust control. In his country, the first national session for the management and the representatives of departments was conducted for 24 participants on 10-12 April in Kakheti. In addition, five briefing sessions were conducted, on 3-5 May in Kakheti (14 participants), 6-7 May in Kvemo-Kartli (16 participants), 8-9 May in Mtskheta-Mtianeta (four participants), 10-12 May Shida Kartli (four participants) and 13-14 May in Samtskhe-Javekhati (for two participants). From 6 to 11 June, a second national session for regional coordinators and responsible staff of locust control (29 participants) was conducted in Kakheti. The Delegate thanked FAO for useful materials and continuous support. Those training were delivered with the support of the USAID-funded project.
 - Kyrgyzstan
- 59. The Delegate from Kyrgyzstan reported on two national sessions delivered to 32 specialists of the Department of Chemicalization, Plant Protection and Quarantine (DCPPQ) regional offices, on 6-10 March in Osh and on 13-17 March in Karakol. The four MT of DCPPQ covered all relevant topics of locust control, both theoretically and practically, i.e. locust biology, survey and monitoring, locust treatment including using ULV sprayers, use of ASDC and CCALM. The training materials provided by FAO were used and also provided on USB keys. In addition, two-days briefing sessions were conducted in the five regions where main locust control activities take place, for the benefit of 75 staff and manpower: on 10-13 April in Jalal-Abad, on 2-5 May in Osh, on 22-24 May in Batken, on 5-7 June in Talas and on 20-22 June in Naryn regions. The Trainings were conducted by experienced MT and two young female specialists. The MT age was on average 40 years and they had from two to 20 years of experience in locust control. Such trainings were possible with the support of the JICA-funded project. It was suggested to conduct such trainings regularly before the campaign every year.
 - Tajikistan
- 60. The Delegate from Tajikistan informed on the national, briefing and information sessions delivered by MT of SE-LCE with the support of the JICA-funded project. Four national sessions, of five days each, were conducted on 14-18 November 2022 in Sughd region (17 experts), 5-9 December 2022 in Bokhtar (Vakhsh zone), Khatlon (16 participants), 12-16 December 2022 in Dangara (Kulob zone), Khatlon region (15 participants) and 19-23 December 2022 in Tursunzoda, DRS (15 participants). Four briefing sessions on locust survey and control were also delivered in four regions for the benefit of 77 local staff and operators, on 2-3 February 2023 in Bokhtar (27 participants), 7-8 February 2023 in Kulob (15 participants), 14-15 February 2023 in Tursunzoda (14 participants) and 24-25 February 2023 in Khujand (21 participants). In addition, one-day information sessions for local populations and farmers were conducted in these regions for the benefit of 61 people. The Delegate asked FAO to support the organization of trainings next year, especially in Khatlon, where the majority of the personnel are above 50 years old and where there are also many newcomers. In reply to the FAO GIS Expert who asked why so many trainings had not helped to increase the use of ASDC, the Delegate mentioned the shortage of tablets, the lack of familiarity of the most aged experts with the new tools, as well as the staff turn over. The FAO Locust Programme Officer, NSPMD, thus indicated that a training conducted by FAO experts on locust monitoring, including ASDC and CCALM, may help, including to discuss the use of the system with decision makers.
 - Turkmenistan
- 61. The Delegate from Turkmenistan reported on the national session delivered on 5-9 June 2023 in Ashgabat, by the MT to the benefit of 16 experts from the Plant Protection Service of the MoA thanks to the JICA-funded project. Main topics included bioecology of locusts, survey and monitoring, including using ASDC and CCALM, and risk reduction. Besides handouts, the DMA and CIT posters, and PG RR in Turkmen were distributed to participants. The Delegate said that most of the participants were young and showed high interest. It was suggested to have a new

training delivered by FAO experts in March 2024, before the start of the locust campaign, in Lebap region, close to locust-affected areas.

- Uzbekistan
- 62. The resource person from Uzbekistan thanked FAO for supporting training in Uzbekistan, which allowed the MT to further disseminate the knowledge in the country. With the support of the JICA-funded project, 64 staff and specialists were trained in 2023: on 3-5 March in Karshi (20 participants), 9-12 March in Jizzakh (24 participants), 16-18 March in Namangan (seven participants) and 23-26 March in Nukus (13 participants). The MT were from AQPP and the Scientific research institute of quarantine and plant protection, AQPP. The local representative of the Committee for Emergency Situations and Ecologists also attended the training. At the end of his presentation, the reporter asked FAO to support four national sessions before the start of next campaign, close to locust habitats, and to increase the number of participants. Information on the use of biopesticides would also be provided at this occasion.

Update on background literature on the locust pests in CCA (monthly bulletins, practical guidelines, leaflets, posters, monographs, calendars) (Item 7.3)

- 63. Mr Bahromiddin Husenov, FAO Agricultural Officer (Plant Protection/Locusts), NSPMD, presented the progresses made during Programme year 12. He indicated that the monograph on the "Italian Locust *Calliptamus italicus* (Linnaeus, 1758): morphology, distribution, ecology, population management", which was published and delivered to most of the countries in 2022, was also delivered to Russian Federation in early 2023. A monograph on DMA, entitled "Moroccan locust *Dociostaurus maroccanus* (Thunberg, 1815): morphology, distribution, ecology, population management" (596-pp.) in Russian language was published in September 2023 by FAO. The book is co-authored by seven acridologists from the region and consists of 16 different chapters. Knowledge and information accumulated on the species is gathered for more than 100 years. This work has been done with the support of the FAO RP mainly, and with a small contribution of the USAID project. A blueprint was circulated in the meeting room allowing the Delegates to have a look.
- 64. He then mentioned the two Practical Guidelines (PG), one on pesticide risk reduction in locust control in CCA (PG RR) and the other on the three locust pests in CCA (PG 3P), which had been published by FAO in 2019 and 2020 respectively and already dispatched in several languages to most CCA countries. During Year 12, the Turkmen versions of the PG RR was delivered to Turkmenistan while the PG 3P were prepared in this language, thanks to JICA funded project. The translation of PG 3P into English was also ensured, with the contribution of the FAO RP. In addition, the English text of a poster on the Moroccan Locust was also prepared, in view of its dispatch to Afghanistan.
- 65. Several leaflets and posters were published and/or printed by FAO in English and Russian to the attention of locust control staff, decisions makers and other stakeholders, thanks to the USAID-funded project for Caucasus countries and JICA- funded project for Central Asian ones. They include:
 - A leaflet entitled "Locust control: Ultra-Low Volume vs Full Volume spraying", which targets both decision-makers and technicians and provides a description of ULV spraying, includes a comparison between the ULV and EC technologies and highlights the advantages of the ULV one.
 - A leaflet "Biopesticides Operational use against locusts", targeting decision-makers and technicians/locust experts and advocating for the use of biopesticides in CCA; it explains the rationale for using biopesticides, which have low negative impact on human health and the environment and provides information on what they are and how they work.

- A poster "How to use biopesticides in locust control?", to the attention of technicians/locust experts from CCA, which describes the different steps regarding the use of biopesticides against locusts, in addition to a brief explanation of what they are.
- A poster "Personal Protective Equipment (PPE) Why using PPE in locust control?", explaining the importance of using such equipment and highlights several "Do & Don't!" in addition to tips and warnings.
- A poster "Empty containers How to manage empty containers in locust control?", which aims at promoting their adequate management, to avoid negative impact on human health and the environmental, and to do so highlights several "Do & Don't!".
- 66. It was explained that both leaflets and the poster on ULV and biopesticides were dispatched during the two sub-regional demonstrations/trials on biopesticide use against locusts organized during Spring 2023. In addition, they were printed according to the quantities requested by countries and were currently being shipped. Last, it was mentioned that the 2023 calendars on safety measures associated with locust control prepared for Armenia, Azerbaijan and Georgia the previous year, were printed and handed over to the national services in charge of locust management for further dispatch to local populations in late 2022/early 2023. Such calendars draw attention to the safety measures to be adopted by people living in locust-affected areas, before, during and after locust control. This was made with the support of the USAID-funded project.
- 67. During the discussions, several Delegates expressed congratulations to FAO and the authors for the newly-produced monograph on the Moroccan Locust. It was agreed that it would be printed and dispatched to CCA countries, with a number of copies to be further defined based on countries' requests and available budget. It was also stressed that all FAO publications related to locust management in CCA (see list provided Annex V) are available on the FAO website "Locust Watch in CCA" (https://www.fao.org/locusts-cca/en/) and can be easily downloaded. FAO is also available to provide the ready-to-print versions in case countries wish to print them. In response to a comment on the difficulty to get adequate technical translations in the various national languages, for instance of the PG, FAO Officers indicated that any substantial errors, if present, should be communicated as it is possible to rectify publications.

Equipment delivered in 2023 to strengthen operational capacities (Item 7.4)

- 68. Ms Greta Graviglia, FAO Operations Expert, NSPMD, presented an update on the locust equipment procured during Year 12 of the Programme, from 1 October 2022 to 30 September 2023, with the aim to strengthen national operational capacities. It concerned seven countries in the considered period, namely Armenia, Azerbaijan, Georgia, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. This was done thanks to the regional projects funded by JICA-for Central Asian countries, and USAID-for Caucasian ones, as less as specified otherwise since there was also a contribution from the FAO RP. Procurement, carried out in close collaboration with the project counterparts, was almost finalized against the two projects. On the JICA one, no procurement for Afghanistan could be undertaken for the second subsequent year due to the political situation and sanctions; and procurement did not take place for Kazakhstan either in the absence of project signature.
- 69. Under Programme Result 3 Activity 3.1.2. Strengthen operational capacities for locust monitoring (survey equipment), the following equipment was delivered /under delivery/under procurement:
 - Motorbikes: ten units were handed over to Azerbaijan in February 2023, two additional units, compared to initial plan were provided (items sold in batch of ten on the UN procurement platform); to be noted that the 30 units delivered to Afghanistan in January 2022 continued to be kept in the FAO warehouse in the current context.

- Double-cabin 4x4 pick-up: three units were handed over to Turkmenistan in November 2023; as well as eight units and two Sport Utility Vehicle (SUV) to Uzbekistan in September and October 2023 respectively; one unit was purchased for Armenia (expected delivery by November 2023) and four units for Georgia (expected in November/early December 2023); a tender is planned to be issued for two units for Azerbaijan while one unit to be purchased via direct procurement for Kyrgyzstan.
- Water-tank lorries: the Procurement service in FAO headquarters/World Food Programme should confirm the specifications for a tender regarding the water-tank lorry (one unit) requested by Turkmenistan.
- GPS: 12 devices were handed over to Azerbaijan in August 2023.
- Entomological/survey kits and binoculars: the following items were handed over: five kits and one binocular to Armenia in February 2023; 20 kits and four binoculars to Azerbaijan in January 2023; ten kits and five binoculars to Georgia in December 2022; two kits to Kyrgyzstan in December 2022; six kits and three binoculars to Turkmenistan in April 2023; ten kits and five binoculars were also delivered in Uzbekistan in October 2022 (to be handed over in November 2023).
- Demonstration material (survey, sprayers calibration equipment and material for human health and environmental monitoring) was delivered to Master-Trainers participating in the ToT in Georgia in September 2022 and Uzbekistan in October 2022. The equipment delivered in Georgia arrived with delay and the kits were shipped and handed over to the MT in Armenia and Azerbaijan in April 2023.
- 70. Activity 3.2. "Develop monitoring and analyzing systems, with a view to support a wider use of the ASDC and CCALM":
 - Information Technology (IT) equipment: two laptops had been delivered in Armenia in September 2023 but they are being replaced as an issue occurred with the keyboard; six laptops and two desktop computers were handed over to Azerbaijan in October 2022 as well as ten laptops and ten desktop computers to Georgia in September 2023; two laptops and eight desktops were ordered for Kyrgyzstan (expected delivery in November 2023) and a tender for eight printers for this country was issued in October 2023.
 - Digital cameras: three units were handed over to Azerbaijan in February 2023 as well as five units to Georgia in December 2022; a tender for seven units was issued in October 2023 for Kyrgyzstan.
- 71. Under Programme Result 4 "Improved response mechanisms to locust outbreaks Activity 4.1.2. "Strengthen operational capacities (control equipment)" and Activity 4.2. "Promote less harmful pesticides and alternatives to conventional pesticides":
 - ULV sprayers: recent approval has been obtained from JICA for the use of the 200 hand-held ULV sprayers and 70 ULV knapsack sprayers during the 2024 campaign (they had been delivered to Afghanistan in 2021 and kept in FAO warehouse in Kabul since then).
 - Minibuses: five units were delivered to Tajikistan in December 2022 and handed over to the project counterpart in March 2023. The counterpart informed that due to tinted passengers' windows, a special license was required to circulate in the country, upon payment of a fee, on yearly basis. A sustainable solution was proposed by FAO with the replacement of the windows, delivered in October 2023 to the counterpart and to be installed.
 - Vehicles single-cabin 4x4 pick-up: a tender is planned to be issued for two units for Azerbaijan.
 - Camping equipment: four sets including tents, generators, beds, sleeping bags, etc., were delivered to Azerbaijan in two batches and handed over in April 2023 and September 2023; procurement is in process for one set for Armenia.

- Biopesticide Metarhizium acridum: small quantities of biopesticide, together with small calibration equipment and other material (cages, Personal Protective Equipment, etc.), were delivered in Uzbekistan and Georgia for the two sub-regional demonstrations/trials on biopesticide use against locusts held during Spring 2023 (2.5 kilograms -kg- of biopesticide for each demonstration on the FAO RP for the one in Caucasus). Equipment for the pre and post-application environmental monitoring was also provided to Uzbekistan, including tents, cages, PPE, etc.
- 72. Under Programme Result 5 Activity 5.1.2 "Strengthen operational capacities (Personal Protective Equipment (PPE kits)", Activity 5.1.2 "Pesticides and empty containers management: pilot activity on empty containers", Activity 5.2.1 "National systems for health and environmental monitoring of locust control" and Activity 5.2.2 "Strengthen operational capacities test-mate, environmental material", the following equipment was delivered:
 - PPE: 100 kits were handed over to Georgia in December 2022 while procurement still have to be initiated for six kits for Armenia and for 73 kits for Azerbaijan.
 - Nitrile gloves: 600 pairs were delivered in Georgia, 300 pairs in Kyrgyzstan and 600 pairs in Uzbekistan (handing over expected in November 2023), to complete the already delivered PPE; also 60 pairs were handed over to Armenia and 600 to Azerbaijan in February/March 2023.
 - A QR printer was supplied to Georgia in May 2023 for the use of the Locusts-PMS, in addition to the QR printer and laptop provided during the previous year (FAO RP).
 - Environmental monitoring equipment, including one camera, was procured for Uzbekistan in October 2022, in view of the setting up of a Human Health and Environmental Monitoring Team and to complete the already delivered material during the spring 2022 (to be handed over in November 2023); Similar equipment was procured for Turkmenistan in April 2023 in view of the mission of the FAO Environmental Expert for the development of a national monitoring system and handed over to the counterpart after the training; and small monitoring material was procured for Georgia for the work of the Human Health and Environmental Team in April/May 2023.
 - Cholinesterase test-mate kits: one testmate and four reagent kits were handed over to Kyrgyzstan in January 2023 as well as one testmate and three reagent kits to Tajikistan in March 2023. Initially procured for demonstration purpose during the ToT regional sessions, the kits were shipped from Uzbekistan and Georgia (which do not use organophosphate pesticides) to Kyrgyzstan and Tajikistan respectively.
- 73. In addition, two hand-over ceremonies were organized during the reporting period: in Tajikistan on 1 March 2023 for the official transfer of water-tank lorries and minibuses to the Tajik counterpart, with the participation of the Minister for Agriculture of Tajikistan, the Ambassador Extraordinary and Plenipotentiary of Japan to the Republic of Tajikistan, the JICA Chief Representative, management and specialists of SE-LCE, as well as FAO staff based in the Representation in Tajikistan; and in Uzbekistan on 25 September 2023 for the transfer of the pick-up vehicles, in presence of the Deputy Director and the Head of Department for Locust and Mulberry Pyralid Control, AQPP, as well as FAO staff based in the Representation in Uzbekistan.
- 74. The FAO Operations Expert informed about some challenges related to the procurement of vehicles and water-tank lorries, which was longer than planned. In most cases, the required models were not available with the pre-selected suppliers (via Long-Term Agreements or UN platform for procurement). Different solutions had to be found and the procurement strategy changed on case-by-case basis. Particular attention was also given to countries' requests to tailor countries' specific needs. She highlighted that the absence of a specialized technical unit on vehicles within FAO also further delayed the whole process. She also informed that Tajikistan complained about the quality of some parts of the water tank lorries, which were damaged after field operations earlier this year. FAO is looking into the matter to understand better the problem and find a sustainable solution.

75. The representatives from Georgia and Kyrgyzstan thanked FAO for the provision of the equipment and for the efforts to achieve this complicated task.

Development of a national locust contingency plan – pilot activity in Tajikistan (Item 8)

- 76. The Delegate from Tajikistan presented the progress made in developing the national locust contingency plan. The report covered information on the plan's contents, where main chapters are general issues, a plan for preventive measures and a plan for an emergency situation. The relevant legal acts and involved ministries and state bodies were indicated. It was emphasized that the Ministry of Agriculture will serve as the coordinating body in both regular and emergency situations of locusts. Of the two main locust species in the country, DMA and CIT, the first one was mentioned as the most important, infesting approximately 90 percent of affected areas. The Delegate also shared data on the increasing trend of locust infestations and control over the past 20 years. In light of these and other factors, it was envisaged to define different scenarios for both regular and emergency cases. The following next steps were mentioned in view of the finalization of the plan: once further completed, it will be submitted for review to relevant Ministries and Committees in early 2024. It was then proposed to discuss it during a national workshop involving all stakeholders. It was hoped that the workshop would be supported by the FAO Programme, in May/June 2024. The delegate emphasized the need for overall support and technical assistance from the FAO in preparing a comprehensive plan.
- 77. The FAO Locust Programme Officer, NSPMD, thanked Tajikistan for acting as a pilot country. She said that it was extremely important to formalize all the actions which are required according to the various scenarios of locust situations. If such scenarios are well defined, together with the threshold to pass from a regular situation to an emergency one, as well as the required corresponding means and level of funding, the contingency plan is a very valuable tool to mobilize funds timely, at the national level first of all, and if needed also at the international level, and thus to react quickly in case of an emergency. The idea of a national workshop, gathering all involved stakeholders to discuss the content of the plan, was welcome and FAO support was confirmed. This should allow all stakeholders to come to an agreement, with the objective to have it officially endorsed by the national authorities and then implemented.

SESSION 3: DEVELOPING MONITORING AND ANALYSING SYSTEMS

ASDC and CCALM In-depth introduction to Turkmenistan (Item 9)

- 78. The Delegate from Turkmenistan presented the result of in-depth ASDC and CCALM introduction held on 15-18 May 2023 in Ashgabat for the benefit of 16 locust specialists from the Ministry of Agriculture and Environmental Protection of Turkmenistan (MAEP). He underlined that participants learned to correctly fill out the FAO Locust Survey and Spray Monitoring Forms using ASDC on tablet/mobile phone devices. A two-day highly specialized training on CCALM was also successfully delivered to three MAEP staff, designated to be responsible for managing the GIS at the national level, allowing to transfer knowledge to participants on the proper use of WEB-interface and creation of different GIS products based on ASDC data. He underlined that all transferred materials were used during national training session.
- 79. The FAO GIS expert, added that it was the first ASDC training in Turkmenistan and she thanked the Turkmen colleagues who helped with explanations of specific terminologies for young participants and to get the permission for direct access to CCALM website (which was limited for state organization). During her visit, FAO was requested to provide 11 tablets for ASDC use in addition to the already available 14 units (for a total of 25 units). This will ensure the necessary coverage, with the following dispatch: six tablets for Akhal velayat, five for Balkan, three for Dashoguz, six for Lebap and five for Mari velayat. FAO was also requested to cover the cost of acquiring and maintaining mobile internet (1,5 GB) during the period from February-August 2024 (inclusive) for those tablets. In addition, as this is new for the country, the organization of a

training on locust monitoring and information management, including ASDC and CCALM, at the beginning of 2024, would help Turkmen locust specialists to use these systems during the coming campaigns.

80. At completion of the training, the GIS expert formulated the following recommendations: (1) To the Ministry, ensure high-level support to the use of digital tools for improving locust management, i.e. ASDC during locust survey/control activities as well as CCALM to enhance data collection, analysis and forecast. (2) To Locust specialists, use as widely as possible ASDC (or the hard-copy Locust Survey and Spray Monitoring Forms) during locust survey and control operations during the 2023 locust campaign and next ones. (3) To locust specialists, in particular the Authorized and Privileged Operators, use as widely as possible CCALM and control the quality of Locust Survey and Spray Monitoring Forms filled out during locust survey and control operations and next ones. (4) Request the Ministry of Communications of Turkmenistan an official access to both sites: ccalm.org and geoserver2.ccalm.org.

Developments of ASDC in 2023 (situation update, issues encountered, lessons learnt and recommendations) and next steps for 2024 (Item 10)

- 81. Ms Nadiya Muratova, FAO International Consultant, GIS Expert, reported on the ASDC system that was developed since 2013 to facilitate collection and sharing of standardized locust data in CCA countries. It is based on the FAO standard "Locust Survey Form" and "Spray Monitoring Form" and serves as the main data source for the locust GIS named CCALM. Presently ASDC is available in 11 languages (Armenian, Azerbaijani, Dari, English, Georgian, Kazakh, Kyrgyz, Russian, Tajik, Turkmen and Uzbek) for the use on tablets and smartphones. During the previous TW on Locusts in CCA and GIS Workshop on Locust Data Analysis, Forecast and Reporting in CCA, respectively held in Dushanbe in November 2022 and online in February 2023, CCA Delegates reiterated the need for further technical or operational support towards full coverage of the national territory with ASDC.
- 82. During Programme year 12, a total of 633 persons (from all ten CCA countries) received trainings comprising a component on ASDC and CCALM. These trainings were conducted with the support of the projects funded by USAID (in Caucasus), by JICA (in Central Asia) and by SFERA (Afghanistan), either by FAO experts or Master-Trainers. To facilitate ASDC use by CCA countries, the video tutorial entitled "Get started with ASDC" (prepared the previous year in English) was also published in Russian. The video is available on "Locust Watch in CCA" (https://www.fao.org/locusts-cca/activities/locust-gis/en/) and on YouTube (English: https://youtu.be/5kdXRocsOkQ; Russian: https://www.youtube.com/watch?v=qchZtE3atNA). Concerning ASDC improvements, the GIS Expert reported that the updated ASDC interface now gives the possibility to indicate that the filled-out "Locust survey" or "Spray monitoring" forms are test ones, before they are saved. In the new beta-version of ASDC, there is also a possibility to get up to 100 geographic coordinates of points along the perimeter of the infested or treated area optionally and additionally to the geographic coordinates of the center of concerned site. In addition, ASDC user can upload the coordinates of a previously filled form into the same surveyed/treated site. Last, the geofences are displayed on the map from all forms that are present in ASDC and close to user's position.
- 83. During Programme year 12, a total of 11 556 records, made by 318 ASDC users, were recorded from ten CCA countries, including test forms in Turkmenistan. The number of records was thus doubled with respect to previous year, in which 5681 records had been made by 188 ASDC users in 2022, which represents an important progress. The number of records and users per country is shown in the following table with comparison of previous year.

Table 3. Number of ASDC records and users during Programme Year 12 (2023 campaign in CCA

Country	Number of records in Year 11 (2022 campaign)	Number of ASDC users in Year 11 (2022 campaign)	Number of records in Year 12 (2023 campaign)	Number of ASDC users in Year 12 (2023 campaign)
Afghanistan	86	6	2081	30
Armenia	593	32	221	20
Azerbaijan	1459	30	889	24
Georgia	1758	45	1707	36
Kazakhstan	13	5	245	25
Kyrgyzstan	198	23	172	26
Russian Federation	375	19	818	34
Tajikistan	335	15	213	14
Turkmenistan	0	0	6 test	5
Uzbekistan	1513	42	5204	104
Total	6330	217	11556	318

- 84. The GIS Expert highlighted that in Azerbaijan and Georgia, ASDC coverage is of 80 percent and 90 percent of the total infested/treated areas respectively. Decreasing of records' number in Azerbaijan reflects the much lower treatments carried out in 2023 season compared to 2022. She also stressed the substantial increase in the number of records from Afghanistan and Uzbekistan.
- 85. The GIS Expert underlined the overall objective that all CCA countries use operationally the locust GIS and maximize the ASDC coverage of surveyed and treated areas. For this, a number of recommendations were formulated by FAO and national locust Experts for the 2024 national locust campaign, as follows:
 - To all CCA countries: (1) Further increase ASDC use, as widely as possible for locust surveys and control operations during the 2024 locust campaign especially in the regions neighboring with other countries. (2) Include the filling of Locust Survey and Spray Monitoring Forms as an integral part of the Locust Experts' duties; plant protection managers should encourage this process. (3) For the Master-Trainers and advanced ASDC users, continue to support national staff on ASDC use (during trainings and/or on on-the-job basis).
 - To the Russian Federation: continue ASDC use by national Experts in the Saratov, Orenburg, Volgograd oblasts and Stavropol Territory. Pursue cooperation on importing/exporting ASDC data, as well as importing the locust survey data from the Russian Federation system into CCALM.
 - To Kazakhstan: implement in liaison with FAO the agreed upon automated import/export of locust survey data between the Kazakh GIS and CCALM.
 - To FAO: (1) Organize locust management training, including ASDC, possibly for Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan; (2) Provide remote technical assistance on a continuous basis to the countries for any challenge or difficulty met; (3) Update English and Russian versions of ASDC and CCALM manuals and translate them into national languages; (4) Ensure the release of video manuals on the use of ASDC with subtitles in national languages (for the countries which wish so).

- 86. During the discussions, the Delegate from Tajikistan underlined that half of delivered in 2016 tablets do not function anymore however, smartphones are now also used. He asked FAO to organize a training on locust management, including ASDC and CCALM, especially for experts from Khatlon oblast. The Delegate from Kyrgyzstan mentioned the turnover of the plant protection staff and thus also underlined the necessity of training on locust monitoring, including ASDC and CCALM use, for the new specialists. In reply to a question regarding the reasons for the substantial increase of ASDC users and records in 2023 in Uzbekistan, the Delegate clarified that national and briefing sessions helped this process.
- 87. With respect to the Russian Federation, the Senior Locust Management Expert, NSPMD, praised the automatic exchange of data between CCALM and the Russian GIS. He stressed however that the data collected through the national GIS does not fully cover the information which is in ASDC (locust species, etc.). In order to have comparable data with respect to the other countries, as far as the border areas are concerned, he advocated that the collection of data using ASDC continue in the oblasts which are close to neighbor countries. The delegate of the Russian Federation promised to think about this problem. The Delegate from Uzbekistan requested all countries to make as much ASDC records as possible in the areas close to the border with Uzbekistan. This will allow to better monitor locust situation in Uzbekistan. The FAO Locust Programme Officer, NSPMD, drew attention to mandatory using ASDC during cross border surveys.

Developments of CCALM in 2023 (progress made, issues encountered, lessons learnt and recommendations) and next steps for 2024 (Item 11)

- 88. Ms Nadiya Muratova, FAO International Consultant, GIS Expert, reminded that both basic (data import, query, display, output) and advanced (summary, analysis, forecast) functions of CCALM are accessible since 2017 to all countries on ccalm.org. The system was developed by Institute of Space Technique and Technologies, Almaty, Kazakhstan on the base of the technical specifications agreed upon by CCA Forecasting and FAO Experts in line with FAO technical standards. The GIS Expert presented the progresses made during Programme Year 12, underlining that the effective functioning of CCALM depends on the effective ASDC use by all CCA countries.
- 89. The GIS Expert reported that the fourth regional Workshop on Locust Data Analysis, Forecast and Reporting in CCA (GIS Workshop) took place on 16-17 February 2023, with 56 participants from all CCA countries and FAO. It allowed discussing the use of ASDC and ways to increase its coverage during locust survey and control in 2023, as well as the use of CCALM, including of satellite products to analyze locust data. In addition, the question of the insertion, in ASDC, of a new form to be used by the Human Health and Environmental (HH&E) Monitoring Teams specifically (in addition to the existing ones, i.e. the Locust Survey Form and the Spray Monitoring Form) was discussed during the GIS Workshop as well as during an online meeting held on 22 June 2023 with the experts of Azerbaijan, Georgia, Kyrgyzstan and Tajikistan (the four CCA countries which have so far operational HH&E Monitoring Teams). In line with a recommendation of the GIS Workshop, a third annual meeting of the E-Committee on CCALM was convened on 26-27 July 2023, with 40 Locusts/Forecasting Experts from all ten CCA countries, FAO and Institute of Space Techniques and Technology (ISTT), to discuss the use of ASDC and CCALM during the campaign, as well as the linkages between CCALM and existing national GIS, especially from Kazakhstan.
- 90. Concerning trainings on CCALM, they were delivered by FAO GIS Expert to 66 experts, including during: two regional sessions of the ToT on locust management delivered in Central Asia (Samarkand, October 2022 30 participants); the in-depth CCALM introduction to Turkmenistan (Ashgabat, May 2023 16 participants); and the national training on locust management in Armenia (Jermuk, May 2023 20 participants). To facilitate direct communication, a Telegram group which includes the staff responsible for CCALM management and the users from CCA countries and FAO continues to function, allowing to exchange urgent and any other information.

- 91. In accordance with the recommendations formulated by CCA countries and FAO, both during the Technical Workshop on Locusts in CCA held online in November 2022 and the above-mentioned GIS Workshop, the following improvements were introduced in CCALM in 2023:
 - Locust historical data (areas infested by locusts, areas infested by locusts exceeding the ET and treated areas) for 2022 was inserted into CCALM for the first administrative level for all ten CCA countries and for the second administrative level for Georgia, Kyrgyzstan, the Russian Federation and Tajikistan.
 - A module for downloading (daily), storing (every 10 days), converting and visualizing data from the satellite Soil Moisture Active Passive (SMAP) Level-4 (L4) was developed for CCA countries.
 - A module for transmission of each character (or sequence of characters) from a specific writing system of Armenia, Georgia and Afghanistan to the corresponding character in the Cyrillic and Latin writing systems was developed for ASDC fields such as: Rayon, Rural district, Name of village, Farm or site, Name of survey/control team leader, in both Locust Survey and Spray Monitoring Forms; as well as trade name of insecticides and active ingredient, in the Spray Monitoring Form.
 - The boundaries of countries, regions and districts, as well as their names, were checked and updated according to OpenStreetMap information.
 - The interface of CCALM was updated to identify ASDC test forms: a filter was added that allows the user to select test forms only when displayed on a map and when displayed in a tabular form in CCALM.
 - Solutions was found to display in a user-friendly way ASDC and CCALM outputs on the FAO website "Locust Watch in CCA", accessible to any visitor, in Russian and English, with the help of the FAO Hand-in-Hand initiative (for data sharing).
- 92. The GIS Expert also indicated that the cooperation on importing/exporting data from the Rosselkhozcenter (Russian Federation)'s GIS ("AgroExpert") into CCALM was pursued in accordance with the agreement received from the Russian Ministry of Agriculture. In 2023, 64,767 records were imported into CCALM, which cover more than 14 million ha of locust surveyed areas, during the period from 1 October 2022 to 30 September 2023. According to the question of automatic exchange of locust data between the Kazakh database («FitoKZ») and CCALM, liaison was ensured with the MoA, Kazakhstan, and an official agreement was obtained to identify ways for automatic exchange of data between CCALM and FitoKZ. An on line meeting was held on 1 November 2023 between representatives of "Republican Methodological Center for Phytosanitary Diagnostics and Forecasts" of the State Inspection Committee in the Agro-Industrial Complex of the MoA, the Joint Stock National Company "Kazakhstan Garysh Sapary" (Kazakh GIS developers), the FAO GIS expert and the developer of the CCALM system. The possibilities of exchanging an API protocol for exporting data from the "FitoKZ" system regarding locust observations was discussed and recommended.
- 93. Then, the GIS Expert suggested that the following activities be carried out in 2024 to further improve CCALM:
 - Continue organizing annual GIS workshops to the benefit of CCA Experts who are responsible for CCALM management at the national level on data validation (ASDC), analysis, forecast and reporting as well as CCALM maintenance and use.
 - Continue organizing annual E-Committee on CCALM to the benefit CCA Experts together with FAO specialists and system's developer to discuss CCALM functionality, problems and formulate the recommendations.
 - Develop a module in CCALM for the creation and sending of "Warning" messages to users, FAO and other corresponding Plant Protection services.

- Develop a system of mark points (most frequently visited areas for monitoring the locust situation) for the ten CCA countries. This opens a new opportunity to monitor the increasing a locust density from one year to another and make forecast of outbreak.
- Develop a module for synchronization between the new ASDC Human Health and Environmental Monitoring (HH&Env) Form and the Spray Monitoring Form.
- Continue to develop the module for automatic importing/exporting locust data between the Kazakh database («FitoKZ») and CCALM.
- 94. Concerning the support to ASDC and CCALM use, the following was recommended:
 - Ensure advocacy for high-level support of introduction and/or wide use of ASDC and CCALM at the national levels.
 - Update English and Russian versions of ASDC and CCALM manuals and translate them into national languages when needed. Presently, Afghanistan, Armenia, Azerbaijan, Georgia, Tajikistan, Turkmenistan, Uzbekistan have indicated their interest in such manuals.
 - Issue a video tutorial on CCALM use in English and Russian.
 - Facilitate Skype and Telegram exchange whenever needed.
 - Allow user-friendly display of additional ASDC and CCALM outputs on the FAO website "Locust Watch in CCA", with the help of the FAO Hand-in-Hand initiative.
- 95. Concerning the human capacity strengthening it was recommended to:
 - Ensure in-depth introduction of CCALM in Kazakhstan.
 - Organize an online training session of the new HH&Env Form (three half-day duration).
 - Organize specific training sessions on ASDC and CCALM for instance for Kyrgyzstan, Tajikistan or Turkmenistan, based on needs and funds' availability.
- 96. In conclusion, the GIS Expert underlined that the management and use of ASDC/CCALM systems must be present in the discussion on long-term regional cooperation, whenever further steps are taken (i.e. GIS management at regional level should be part of the tasks of the FAO Commission on Locusts in CCA).
- 97. During the discussions, the Delegate from the Russian Federation indicated that the reason for creating a module from Rosselkhozcenter's GIS was to automatize the process of transferring information from «AgroExpert» database to CCALM. In this connection he said that it was not practical to fill out two forms in the same area. The GIS Expert explained that, despite the duplication, it is important to continue ASDC use in bordering area because of the need for unification of locust survey data, giving to all CCA experts the possibility to understand them and analyze the locust situation on the border areas. She suggested to Rosselkhozcenter to continue collecting ASDC data in the same oblasts and adjusting synchronization issues of ASDC and «AgroExpert» data. The Delegate from the Russian Federation agreed that ASDC will continue to be used for one more year, while the national GIS would be harmonized with ASDC. He recommended to finalize the data exchange module between the Russian "Agroexpert" and FAO CCALM GIS, so the data provided be fully in line with the ASDC locust survey form for transfer of information through the module only in the future. The FAO GIS Expert supported this recommendation. This should solve the issue from 2025 onwards. As it was done during the previous years, the report of this Technical Workshop would be sent to the MoA, Russian Federation, together with a request to continue sharing the national monthly bulletins and exchanging data between CCALM and the national systems.

New Human Health and Environmental Monitoring (HH&Env) Form in ASDC (Item 12)

- 98. Ms Nadiya Muratova, FAO International Consultant, GIS expert, indicated that presently the HH&Env Monitoring Teams created in Tajikistan (2015), Kyrgyzstan (2016), Azerbaijan and Georgia (2019) collect data on paper forms during their field monitoring missions. This creates difficulties to store, share and analyze the data (especially across different locations and years). That is why during the GIS Workshop (February 2023) and E-Committee meeting (July 2023), both a draft HH&Env form (for the specific use of the Teams) and a slightly modified/simplified Spray Monitoring Form were proposed and discussed.
 - 99. It was suggested that the Delegates of CCA countries endorse the final version of HH&Env form as well as the following subsequent steps: (1) develop and issue ASDC beta-version with introduction of changes made in the Spray Monitoring Form and insertion of the new HH&Env Form; (2) test the beta-version of ASDC on the basis of data collected during 2023 locust campaign, on paper forms as a start (Azerbaijan, Georgia, Kyrgyzstan, Tajikistan); (3) discuss the test results during GIS Workshop in early 2024; and (4) test the beta-version of ASDC in the field during the 2024 anti-locust campaign. For the second step, the GIS expert recommended FAO to organize a half-day online training for the HH&Env Monitoring Teams. No objections were formulated by the audience on such plan.

SESSION 4: TOWARDS THE USE OF BIOPESTICIDES IN CCA

100. To introduce the session on biopesticides, the FAO team showed a video (preliminary version yet to be finalized) about the two regional demonstration/trials on biopesticides use held during spring 2023 in Central Asia and in Caucasus

Sub-regional demonstration/trial on biopesticides use for Central Asia and the Russian Federation (Jizzakh, Uzbekistan) (Item 13)

- 101. Mr Fozilbek Nurjonov, the resource person (former FAO National Consultant/Locust control) from Uzbekistan presented the demonstration/trials conducted on 25-29 April 2023 in Jizzakh, Uzbekistan, to the benefit of 33 participants from five Central Asian countries, Georgia and the Russian Federation (at their own costs), with the participation of FAO staff, as well as a representative from Micron company (at own cost). This was done in close liaison with the laboratory of AQPP, Uzbekistan, and with a financial support from to the JICA-funded project mainly.
- 102. Overall, the field experiments were carried out from 10 April to 10 May and consisted in a treatment with fungal biopesticides Metarhizium acridum as well as with Beauveria bassiana against young instar hoppers of DMA. They were conducted under the guidance of Mr Heath MacRay, FAO International Consultant, Biopesticides Expert, assisted by the National Consultant, Locust Control, and by four students from the International Agrarian University of Uzbekistan. The methodology of conducting trials was explained, including site selection in Forish district, taking into account the relevant factors, i.e. the demonstration plots design and the targeted pest – DMA. The experiment consisted of four plots: 1) Control (with no treatment); 2) Treated with Novacrid (Metarhizium acridum); 3) treated with Green Barrier (Beauveria bassiana); and 4) treated with chemical pesticide a.i. lambda-cyhalothrin. Further details on the methodology were provided, including the density of locusts in the field, the hopper's age, hopper bands, and the preparation of the working solution. Since the biopesticides are based on live organisms, the rate of the application depends on the level of viability of the spores in a given lot. Viability (spore germination) test of Novacrid resulted in 90percent of viability. The biopesticides application was then presented, carried out with ULV sprayer Micron AU8115 on 15 April (Novacrid) and 17 April (Green Barrier).

- 103. During the regional demonstration on 25-29 April 2023, the following activities were held in presence of all participants: presentations on the use of biopesticides in locust control, spore viability assessment, field spraying (mixing, ULV sprayers calibration, spraying), collection of locusts in cages and mortality assessment (including of treatments conducted 15 and 17 April) as well as rapid assessment of impact on non-target organisms. The event ended with a round table discussion on preliminary observations, lessons learnt and recommendations.
- 104. The presenter then provided information on the evaluation of the effectiveness of the products, both in the laboratory conditions and in the field. The results obtained were as follows: in the chemically controlled plots, the mortality reached 96 percent after 24 hours; in the sites controlled with Novacrid, it reached 100 percent on the 23rd day; and in the site treated with Green Barrier, it was 86 percent on the 22nd day. The effect of the various treatments on non-target organisms was evaluated for which a separate report was presented (see Item 16). The challenges met included: difficulties in finding dead locusts after the treatment; movement of hopper bands in the controlled plots; and preparation of working solution in warm water and the requirement for continuous stirring the solution (for Green Barrier). When comparing the oil-based (Novacrid) and water-based (Green Barrier) solutions, the former had an advantage over the latter, since it covered a wider treated swath and the evaporation was less important. In conclusion, it was highlighted that for the first time, 100percent effectiveness of the biopesticides against locusts was observed and therefore Novacrid was recommended for use, particularly in ecologically sensitive areas.
- 105. The resource person from Uzbekistan (Environmental Assessment Specialist) informed of the interest of his country for a wider use of biopesticides against locusts and the need to continue this test against CIT and Saxaul humpback grasshopper. He also thanked FAO officers and the FAO Team Leader, NSPMD, for supporting the participation of the students, who are now interested in continuing their studies on locusts. He also called for an official registration of Green Barrier in Uzbekistan (Novacrid having been already registered).

Sub-regional demonstration/trial on biopesticides use for Caucasus (Kakheti, Georgia) (Item 14)

- 106. Mr Ilia Gorozia, the resource person (former FAO National Consultant/Microbiologist) from Georgia reported on the biopesticide demonstration/trial conducted in June 2023 in Kakheti, East Georgia, for which he had acted as FAO Consultant, Microbiologist. In the end of May, the experimental plots were chosen. They contained mid-size CIT 2nd-3rd instar hopper bands. Plot size (treated and untreated control) was 5 ha, with two replicates. The biopesticide tested was *Metarhizium acridum* (commercial name Novacrid). Prior to the application, which took place on 28 May, spore viability was assessed under the lab conditions. It was estimated at 83 percent, therefore the applied dose rate was 50 grams (g)/ha. After the treatment, locust hoppers and non-target orthopteras were collected with nets and placed into cages (50 individuals per cage, three replicates). Observations, both in the field and in cages, continued for 21 days. During this period, the mean temperature was 22.5°C and mean air humidity was 55.4 percent. In the cages, hopper mortality onset 3 days and peaked 6 to 14 days post-treatment. The maximum mortality attained was 93 percent 21 days after application. No mortality of non-target organisms was recorded.
 - 107. Between 8 and 11 June, a regional demonstration/trial of biopesticides took place in the framework of the USAID funded-project, for the benefit of 32 participants from Armenia, Azerbaijan and Georgia, as well as from Uzbekistan and from Sardinia, Italy (at own cost), in addition to FAO experts as well as representatives from USAID and from Micron (the two latter also at own cost). This demonstration consisted in a treatment with fungal biopesticide *Metarhizium acridum* against young instar hoppers of CIT. The following activities were held: presentations on the use of biopesticides in locust control, spore viability assessment, field spraying (mixing, ULV sprayers calibration, spraying), collection of locusts in cages and mortality assessment (including of treatments conducted also on 28 May) as well as rapid assessment of impact on non-target organisms. The event ended with a discussion on preliminary observations,
lessons learnt and recommendations.

- 108. Based on the experience gained and lessons learnt, the following recommendations were made by the resource person from Georgia for future biopesticide demonstrations/trials:
 - In order to maintain the integrity of the treated plot and prevent immigration from nearby sites, plots isolated by natural landscape barriers (hills, lakes etc.) should be chosen and/or a perimeter treatment with a chemical insecticide could be made. This practice showed good results in Georgia.
 - Biopesticide treatments should target early hopper instars to decrease the possibility of hopper band emigration from treated plots.
 - in cages, it is better to reduce the numbers of hoppers under observation from 50 to 25, to simplify the mortality monitoring.
- 109. The Delegate from Georgia complemented the above report by field observations in the treated plots. Before the treatment, four bands of 2nd instar hoppers of CIT were present in the area with densities between 350 and 370 individuals/m². During the first three days post-treatment, the bands moved for 30-35 meter (m)/day, during the fourth day for 15-20 m/day, during the 6th day for only 10 m/day. On the 7th day, the hopper band density decreased to 120 individuals/m², and the band stopped moving and started to disperse. At that time, most of the hoppers were in the 3rd instar. The Delegate noted that the biopesticide demonstration received extensive media coverage and attention from the UN Resident Coordinator in Georgia.

Summary and review of results of the two demonstrations (Item 15)

- 110. Mr Alexandre Latchininsky, FAO Senior Locust Management Expert, NSPMD, summarized the results of the biopesticide demonstrations in Jizzakh and Kakheti. He noted that the tested biopesticides exhibited a high efficacy against target locusts (nymphs of DMA and CIT) based on cage assessments. It varied from 86 (*Beauveria bassiana*) to 100 percent (*Metarhizium acridum*) approximately three weeks after treatments. Field observations in the treated plots revealed that after the application, the initially cohesive hopper bands started to disintegrate, reduced their densities and decreased the moving speed. Hoppers reduced their feeding in the first days after application, which is a very important, but hardly quantifiable, aspect of biopesticides.
- 111. The demonstrations met certain challenges. It is very difficult to find locust cadavers after the biopesticide treatments because they were taken away by predators and scavengers, primarily ants. In Uzbekistan, ant nests provided an indicator of the treatment outcome because numerous egg capsules and other parts of locust bodies accumulated on top of ant nests in the treated plots.
- 112. Movement of hopper bands through the treated plots was another obstacle in the efficacy assessment in the field. It can be recommended to increase the treated plot area and conduct post-treatment observations in its middle. Also, as stated above, a perimeter treatment with a chemical pesticide before the biopesticide application can help to maintain the plot integrity and prevent migrations of hopper bands. It was emphasized that cage collection and mortality monitoring remains a more reliable method of biopesticide efficacy assessment than field observations. Finally, while Novacrid is used in an oil formulation and therefore suitable for ULV spraying (1L/ha), Green Barrier is a water-based formulation, which makes its application with a ULV sprayer (5L/ha) suboptimal.
- 113. During the discussion, the Delegate from the Russian Federation recognized the high level of the two biopesticide demonstrations and underlined that his country supports biopesticides as an ecological alternative to chemical pesticides. He shared a short presentation on the biopesticide demonstration in Jizzakh, which was prepared by the two Russian participants of the event.
- 114. The Delegates agreed that although the biopesticides are slow-acting, their efficacy is more difficult to assess, and they are more expensive than the chemical pesticides, they have undoubtable ecological and human health advantages and are suitable for preventive locust

control strategy as well as during emergency in sensitive protected areas. It was emphasized that the best results using biopesticides would be achieved when applied against early hopper instars.

- 115. An Observer from Fungipack raised a point that the diesel fuel used as a carrier for the *Metarhizium acridum* biopesticide could be an obstacle for its aerial usage because of fire hazard. The FAO Team Leader, NSPMD, explained that aerial applications of the diesel fuel/biopesticide spore mixture is a standard way to use it, which was practiced in Eastern and Southern African countries and Madagascar without problem. He underlined that the biopesticides are well-suited for ecologically sensitive zones and proposed to conduct national biopesticide demonstrations next year.
- 116. Resource person from Uzbekistan expressed an opinion that because the DMA habitats are situated close to crops, the slow-acting biopesticides are less suitable for DMA control, compared to CIT or saxaul grasshopper. He proposed to try *Metarhizium acridum* in Karakalpakstan on these two acridids, which inhabit areas far from crops.
- 117. Other points of the lively discussion concerned the duration of the biopesticide effect (from 25 to 45 days), a possibility of the secondary infection (not studied), and potential resistance to biopesticides (improbable). Delegates agreed that it is necessary to continue operational research on biopesticides, which would provide answers to these and many other questions. As an outcome of the discussions, Afghanistan, Azerbaijan, Kyrgyzstan and Tajikistan expressed interest in testing the biopesticides at the national level.

Post-application environmental monitoring and taxonomic identification of collected material (non-target arthropods), Uzbekistan. (Item 16)

- 118. Mr Furkat Gapparov, Resource Person (former FAO National Consultant, Environmental Assessment Specialist) from Uzbekistan made a detailed and well-illustrated presentation on environmental monitoring and taxonomic identification of collected non-target arthropods after the biopesticide demonstration/trial in Jizzakh, Uzbekistan. The objective of this operational research on biopesticides consisted in assessing the impact of biopesticides used for locust control on non-target arthropod fauna, primarily in the aspect of biological diversity. The work was performed with the assistance of four students from the International Agrarian University of Tashkent, Uzbekistan.
- 119. The experimental design included three treatments, two with biopesticides (*Metarhizium acridum* Novacrid, 50 g/ha and *Beauveria bassiana* Green Barrier, 50 g/ha), and one with a chemical pesticide (Lambdacyhalothrin Atilla super EC, 10 percent) as well as untreated control. Each plot size had an area of two hectares. The target acridid was the Moroccan Locust *Dociostaurus maroccanus* DMA, 2nd 3rd instar hoppers. Its density before the treatments was from 1000 up to 5000/m².
- 120. Three methods of collection were used for non-target arthropod sampling: pitfall traps in the soil filled with alcohol/glycerin mix (20 in each plot, checked every other day), sweep-net sampling (three times per day, once a week) and light trapping for nocturnal arthropods (once a week). Collected arthropods were placed in vials with 70 percent alcohol and kept in field fridges for subsequent taxonomic identification with the assistance of specialists from the Institute of Zoology of the National Academy of Sciences, Uzbekistan. Collections started before the treatments and continued for three months post-treatment. The total number of individual arthropods collected and analyzed exceeded 12 000. They belonged to 13 orders, 42 families, 110 genera and 124 species.
- 121. Two days before the treatments, the total number of arthropods in different plots was the following: *Metarhizium acridum* 40 species; *Beauveria bassiana* 33 species; Lambdacyhalothrin 41 species; Untreated control 51 species. During three months after the treatments, the following number of arthropod species was collected from the plots: *Metarhizium acridum* 104; *Beauveria bassiana* 72; Lambdacyhalothrin 10; Untreated control 124.

- 122. Comparison between pre- and post-treatment arthropod collections in untreated control and biopesticide-treated plots showed that the arthropod diversity significantly increased during the three post-treatment months. This can be explained by the fact that the treatments took place in April, when many arthropods were still in egg or pupal stages, and they emerged or hatched in May, June and July. In the *Metarhizium acridum* treated plots, the diversity (number of species) increased 2.6 times after the treatments while in the *Beauveria bassiana* treated plots, the diversity increased by 2.2 times. On the contrary, in the plots treated with Lambdacyhalothrin, the diversity went down 4 times to only 10 species after the treatments. This is evidence of a harsh impact of the used pyrethroid insecticide on non-target arthropods.
- 123. Regarding Orthoptera insects (mostly grasshoppers), it was clear that both biopesticides killed some of grasshopper species in addition to the target DMA, as compared to untreated control, but the most pronounced impact was in Lambdacyhalothrin treated plots where only three species survived the treatment from the initial 15 species. It is interesting to note that two grasshopper species from the family Pamphagidae (*Chrotogonus turanicus* and *Pezotmethis tartarus*) appeared not to be affected by *Metarhizium acridum*. This reveals the very high selectivity of *Metarhizium. acridum*, which primarily affects insects from Acrididae family.
- 124. The impact of *Beauveria bassiana* on Lepidoptera (butterflies and moths) and Coleoptera (beetles) was more pronounced than that of *Metarhizium acridum*. This illustrates that *Beauveria bassiana* has a wider host range and not as selective against acridids as *Metarhizium acridum*.
- 125. Overall, the post-treatment environmental monitoring and subsequent taxonomic identification of the collected arthropods revealed that, as expected, the non-target impact of biopesticides (*Metarhizium acridum* and *Beauveria bassiana*) was significantly lower than in the plots treated with the pyrethroid insecticide Lambdacyhalothrin.
- 126. The Resource person reported that this three-months long project sparked great interest among the four student assistants. Moreover, specialists from the Institute of Zoology, who assisted in taxonomic identification, valued such comprehensive arthropod biodiversity study executed for the first time ever in Jizzakh region.
- 127. During the discussion, the Delegates praised the tremendous work conducted by the Environmental Assessment Specialist during the operational biopesticide study in Jizzakh and congratulated his team on achieving valuable results. An Observer from the German Think Tank TMG Research made a presentation on the impact of chemical and biological pesticides used for desert locust control on non-target organisms in East Africa. She highlighted that the main group of chemical pesticides used to curb the desert locust upsurge in 2019-2021 were organophosphates malathion, chlorpyrifos and fenitrothion, which are extremely harsh on nontarget arthropods such as honeybees. She noted that honey production in Ethiopia dropped down 78 percent in 2020, which could be linked to the large-scale organophosphate treatments carried out against the desert locust. At the same time, the large-scale use of biopesticide Metarhizium acridum against the desert locust in Somalia safeguarded food security and the livelihoods of pastoralists and beekeepers livelihoods, as well as prevented the death of natural enemies of locusts such as birds. This could be explained by the fact that after the biopesticide treatment, locusts become sluggish, making them an easy and safe prey for birds. Consequently, the avian predators work in a synergy with the biopesticide contributing to and even increasing its efficacy. She concluded by calling for more attention to be paid to non-target impact of antilocust treatments and a wider operational use of biopesticides in locust control programs.
- 128. During the discussion, the FAO Team Leader, NSPMD emphasized that new, less hazardous for the environment pesticides are urgently needed for locust control but unfortunately, there has been no progress in this direction in the past years. He reminded that during the recent desert locust upsurge, some five million hectares were chemically treated in 23 countries, although this quantity could be countless compared to massive annual pesticide use on staple crops in the same countries. In locust control, pesticides are applied by trained professionals, which minimizes the risk of pesticide-related incidents. On the other hand, he underlined that the drop in honey production in Ethiopia in 2020 cannot be unequivocally attributed to anti-locust

pesticide use without studying all the factors in the field. He emphasized the necessity to always having solid field impact assessment to obtain evidence-based documentation of the impact and he called for cooperative efforts to carry out such assessments. The Observer agreed that the findings on honey production were drawn from the limited data and statistics that were available and that there was no robust field-based data to establish a cause-and-effect relationship. Finally, the Delegates discussed potential ways to decrease the pesticide impact of locust control on pollinators, including treatments at night.

SESSION 5: RISK REDUCTION FOR HUMAN HEALTH AND THE ENVIRONMENT

Monitoring impact of locust control operations (Item 17)

Human Health and Environment (HH&Env) Monitoring Teams' work in Azerbaijan, Georgia (incl. pesticide residue analysis), Kyrgyzstan and Tajikistan (Item 17.1)

- 129. The Delegate from Azerbaijan reported on the activities carried out by the HH&E Monitoring Team in 2023, with the support of the USAID-funded project. It was indicated that the Team had been set up with the support of the FAO Programme in 2019 and consisted of three members one plant protection expert, one spraying expert and one hygienist-toxicologist. The work of the Team was done in accordance with FAO practical guidelines on risk reduction. The Team carried out five missions of four days each, as follows: on 24-28 May in Jeyranchol; 1-5 June in the Eldar steppe; 21-25 June in the Kudriya steppe; 28 June - 2 July in Adzhinokhur; and 6-10 July in Guba-Shabran area. The main activities carried out were information of the local population on safety measures, evaluation and monitoring of the treated areas, demonstration of the calibration of sprayers, monitoring of the impact of locust control operations on non-target organisms and monitoring of empty containers. The health of 31 staff participating in the locust control campaign was monitored and no adverse effects of pesticides were recorded. It was highlighted that in 2023, about 65 percent of the treated areas were controlled by ULV pesticides. Dead nontarget organisms were observed after 1-2 days of the treatment in some fields, such as beetles (Coleoptera order), wild bees (Hymenoptera order), and flies (Diptera), and no effects on other organisms were recorded. In reply to the FAO GIS Expert, who asked about the number of Human Health and Environmental Monitoring Forms filled, it was said that two forms were filled. The Delegate from the Russian Federation asked about the criteria for selecting of the zones where the Team conducted missions. The response was that the selected areas were those where most of the locust treatments were carried out.
- 130. The Delegate from Georgia provided information on the activities of the HH&E Monitoring Team, supported by the USAID-funded project. Overall, three missions were conducted in 2023, in Kahkheti, Mtskheta-Mtianeti and Kvemo Kartli. The first one was carried out from 19 May to 04 June, the second from 28 June to 13 July and the third from 27 July to 07 August. The main aim was to monitor the impact of pesticides used against locusts on the environment and human health. The field operators were instructed to conduct calibration of the equipment and follow safety precautions. Unfortunately, some dead non-target organisms were observed during the second mission, including ants, beetles and spiders. Although there were no health complaints from the operators, improper use of PPE was observed during the hot days. Therefore, it was suggested to conduct spraying in the morning and evening and strictly recommended to use PPE properly. The staff have been encouraged over the past years to fill out pesticide use passports, which was translated to the national language, however not everyone followed this recommendation. In reply to the GIS Expert, the Delegate replied that for each mission five HH&E monitoring forms were filled out. The Delegate from Georgia, in continuation of his presentation, reported the results of the pesticide residue analyses carried out on the vegetation samples over the past five years. He provided a brief overview and mentioned the importance of such research, indicating that most of the pesticides used against locusts are unfortunately harmful to nontarget and beneficial organisms, such as fish, pollinators, bees, and entomophagous arthropods.

Thus, all safety measures need to be taken, including withholding period for livestock, whose length is however still unclear for many insecticide formulations. The objective of the work conducted was therefore to contribute to identifying the required duration of such withholding period. The Delegate presented the team members, as well as the details of sampling methods used, which followed the recommendations by the FAO Environmental Expert, with whom also the results obtained were discussed. He also the provided information on the spiked samples, a reference sample for each pesticide, and how they were prepared. The tests were carried out for three types of insecticides with a.i. deltamethrin, lambda-cyhalothrin and chlorpyrifos, in the accredited lab in Georgia, "Multitest Itd", from 2019 to 2023 (with lambda-cyhalothrin and deltamethrin only in 2023). While discussing the results of the tests, the Delegate indicated that in order to get more accurate results, a number of factors had to be taken into account and that it was important to have enough sample replicates at disposal. Based on the obtained results, the following withholding periods after pesticides application were suggested: for Chlorpyrifos, a minimum of 15 days; for Deltamethrin, up to 15 days; and for lambda-cyhalothrin, up to 13 days. The Delegate indicated that there are however many questions still to be answered, such as testing animals' milk and meat for pesticide residues and assessing how many days after the treatments the harvested products are safe for human health - which can be a question for future studies.

- 131. The Delegate from Kyrgyzstan indicated that with the support of the JICA-funded project, five missions were conducted by the HH&E Monitoring Team, with a duration of five days each, as follows: on 17-22 April in Jalal-abad, 24-29 April in Osh, 8-13 May in Batken, 29 May 3 June in Talas and 12-17 June in Naryn region. The Team consisted of five DCPPQ specialists, three of them participating in each mission. For every driver of the ten ULV vehicle-mounted sprayers, the pesticide use passport was filled. ASDC was used during every mission and about 19 HH&E Monitoring forms were filled. In conclusion, the Delegate highlighted the importance of the work conducted and the need to continue. He informed that there is now a growing interest and demand for controlling and reducing the pesticide residues in agricultural products, thus the the Team has a great practical impact. He also reiterated the importance of the creation of a centre for monitoring, collection and utilization of empty containers. He indicated that following an increase of the salary scale, interest from young specialists in working with state agencies was increasing from year to year.
- 132. The Delegate from Tajikistan reported on the two sets of missions conducted in 2023, with the support of the JICA-funded project, in four zones, with a total of eight field missions. The missions were conducted in Vakhsh and Kulob zones of Khatlon, Districts of Republican Subordination and in Sughd. The first set was conducted in April and May and the second set in July and August. The Team conducted field monitoring of the area where locust control took place. Based on the conducted Acetylcholinesterase (AChE) test's results, no inhibition above the threshold was observed in 2023 locust campaign. The Team also instructed control operators on the correct calibration of sprayers, and informed the local population and administration on precautionary measures of pesticide use. In reply to a question from the FAO Operational expert, the Delegate indicated that the two available Testmate kits were used.

Country-to-country visits: participation of Uzbek Experts in the work of the Tajik HH&Env Monitoring Team and visit of Tajik Experts to the Laboratory for Quarantine and Plant Protection, Uzbekistan (Item 17.2)

- Visit of Uzbek experts to Tajikistan, August 2023
- 133. The Delegate from Tajikistan reported on the first country-to-country visit supported by the JICA-funded project, during which three Uzbek experts participated in the field mission of the Tajik HH&E Monitoring Team in Sughd, Tajikistan, from 1 to 4 August 2023. The mission was conducted in four districts, where all planned activities carried out by the Team were demonstrated. The first ones were related to human health monitoring, such as measurement of AChE level in the blood of field operators, and proper use of PPE. The importance of the

Pesticide uses passports, and the way to fill them, were explained. The team also demonstrated the calibration of ULV vehicle-mounted sprayers. The experts then monitored the impact of control operations on the environment, including non-target organisms.

134. The FAO Locust Programme Officer, NSPMD, thanked Tajikistan for hosting and sharing their experience with Uzbek colleagues. She said that the Tajik Team was established nine years ago and had now a solid experience. It was reminded that it is planned to set up such a Team in Uzbekistan during the next campaign and that during an online meeting held in late 2022 with the FAO Environmental Expert and the Uzbek Team, it has been envisaged to start conducting monitoring missions in two/three regions at first. Therefore, this country-to-country visit was very instrumental and she asked the Uzbek Delegate to comment on it and give his impression of the visit to Tajikistan. She also asked for the plan for next year. The Delegate from Uzbekistan thanked the Tajik colleague for the successfully organized mission. He indicated that the Tajik Team is very well organized and that this visit had allowed to learn a lot about the monitoring activities from a practical point of view. As for setting up a Team in Uzbekistan, it was proposed to start the monitoring activities in two regions, Tashkent and Kashkadarya, during the 2024 campaign.

• Visit of Tajik Experts to Uzbekistan, September 2023

135. The Delegate from Tajikistan shared information on the visit of three Tajik experts to the Scientific Research Institute for Quarantine and Plant Protection, AQPP, Uzbekistan, which was also supported by JICA-funded project. The visit was organized from 26 to 28 September and started with a meeting with the management of the Institute. The programme of the visit included information about the institute, its main areas of research, and achievements. Different laboratories of the Institute were visited, and the responsible staff provided detailed information on the work carried out. The visits to the locust laboratory and the laboratory of biological control were especially interesting to the guests. Upon return to Tajikistan, the information received was shared with the researchers at the National Academy of Sciences. The Delegate thanked Uzbek colleagues for the very well-organized visit and FAO for supporting this useful mission to Uzbekistan. The Delegate from the Russian Federation asked about the duration of the visit, and it was answered that the visit lasted three days. The FAO Locust Programme Officer, NSPMD, expressed her satisfaction with the good outcome of these two country-to-country visits. She provided brief background information on the idea and purpose of country-to-country visits and asked the concerned countries for any ideas for the next year. The resource person from Uzbekistan indicated that the Institute has a 130-year history and collaborates with many other institutions and he presented readiness to host similar visits from experts from Central Asian countries, including from Afghanistan.

Development of a national monitoring system of the impact of locust control on human health and the environment in Turkmenistan (Item 17.3)

136. The Delegate from Turkmenistan reported on the mission of Mr H. Van der Valk, FAO International Consultant, Environmental Expert, held from 10 to 18 April 2023, to develop an integral system for monitoring locust control operations with respect to quality, human health and environmental effects of treatments (JICA-funded project). The mission started with a number of meetings held with the Plant Protection Service and other Departments of the MAEP² as well as experts from the National Institute of Deserts, Flora and Fauna, Ministry of Health and other institutions. It was pursued with on-the-job training on monitoring techniques delivered to a team of four MAEP experts, on 12-15 April, in Akbugday district, Akhal Region, during locust

 $^{^2}$ Due to the reorganization of the Government of Turkmenistan in July 2023, the Ministry of Agriculture and Environmental Protection (MAEP) was split into the Ministry of Agriculture and the Ministry of Environmental Protection. Since the mission of the Consultant was conducted in April 2023, this report refers to the former name of the Ministry.

control operations. Activities carried out included, among others, sprayer calibration, use of the HH&E Monitoring Form, monitoring of pesticides residues and monitoring of the impact of locust control operations on non-target insects and human health. On the basis of the mission, the consultant developed a proposal for setting up a national monitoring system, including the creation of a HH&E Monitoring Team during the 2024 locust control campaign to apply the monitoring techniques in a limited number of regions. In 2025, such monitoring system can then be rolled out in all locust-affected regions. The Delegate indicated that such monitoring activities are considered a priority and that next year it is thus planned to create a HH&E Monitoring Team of 4-5 persons to carry out activities according to the proposed workplan.

137. The FAO Locust Programme Officer reminded that the mission report of the Environmental Expert was available into Turkmen (as for the one of the GIS Expert) and asked whether it should be submitted officially together with the letter including all activities for the 2024 campaign. The Delegate indicated that it was not required. In reply to a question by the observer from Fungipack, the Delegate also indicated that in Turkmenistan, there are storage places for empty pesticides containers or PPE. The observer proposed to refer to the experience of Russia in this domain, as it might be useful.

Progress made on control operations, pesticides and biopesticides, and on safety and environmental precautions (Item 18)

- 138. The Delegate from Armenia informed that locust control activities were not conducted in 2023 but 1350 ha were treated against grasshoppers and katydids. If treatments are carried out in 2024, local population, beekeepers will be informed. She explained that farmers in the field treat several insect pests, they are always informed about treatments and are aware of the use of PPE, as well as locust control activities. However, she indicated that there is a problem with the management of the empty pesticide containers.
- 139. The Delegate from Azerbaijan indicated that a pesticide information management system is used by the Agrarian Services Agency (ASA), where all pesticide stocks related information is inserted. This allows to trace pesticides, including quantities used, and analyze data. The list of national pesticides is regularly updated and those causing damage to the environment have been banned. He also explained that expired pesticides and empty containers are stocked in a polygon and that the safety use of pesticides and containers is under strict control and attention by management.
- 140. The Delegate from Georgia indicated that during spraying operations, ASDC was used and that the HH&E Monitoring Team conducted regular monitoring in the field on the impact of control operations on human health and the environment. The team checks safety measures, the use of PPE, effectiveness of pesticides, the use of pesticide passports - although the latter was not always filled. Rural population is always informed about treatments. Regarding pesticides, the Delegate indicated that organophosphates are not applied anymore and that over the past years Lambda-cyhalothrin and Teflubenzuron have been used. Small quantities of Deltamethrin is still used but it has disadvantages, as it can be less effective against older stages and the same sites have to be treated repeatedly because of its knockdown effect under high temperatures. IGRs are also used, having less impact on the environment, however, Diflubenzuron, whose metabolites were recently found carcinogenic, is to be removed from the list of registered pesticides in order to synchronize it with European Union (EU) standards. For the same reason, an exceptional governmental authorization was sought to use another IGR, Teflubenzuron. The Delegate also expressed the need to start replacing chemical pesticides with biopesticides, which proved to be effective. However, they are not suitable for all the territory, particularly near crops. A total of 80 percent of the area treated in Georgia in 2023 was with pesticides in ULV formulations. Some problems faced are the use of PPE, which is not often fully observed, and the need to improve the knowledge on pesticides use, including their technical parameters, transportation, etc. As each country has it is own legislation to follow, he asked FAO to make recommendations regarding pesticides for locust control in other countries. As to containers, the

Delegate explained that there are agreements with private companies, which collect empty containers from the National Food Agency (NFA), after obtaining a licence by the Agency of Environmental Protection. He concluded by saying that the knowledge gained thanks to the Programme was used in all these activities. It was confirmed that no new pesticides were registered for locust control in 2023.

- 141. The Delegate from Kazakhstan informed that the requirements set under the legislation on plant quarantine and protection are followed. Starting from 2024, meetings will be organized with state inspectors for information sharing and awareness raised by mass media, targeting agricultural producers, shepherds, local authorities and agricultural specialists. In spring, medical screening is carried out for staff and PPE are used during treatments, although not always. He added that pesticides for locust control are similar to those used in other countries (e.g., organophosphates, pyrethroids, IGRs etc.). Concerning the disposal of empty containers, this activity is not under the direct responsibility of the Republican Methodological Center. However, burial sites are located in Almaty region, where all containers are transported. There are no new anti-locust pesticides this year, and all pesticides used for locust control are registered at the national level. He stressed that while chemicals have impact on ecosystem and on other insects, no complaints have been received on the human health, no cases have been reported so far. The Observer from Fungipack was asked to share information about treatments with Green Barrier conducted in Kazakhstan, including information about species, stages, strengths and weaknesses.
- 142. The Delegate from the Russian Federation indicated that locust control is done mainly with neonicotinoid insecticides. Two biopesticides are registered, including Green Barrier (*Beauveria bassiana*) and Metarizin (*Metharizium anisopliae*). However, they are not used in the field. A new combination pesticide based on Diflubenzuron and three strains of microorganisms (*Bacillus thuringiensis, Beauveria bassiana* and *Streptomyces sp.*) was registered in 2023 but not operationally used yet. The Delegate explained that several ULV pesticides are registered now. One big problem which was stressed is that control operations at high temperatures lose effectiveness; to overcome this, they are carried out at night or evening. The Delegate added that the Russian Agricultural Center carried out pesticide residue analyses but no residues were detected in several thousand samples of vegetation. Regarding the disposal of empty containers, it was explained that there are several companies involved in this activity and that the Russian Agricultural Center branch in Orenburg is licenced for their collection, transportation and disposal. Containers are sent to a special plant, which breaks them in small pieces/granules and recycles in other plastic products used in construction. The Russian Agricultural Center provides information support on the rules for collection and disposal of pesticide containers every year.
- 143. To reply to a question by Azerbaijan, the Delegate indicated that traceability of pesticides in the country is done according to the Federal law 109 of the Russian Federation "on safe use of pesticides". There is another organization working in the area of protecting plants, "Rosselkhoznadzor" (Russian Federal Service for Veterinary and Phytosanitary Supervision), which controls pesticide import in the country, tracking, storage, logistics and application in the field, done through a specific federal information system called Saturn. He ended by saying that before treatments, beekeepers and rural population is informed through local media, radio, posters, social networks and other means.
- 144. In reply to a question from the Delegate from Georgia, the FAO Senior Locust Management Expert, NSPMD, indicated that the *Metarhizium* registered in Russia is different from *Metarhizium acridum;* to a certain extent it is similar to *Beauveria bassiana* because it is broad-spectrum and this is why FAO supports a locust-specific *Metarhizium acridium*.
- 145. The FAO Team Leader, NSPMD, remarked that the problem of empty containers is very important and that each country dealing with pest control should take care of empty container management and disposal. There are many ways to implement this activity, for example, for desert locust, FAO provided a drum-crusher for metal drums. Currently FAO is implementing Locust-PMS to conduct inventory and track equipment and pesticides used for locust control. He added that this system is being piloted in Georgia and encouraged countries to implement it,

considering how useful it is and free of charge.

- 146. The Delegate from Kyrgyzstan informed that thanks to the pesticides provided by FAO, in 2023 42 percent of the area was treated with ULV formulations, whilst previously only ten percent was covered by this technology, so this is a good progress. More than 26 000 ha were treated in 2023 with ULV pesticides.
- 147. The Delegate from Tajikistan indicated that pesticides in EC formulation are mainly used in his country. Plastic containers are disposed according to the legislation by a private company.
- 148. The Delegate from Turkmenistan explained that before the beginning of locust campaigns, they identify and give tasks to staff. As to pesticides, mainly pyrethroids are used. He also indicated that empty containers are transported to a warehouse for disposal by a special authorized state agency.
- 149. The Delegate from Uzbekistan explained that locust management has changed in the recent years. Additional equipment has been put at disposal of AQPP, including pick-up vehicles, tents, water-tank lorries, laboratory equipment. However, additional vehicles have been requested to FAO in the framework of the JICA-funded project and ten have been received but it as not sufficient to cover the needs. Therefore, 15 more pickups will be purchased. As to empty pesticide containers, he explained that there are five companies recycling them, they are not buried anymore. To the question posed by the Observer form the German Think Tank TMG Research about expired obsolete pesticides, the Delegate informed that small quantities are used and that expiry dates and quality are checked. There has been no case of leftover of pesticides. Replying to a question about new pesticides tested in 2023 against locusts, the Delegate from Uzbekistan mentioned chlorantraniliprole. The FAO Senior Locust Management Expert, NSPMD, added that chlorantraniliprole has been tested for grasshopper control in the USA several years ago and showed good efficacy and low non-target impact but was not cost-effective.
- 150. The FAO Senior Locust Management Expert, NSPMD, asked the countries' feedback about Micron technical manager's visit to various countries in Central Asia. Uzbekistan indicated that some Turkish sprayers were procured as Micron ones are expensive but their quality was low, so next year it is planned to procure Micron sprayers. Tajikistan informed that it was agreed to conduct a training on calibration of ULV sprayers. Spare parts are required, in particular pesticide pumps, because out of 25 AU8115 sprayers, seven were not working for this reason. The Senior Locust Management Expert explained that this is due to the fact that these sprayers are used with EC pesticides, which deteriorate the machine. He also indicated that next year, it is planned to conduct a comparative demonstration of ULV versus EC spraying in Azerbaijan in May for all CCA countries. It might be possible to combine this demonstration with biopesticide application and it would be beneficial if Micron could participate.

Further testing/use of the Locust Pesticide Management System (Locust-PMS) – pilot activity in Georgia (Item 19)

151. The Delegate of Georgia indicated that his country, in 2023, had tested the Locust- PMS for the second year, with the support of the USAID project. To do so, two specific visits were conducted by NFA team on 3-10 August 2023 and on 30 August-6 September 2023 to the pesticide storage warehouses of Marneuli, Mtskheta, and Kakheti. The Georgian team carried out an inventory of pesticides and equipment used in locust control as well as a risk analysis using the PMS, i.e. respect of safety measures for the pesticide stores. Barcodes were printed from the QR code printer and sticked to the pesticide containers or packaging boxes. The tracking of the movements of pesticides and equipment within the country was tested. Data review and validation were also ensured in the cloud server. In testing the system, a number of issues were detected, as follows: it was difficult to access the Locust-PMS from field warehouses (slow login) therefore data were first recorded on paper and then entered into the system; the system showed pesticides' movements between the warehouses late; printing was sometimes difficult and information on the printed QR codes was not fully displayed (not fully showing batch and quantity). Liaison with FAO IT Experts allowed fixing most issues; regarding QR codes printing,

FAO experts indicated that specific Bluetooth kits can be delivered and installed on any printer having a Low Energy Bluetooth connection (a classic Bluetooth being required).

- 152. The Delegate then showed the Locust-PMS interface and various steps needed to fill it. He acknowledged the seriousness of pesticides management and highlighted that the Locust-PMS allows to: monitor the available stocks of pesticides and equipment used for locust control; monitor pesticides' expiration date and thus avoid accumulation of expired anti-locust pesticides in the country; monitor the management of empty pesticide containers, in order to prevent their inappropriate use or environment pollution; monitor damaged containers, so that they are used first, avoiding spilling of pesticide; monitor stocks of PPE as well as equipment availability and condition; plan effectively and economically for the next year's campaign; and facilitate analysis of the range of pesticides used for locust control in the region as well as of PPE, equipment and empty container management. In conclusion, he indicated that NFA would like to test the system for an additional year and asked whether it could be translated into national language to facilitate understanding by all technicians.
- 153. The FAO Team Leader, NSPMD, thanked Georgia for piloting the system, the comments made being very useful in this phase. The Locust-PMS was designed for locust-affected countries. It is available in four languages, Arabic, English, French and Russian and can be customized for any other language as needed. It is currently been implemented in about five locust affected countries. He encouraged other CCA countries to test the system. After having congratulated Georgia, the Locust Programme Officer confirmed the possibility to translate the system; FAO will therefore take care of such translation into Georgian while NFA can then review it to ensure that appropriate technical terminology is used. In reply to several questions, the Delegate from Georgia clarified that the system was for use by the national services responsible for locust management, for management of all available stocks of pesticides for locust control. The system was deemed particularly useful for big countries having many pesticides warehouses; it is simple to use and the pesticides warehouses operators can easily enter data, which can then be controlled at the central level. It can be installed either on tablets or smartphones, although the bigger the screen is, the easier it is. Last, the Team Leader clarified that the system was only for locust management for the time being; it may be extended to pesticides used for other pests if deemed appropriate. The Delegate of the Russian Federation drew the attention of FAO to the fact that in his country a possible constraint for introduction of the system is national legislation.

SESSION 6: LOCUST PROGRAMME IN CCA: WHAT IS NEXT?

Towards the establishment of a FAO Commission on locusts in CCA - Update (Item 20)

- 154. The Locust Programme Officer, NSPMD, briefed the Delegates on the steps related to the requests for the establishment of the FAO Commission for locusts in CCA. She emphasized that only the creation of a permanent body would ensure regional technical cooperation in the long-term. She reminded briefly the related efforts made in the previous years for the establishment of such permanent cooperation body and the conclusion reached that an FAO Commission under Article XIV of its Constitution proved to be the most viable and sustainable solution (including considering the experience of the existing three Desert Locust Commissions). She reminded that as a result of the various related exchanges between countries, four countries sent official support letters to FAO for the creation of such a Commission: the Russian Federation, Uzbekistan, Kazakhstan and Georgia. She informed that, although some delays were encountered, the feasibility of the creation of such Commission was under internal assessment within FAO, this being a preliminary prerequisite to proceed with any further next steps. The creation of such Commission indeed implies legal and financial commitments from all parties and as such needs to receive the required internal clearances.
- 155. During the discussions, the Delegate from Kyrgyzstan indicated that the issue had been discussed with the Minister for Agriculture and that his country was fully supportive and ready

for the next steps, i.e. discussion of an agreement. The Delegate from the Russian Federation asked several questions on the progress and process, including whether CCA countries could start preparing jointly the agreement for the Commission to speed up the process. The Locust Programme Officer replied that it would be premature and that regional technical meeting(s) to discuss the creation of a new Commission and negotiate the treaty would be convened after the internal assessment within FAO. In reply to a question on the participation of countries in such regional Commission, i.e. the ten CCA countries or also other neighboring countries, the FAO Team Leader, NSPMD, indicated that this is to be decided during the establishment phase and the discussion of the agreement of the Commission. He added that once a Commission is created, the adherence of new countries is possible, based on agreement of Members. The Delegate of Armenia requested that any available background documentation be shared for further follow-up on this important question. The Delegates encouraged the countries to send as many official support letters as possible in order to expedite the process of the establishment of the Commission.

Programme of work during 2024 (Item 21)

- 156. The FAO Locust Programme Officer, introduced the annual Workplan for Programme Year 13, from 1 October 2023 to 30 September 2024, indicating that three main funding sources are available for the concerned period: the JICA-funded project for Central Asia; the USAID-funded project including one component for Caucasus and another for nine CCA countries, on the use of up-to-date control methods and operational research on biopesticides in CCA; and a modest contribution of the FAO RP. Tentative budgets accompanying the workplan are provided in Annex IV.
- 157. The endorsed Workplan, as a result of the discussions, is presented in the below table, by funding source, with tentative periods where available. A number of dates still need to be defined for activities it is expected that countries will provide their workplans (especially for trainings and monitoring sessions of the HH&Env Monitoring Teams) sufficiently in advance, for organizational purposes.
- 158. Regarding Central Asian countries specifically, the workplan of project GCP/INT/384/JCA was also endorsed during the fourth JICA Project Steering Committee (PSC 4) held the same day, on 23 November 2023. During the presentations, it was reminded that the organization of activities in Kazakhstan, as well as the delivery of background documentation and tablets, is subject to project signature. For Afghanistan, it was indicated that the agreement of JICA had been received to resume partially project implementation in order to provide technical support in view of the 2024 locust campaign more specifically to implement the following activities: delivery of training sessions and accompanying background literature; use of the sprayers stored in FAO warehouse and purchase of additional sprayers, in line with need assessment and within the budget allocation for equipment for this country.
- 159. Regarding the USAID-funded project (GCP/GLO/917/USA), a discussion was held regarding the remaining activities, in particular the envisaged ToT on biopesticides, scheduled during the third and last project year. It was acknowledged that the organization of such ToT was deemed as premature during the 2024 locust campaign as biopesticides have not been introduced/tested yet, nor registered, in most CCA countries. It was thus agreed that as many as possible national demonstrations on biopesticides should be held during the 2024 and 2025 campaign, to the attention of both decision-makers and technicians while the ToT should be held immediately after to be impactful. For this reason, it was agreed that a request for a one-year extension (i.e. allowing the project to cover activities during both 2024 and 2025 campaigns and to organize the ToT in late 2025) would be submitted to the resource partner.
- 160. It was also agreed that for the regional activities including the Russian Federation (which participates actively in the Programme but is currently not financially covered by any project), participation of its experts will be funded by the Russian Agricultural Center.

Table 4 Endorsed workplan for Programme Year 13 (2024 campaign) in CCA

OUTPUTS/ACTIVITIES	GCP/INT/384/JCA	GCP/GLO/917/USA	RP
OUTPUT 1- Regional cooperation further developed			
Activity 1.1. Facilitate regional exchanges to manage locust situations			
 1.1.1 Regular information sharing of standardized data: nat. and reg. monthly bulletins yearly from March to October 1.1.2 Direct experience exchange: annual Technical Workshops (TW) in CCA 	Bulletins TW 2023	Bulletins	
<u>Activity 1.2.</u> Support joint or cross-border surveys (CBS)	6-7 CBS: UZB/KYR, UZB/TAJ (x2), UZB/TUK, UZB (KAZ), (KYR/TAJ) + surveys on each side of the AFG and TAL		
Activity 1.3. Organize country-to-country visits within the region	1 visit (Kyrgyz experts in Uzbekistan)	Not applicable	
Activity 1.4. Identify the best long-term solution for sustainable regional cooperation	Countries to express the letters and if possible, region	eir opinion by official onal meeting to be held	
<u>Activity 1.5.</u> Allow technical, programmatic, operational and financial projects management/coordination within the whole Programme	Yes	Yes	Yes
OUTPUT 2- National capacities further strengthened			
Activity 2.1. Extend Training-of-Trainers (ToT) on locust management to all CCA countries 2.1.1. Regional sessions/Refresher courses (for Master-Trainers) 2.1.2. National sessions (for staff) 2.1.3. Briefing sessions (for staff/ local manpower)	National sessions for locust staff (based on model of regional sessions) & Briefing sessions at the start of control operations for staff/manpower, by Master-Trainers Targeted training on locust monitoring, incl ASDC/CCALM, by FAO trainers: AFG, KYR, TAJ, TUK (KAZ) National Action Plans expected by 31 Dec. 2023	National sessions for locust staff (based on model of regional sessions) & Briefing sessions at the start of control operations for staff/manpower, by Master-Trainers National Action Plans expected by 31 Dec. 2023	Trainin g on locust moni- toring (RF, Oren- burg, mid- April 2023)
Activity 2.2. Make available background documentation (Practical guidelines, monographs, etc.)	 PG 3P to be published and dispatched in English (AFG) and in Turkmen (TUK) Preparation of one new PG, on locust monitoring, and of additional DMA/LMI /CIT posters Printing and dispatch of the DMA monograph to all countries as well as of relevant PG and posters to Afghanistan, Turkmenistan (and Kazakhstan) 		DMA Monog raph (RUS)
Activity 2.3. Organize exposure visits on locust management outside CCA	Not applicable	Not applicable	
Activity 2.4. Support post-graduate education/fellowships	Not applicable	Not applicable	
Activity 2.5. Support applied research	Not applicable	Not applicable	

OUTPUTS/ACTIVITIES	GCP/INT/384/JCA	GCP/GLO/917/USA	RP		
OUTPUT 3- Locust issues and disasters better anticipated and mitigated					
Activity 3.1. Strengthen human and operational capacities for locust monitoring 3.1.1 Human capacities on survey 3.1.2 Operational capacities (survey equipment)	Remaining survey equipment to be procured or delivered	Remaining survey equipment to be procured or delivered			
Activity 3.2. Support introduction and operational use of monitoring and analyzing systems: Automated System for Data Collection (ASDC) and Caucasus and Central Asia Locust Management System (CCALM) 3.2.1. ASDC: tablets delivered 3.2.2. CCALM: support for use at the national level (GIS introduction and trainings) 3.2.3. CCALM: support for use at the regional level (GIS management and improvement)	Support to ASDC and CCALM use by countries, incl. through trainings (see above Act. 2.1) Tablets delivery to Tajikistan (20 units) and Turkmenistan (11 units) (and to Kazakhstan) (<i>JICA project</i>) CCALM in-depth introduction to Kazakhstan (period TBD), linkages between CCALM and national database (<i>JICA project</i>) Online training on new HH&Env Form GIS Workshop (February/March 2024) & E-Committee on CCALM (July 2024) CCALM videos available as well as ASDC/CCALM in national languages Systems maintenance and improvements Remaining office equipment to be delivered for CCALM use				
<u>Activity 3.3.</u> Enhance preparedness for risk reduction through harmonized national contingency plans (at least one pilot country)	Contingency plan to be Not applicable finalized for Tajikistan – National Workshop (May/June)				
OUTPUT 4- Improved response mechanisms to locust out	breaks				
Activity 4.1. Strengthen human and operational capacities for locust control 4.1.1 Human capacities on control 4.1.2 Operational capacities (control equipment)	Biopesticides (UZB and for national demonstrations) Training on ULV spraying: AFG	Remaining control equipment to be procured or delivered, including biopesticides for national demonstrations			
Activity 4.2. Promote less harmful pesticides and alternatives to conventional pesticides 4.2.1 E-Committee on pesticides 4.2.2 Promotion of the ULV technology 4.2.3 Alternatives to conventional chemical pesticides: video tutorial on Insect Growth Regulators (IGRs) 4.2.4 Alternatives to conventional chemical pesticides: field trial/ demonstration on biopesticides use	Regional technical comparative side-to-side demonstrations of selected ULV and EC pesticides, May-June 2024, Azerbaijan (USAID) Advocacy material on ULV technology & on biopesticides (to be dispatched to remaining countries) Field trials/demos on biopesticides use (<i>Metarhizium acridum</i>) at national level: AZE (USAID) KYR, TAJ, UZB (KAZ) (JICA)				

OUTPUTS/ACTIVITIES	GCP/INT/384/JCA	GCP/GLO/917/USA	RP
OUTPUT 5- Impact on human health and the environment	t mitigated and monitored		
Activity 5.1. Mitigate impact of locust control operations on human health and the environment 5.1.1 Personal protective equipment (PPE) delivery 5.1.2 Pesticides and empty containers management: pilot activity on empty containers 5.1.3 Extension material for staff	Extension material for staff on pesticide risk reduction to be dispatched	Remaining PPE to be procured or delivered Locust-PMS: Georgia Extension material for staff on pesticide risk reduction to be dispatched	
Activity 5.2. Monitor impact of locust control operations on human health and the environment 5.2.1 Human capacities and national systems for health and environmental monitoring of locust control 5.2.2 Human Health and Environmental Monitoring Teams 5.2.3 Health and environment monitoring equipment 5.2.4. Pesticide residue analysis and impact assessment	Human Health and Environmental Monitoring Teams in KYR, TAJ, TUK and UZB (Action Plans expected by 20 Feb.2024) Related equipment to be delivered if needed	Human Health and Environmental Monitoring Teams in AZE and GEO (Action Plans expected by 20 Feb. 2024) Related equipment to be delivered if needed	
OUTPUT 6- Public information and awareness increased Activity 6.1. Develop awareness among local populations	(KAZ)	-	
Activity 6.2. Enhance visibility of locust issues to promote regional cooperation and improved management	Yes	Yes	

CLOSING

Any other business (Item 22)

Short updates on Moroccan Locust in Sardinia, Italy, and on Migratory Locust in Indonesia

- 161. Mr Alexandre Latchininsky, FAO Senior Locust Management Expert, NSPMD, made a presentation on outbreaks of DMA on the Island of Sardinia, Italy, and LMI on the Island of Sumba, Indonesia. On Sardinia, the last big DMA outbreak occurred in 1944-1946 but since then, the locust lost its economic importance. However, it reappeared at high densities in 2019 and since then, its infested area increased each year. Possible reasons are climate warming and extensive areas of abandoned agricultural lands where locusts bred and multiplied. Upon the request from the Sardinian authorities, in December 2022, FAO specialists provided training on DMA bio-ecology, population dynamics and management methods. At the same occasion, monitoring plan was developed based on automated data collection with geospatial devices on a 50-ha grid. The timing of hatching was correctly predicted using the sum of effective temperatures method. In 2023, 35 000 ha were found infested by DMA out of 62 000 ha surveyed. Treatments with insecticide deltamethrin EC covered 6 670 ha allowing to suppress DMA population and prevent damage to crops. Natural enemies, egg predators such as blister beetles were preserved by collecting them in the areas to be treated and relocating to other, untreated zones. Upon invitation from FAO, Sardinia specialists attended the regional biopesticide demonstration in Kakheti, Georgia, after which they decided to introduce ULV technology and *Metarhizium acridum* on Sardinia and made practical steps to that end.
- 162. Regarding the Migratory Locust on the Island of Sumba, Indonesia, the FAO, Senior Locust Management Expert, NSPMD, participated in a week-long mission on Sumba in July 2023 in the framework of an FAO emergency project TCP/INS/3902 € with an objective to assess the locust situation and control measures undertaken. Compared to 2022, locust population has decreased overall; however, localized high densities and even swarms were observed. Damage to maize the main staple crop in Sumba was very high in some areas. Control measures included collection of locusts for remuneration by village communities (16 tons in total) and chemical treatments with pesticide fipronil EC (1 100 ha in 2023). Progress in using PPE by locust control staff was illustrated comparing 2022 and 2023 photos. In October 2023, experiments with biopesticide *Metarhizium acridum* showed promising results with 96 percent locust mortality in rice fields. Daily temperatures between 30 and 32°C during the trials contributed to accelerated mortality already ten days post-treatment. Delegates thanked the Senior Expert for an interesting presentation illustrating NSPMD involvement in different locust issues worldwide.

FAO response to the 2019-2021 locust crisis in the Horn of Africa

163. Mr Shoki Al Dobai, FAO Team Leader, NSPMD, presented a video regarding the FAO response to the 2019-2021 locust crisis. In 2018, after two cyclones hit Yemen, Oman and Saudi Arabia, desert locusts found fertile ground to start reproducing out of control in the Horn of Africa, resulting in the worst desert locust crisis in living memory. The locusts quickly spread across Southwest Asia, and the Horn of Africa and threatened the West Africa region. FAO, thanks to the support of generous countries and donors, set up locust control and prevention in affected and potentially affected countries to minimize the damage caused by the Locusts. The video is available at: https://youtu.be/vGciHWRNWQQ?sis_JOtdlKd_E7pjly .

14th International Congress of Orthopterology, Merida, Mexico

164. The FAO Team Leader, NSPMD, reported on the 14th International Congress of Orthopterology, organized by the Orthopterists' Society on 16-19 October 2023 in Merida city, Mexico, with the participation of 172 persons from 29 countries. A total of 59 symposia were organized covering ten topics, including on the impact of climate change and new approaches on management of the Central American Locust, new vision on locust and grasshoppers' management, implementation of national and regional programs for locust management, etc.; 27 lead presentations covering five topics were also delivered in addition to workshops and *ad hoc* meetings. The Team Leader made two presentations on the FAO Global Response to the Desert locust upsurge in the Horn of Africa in 2019-22 and on the Launch of the FAO Global Programme on Locust Management, including the Programme in CCA. The FAO Senior Locust Management Expert, NSPMD, made a presentation

on Locusts and grasshoppers' management in the 21th century, challenges and way forward. An important symposium was also organized by the FAO's Executive Secretary of the Desert Locust Regional Commission for the Western African Region (CLCPRO) about the use of biopesticides for locust control, focusing on the policy aspects of their promotion, including the registration process, use and benefits of *Metarhizium acridum*, application challenges, also for the industry to sustain its production. Another topic was a study on the factors influencing its stability, efficacy and resistance, developed by a University Professor from Mauritania. In addition, a special meeting was dedicated to the impact of climate change and new approaches on locust management of Central and South America; benefiting from FAO's experience, discussion also concerns the establishment of a regional programme for locust management in Central and Latin American and the Caribbean, similarly to what has been done in CCA. Further discussions would take place with the FAO Regional Office in Latin America and the Caribbean, and also the regional plant protection organizations for the establishment of such regional programme, including to harmonize the monitoring and early warning system.

165. Main conclusions and recommendations from the Congress included: use of barrier treatments against locusts to reduce the cost of operations; promotion and use of biopesticides by national governments against locusts and grasshoppers; and promotion of the locust preventive control strategy by implementing monitoring and early warning systems allowing to conduct very targeted and timely control operations (instead of reactions to upsurges and outbreaks) with alternatives to chemical pesticides. It was decided to form an alliance of locusts scientists to work with FAO to advocate the efforts of promoting the use of locust biopesticides, by developing a concept note to support this approach. The Team Leader also congratulated the FAO Senior Locust Management Expert, NSPMD, who received the Sir Boris Uvarov Award in Applied Acridology in recognition of his extensive contribution to locust management at the global level, and particularly in Caucasus and Central Asia. He mentioned other experts awarded over the past years, including the technical expert from Uzbekistan, Mr Furkat Gapparov, present in the room. The Team leader indicated that additional information and presentations can be found on the website of the Congress (<u>https://ico2023mexico.com</u>) or also on the website of the Orthopterists' Society (<u>https://orthsoc.org</u>).

Global Locust Initiative

- 166. Ms Mira Word Ries, Project Coordinator, Global Locust Initiative (GLI), presented the project explaining that this Arizona State University based initiative was launched in 2018. Its objective is to create a global community, beyond locust emergencies, by bringing people and organizations together across boundaries, cultures and disciplines. One avenue promoted under the GLI Network community is called "HopperLink" (www.bit.IY/JoinGlobalLocustNetwork), which was created to connect researchers, practitioners and other stakeholders working with locusts and grasshoppers on a single platform. It is a professional network where members can share research, events and network with other stakeholders. There are actually more than 200 members, from 40 countries. Ms Ries encouraged the audience to join this initiative.
- 167. Mr Rick Overson, Research Scientist, School of Sustainability, College of Global Futures, presented another project, called "HopperWiki" (www.Hopperwiki.org), which is still in early stages. It is a large information repository for the global community, accessible to everyone, where resources can be found, experts can collaborate and curate information. He explained that the idea of creating a single database was born following the huge amount of requests for information received from a number of actors during the last desert locust upsurge and a South American Locust outbreak in South America. Web pages include information on species profiles, biological info, management, organization, and references to other external pages to get the right resources. He also indicated that an account can be created to edit or add information, and asked participants to the workshop to explore the platform.
- 168. The FAO Senior Locust Management Expert, NSPMD, thanked the speakers for the interesting and necessary initiative. In reply to his question, it was indicated that resources are available in several languages, and that Google translator can help translate the pages in all languages. Professional translations can also be done by the University and in such cases, they are uploaded on the web. A resource person from Uzbekistan indicated that he posted some videos and activities from his country and had received feedback from other specialists. He thanked the speakers for the job and the possibility of getting information from all over the world. The

FAO Team Leader, NSPMD, stressed that these platforms will be extremely useful for people working with locusts and grasshoppers, for researchers, for locust management officers, creating a link among all people and a good network. He expressed the willingness for future cooperation with GLI.

Venue of the next annual TW

169. Regarding the venue of the 2024 TW, it was agreed that it could be held in Ashgabat, Turkmenistan, since this had never happened before. In case this would not be possible, another option would be Bukhara, in Uzbekistan.

Adoption of the report (Item 23)

170. The Report was adopted unanimously, with amendments made.

Closing address (Item 24)

- 171. The FAO Team Leader, NSPMD, expressed gratitude to all participants on behalf of FAO for very active contributions during the TW and PSC 4. He indicated that fruitful discussions had taken place, which allowed a good review of the progresses made as well as agreeing on the workplan for next year, a dense one. The planned activities show the high interest of countries as well as the willingness to enhance knowledge, bring innovations in working modalities and embrace new technologies. He concluded by thanking the host country, Kyrgyzstan, for the very generous hospitality, as well as the Chairperson for having successfully led the discussion. He also thanked the NSPMD colleagues for the work carried out in implementing the Locust Programme in CCA. Last, he thanked the FAO-Representation in Kyrgyzstan for the organization of the TW as well as the interpreters. He wished an excellent, happy and healthy year 2024 to all.
- 172. The Chairperson thanked FAO organizers, both from headquarters and the Representation in Kyrgyzstan for the support provided, as well as all Delegates for the valuable information shared and the active participation during the week. He wished peace to all countries and a good travel back to participants and expressed the hope to meet again all at the next occasion.

ANNEXES

Annex I - List of participants

NAME	TITLE & AFFILIATION	
	COUNTRIES	
	ARMENIA	
Ms Rima KARAPETYAN	Head, Phytosanitary Division, Food Safety Department, Ministry of Economy (MoE)	
Mr Garnik HOVHANNISYAN	Director, State Non-Commercial Organization "Centre of Agricultural Services", MoE	
AZERBAIJAN		
Mr Fikrat FEYZIYEV	Head, Department for State Seed Control and Organization of Plant Production, Agrarian Services Agency (ASA), Ministry of Agriculture (MoA)	
Ms Aysel HUSEYNLI	Leading Consultant, Unit for Phytosanitary Services, Department for State Seed Control and Organization of Plant Production, ASA, MoA	
	GEORGIA	
Mr Lasha NUTSUBIDZE	Deputy Head, Plant Protection Department, National Food Agency (NFA), Ministry of Environment Protection and Agriculture (MEPA)	
Mr Bejan REKHVIASHVILI	Head, Plant Quarantine Division, NFA, MEPA	
KAZAKHSTAN		
Mr Zhanybek KENESBEKOV	Director, Republican State Institution "Republican Methodological Center for Phytosanitary Diagnostics and Forecasts", State Inspection Committee, Ministry of Agriculture	

Annex I

NAME	TITLE & AFFILIATION		
	KYRGYZSTAN		
H.E. Mail ALIYASKAROV (Opening speech)	Deputy Minister of Agriculture		
Mr Dyikanbai KENJEBAEV	Director, Department of Chemicalization, Plant Protection and Quarantine (DCPPQ), Ministry of Agriculture (MoA)		
Mr Zhalilbek TOIMATOV	Deputy Director, Department of Chemicalization, Plant Protection and Quarantine (DCPPQ), Ministry of Agriculture (MoA)		
Mr Almaz ALAKUNOV	Head, Plant Protection and Control Division, DCPPQ, MoA		
THE RUSSIAN FEDERATION			
Mr Andrey ZHIVYKH	Head, Plant Protection Department, Federal State Institution "Russian Agricultural Centre", MoA		
TAJIKISTAN			
Mr Firdavs KADYROV	Deputy Head, State Entity "Locust Control Expedition" (SE-LCE), Ministry of Agriculture (MoA)		
Mr Dilshodbeg AHMADOV	Deputy Head, SE-LCE, MoA		
TURKMENISTAN			
Mr Hojageldi GUJUMOV	Head, Plant Protection Service (PPS), Ministry of Agriculture (MoA)		
Mr Malikmuhammet CHARYYEV	Chief Specialist, PPS, MoA		

NAME	TITLE & AFFILIATION
	UZBEKISTAN
Mr Utkir MIRZAEV	Chief Specialist, Department for Locust and Mulberry Pyralid Control, Agency for Quarantine and Plant Protection (AQPP), Ministry of Agriculture
	FAO
Mr Shoki AL-DOBAI	Team Leader, Locusts and Transboundary Plant Pests and Diseases (NSPMD)
Mr Alexandre LATCHININSKY	Senior Locust Management Expert, NSPMD
Ms Marion CHIRIS	Locust Programme Officer, NSPMD
Mr Bahromiddin HUSENOV	Agricultural Officer (Plant Protection/Locusts), NSPMD
Ms Nadiya MURATOVA	FAO Consultant, Geographical Information System (GIS) Expert, NSPMD
Ms Greta GRAVIGLIA	FAO Consultant, Operations Expert, NSPMD
Mr Kuvatbek BAPAEV (Opening speech)	Deputy Representative a.i., International Technical Advisor on Forestry, Rangeland and Governance, FAO Representation in Kyrgyzstan
Ms Gulmira URMANBETOVA	National Project Coordinator (GCF), FAO Representation in Kyrgyzstan
Ms Samara KASYMBEKOVA	National Capacity Development Assistant, FAO Representation in Kyrgyzstan
Mr Shah Mahmood SADEED (online)	Senior Plant Protection Specialist, FAO Representation in Afghanistan

NAME	TITLE & AFFILIATION			
Mr Habibullah SAFI (online)	Phytosanitary Lab expert, FAO Representation in Afghanistan			
	RESOURCE PERSONS/TECHNICAL EXPERTS			
Mr Ilia GOROZIA	Resource person, Georgia			
Mr Furkat GAPPAROV	Resource person, Uzbekistan			
Mr Fozilbek NURJONOV	Resource person, Uzbekistan			
OBSERVERS				
RESOURCE PARTNERS				
OBSERVER FROM JAPANESE INTERNATIONAL COOPERATION AGENCY (JICA)				
Mr Kawamoto HIROYUKI (Opening speech)	Chief Representative of the Japan International Cooperation Agency (JICA) in the Kyrgyz Republic			
Ms Ritsuko ARISAWA	Project Formulation Advisor, JICA in the Kyrgyz Republic			
Mr Esentur BEKTURSUN UULU	Program Assistant, JICA in the Kyrgyz Republic			
OBSERVER FROM UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT (USAID)				
Mr Yene BELAYNEH (online)	Senior Technical Advisor, United States Agency for International Development (USAID)			

NAME	TITLE & AFFILIATION		
	OBSERVERS FROM KYRGYZSTAN		
Mr Zhanybek DERBISHALIEV	National Consultant for Bulletins, Kyrgyzstan		
Mr Kumushbek MAMBETOV	Dean of the Faculty of Agronomy and Agriculture, Kyrgyz National Agrarian University (KNAU)		
Ms Gulmira BAYALIEVA	Head of the Department of Plant Growing and Plant Protection, KNAU		
Mr Abdybek ASANALIEV	Professor, KNAU		
	OTHER OBSERVERS		
Ms Elena LAZUTKAITE	Research Associate, TMG Research Think Tank for Sustainability (TMG Research)		
Mr Oleg FOKIN	CEO, Fungipack		
INTERPRETERS			
Ms Baktygul CHOKCHONOVA			
Ms Gulchakhra KARYMSHAKOVA			

Annex II - Agenda

TECHNICAL WORKSHOP ON LOCUSTS IN CAUCASUS AND CENTRAL ASIA (CCA) 21-24 NOVEMBER 2023, BISHKEK, KYRGYZSTAN AGENDA & TIMETABLE

ITEMS	DOCUMENTS	PRESENTERS	TIMING	
Opening session				
1. Opening	-	 H.E. Aliyaskarov Mail Aliyaskarovich Deputy Minister of Agriculture of the Kyrgyz Republic Mr Kawamoto Hiroyuki, Chief Representative of the Japan International Cooperation Agency (JICA) in the Kyrgyz Republic Mr Yene Belayneh, Senior Technical Advisor, United States Agency for International Development (USAID) Mr Kuvatbek Bapaev, International Technical Advisor, FAO Representation in the Kyrgyz Republic Mr Shoki Al Dobai, Team Leader, Locusts and Transboundary Plant Pests and Diseases (NSPMD) 	/onday 0 November 9.00-9.30 (30-min. tea/coffee- break)	
2. Election of Chairman, Vice-Chairman & Drafting Committee	-	Mr Alexandre Latchininsky, Senior Locust Management Expert, NSPMD	_	
3. Adoption of the Agenda	Provisional agenda	Mr Alexandre Latchininsky, NSPMD		
Session 1: National 2023 locust campaigns and forecasts for 2024				
4. National locust campaigns in 2023, forecasts for 2024 and preparation	Working Paper (WP) 4 (template)	Countries' presentations: Afghanistan, Turkmenistan, Uzbekistan, Tajikistan, Kyrgyzstan, Kazakhstan	10.00-12.30 & 14.00-17.30	
of the next campaigns		Countries' presentations: Russian Federation, Armenia, Azerbaijan, Georgia	(with 30-min. tea/coffee- break)	

Annex II

Session 2: Programme implementation and capacity strengthening in 2023				
5. Overview on Programme implementation in 2023	WP 5	Ms Marion Chiris, Locust Programme Officer, NSPMD		
6. Regional cooperation: Cross-border and egg-bed surveys	WP 6 (template)	Countries' presentations: Afghanistan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan		
7. National capacities' development in 2023			uesday	
7.1 Exposure visit on locust management in the national anti-locust center in Morocco		Countries' presentations: Turkmenistan & Uzbekistan	1 November 9.00-12.30	
7.2 National training sessions and briefing sessions on locust management: Afghanistan, Armenia, Azerbaijan, Georgia, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan	(template)	Countries' presentations: Afghanistan, Armenia, Azerbaijan, Georgia, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan	and 14.00-15.00	
7.3 Update on background literature on the locust pests in CCA (monthly bulletins, practical guidelines, leaflets, posters, monographs, calendars)	WP 7.3	Mr Bahromiddin Husenov, Agricultural Officer (Plant Protection/Locusts), NSPMD	(with 30-min. tea/coffee- break)	
7.4 Equipment delivered in 2023 to strengthen operational capacities	WP 7.4	Ms Greta Graviglia, International Consultant, Operations Expert, NSPMD		
 Development of a national locust contingency plan – pilot activity in Tajikistan 	WP 8 (template)	Country presentation: Tajikistan		
Session 3: Developing monitoring and analyzing systems				
9. ASDC and CCALM In-depth introduction to Turkmenistan	WP 9	Country presentation: Turkmenistan	uesday	
10. Developments of ASDC in 2023 (situation update, issues encountered, lessons learnt and recommendations) and next steps for 2024	WP 10	Ms Nadiya Muratova, International Consultant, Geog. Information System (GIS) Expert &countries' feedback	1 November 15.00-17.30	
11. Developments of CCALM in 2023 (progress made, issues encountered, lessons learnt and recommendations) and next steps for 2024	WP 11	Ms Nadiya Muratova, GIS Expert & countries' feedback		

Annex II

12. New Human Health and Environmental Monitoring (HH&Env) Form in ASDC	WP 12	Ms Nadiya Muratova, GIS Expert & countries' feedback	(with 30-min. tea/coffee- break)	
Session 4: Towards the use of biopesticides in CCA				
13. Sub-regional demonstration/trial on biopesticides use for Central Asia and the Russian Federation (Jizzakh, Uzbekistan)	WP 13-14	Country presentation: Uzbekistan (delegate and/or resource person, Mr Fozilbek Nurjonov)	Vednesday	
 Sub-regional demonstration/trial on biopesticides use for Caucasus (Kakheti, Georgia) 	(template)	Country presentation: Georgia (delegate and/or resource person, Mr Ilia Gorozia)	2 November 9.00-12.30	
15. Summary and review of results of the two demonstrations	WP 15	Mr Alexandre Latchininsky, NSPMD and resource persons	(with 30-min.	
16. Post-application environmental monitoring and taxonomic identification of collected material (non-target arthropods), Uzbekistan	WP 16	Mr Furkat Gapparov, resource person	break)	
Session 5: Risk reduction for human health and the environment				
 17. Monitoring impact of locust control operations 17.1 Human Health and Environment (HH&Env.) Monitoring Teams' work in Azerbaijan, Georgia (incl. pesticide residue analysis), Kyrgyzstan and Tajikistan 17.2 Country-to-country visits: participation of Uzbek Experts in the work of the Taiik HUR Env. Manitoring Team and wisit of Taiik Events to the 	WP 17.1 (template) &	17.1 Countries' presentations: Azerbaijan, Georgia, Kyrgyzstan and Tajikistan 17.2. Tajikistan and Uzbekistan	Vednesday 2 November	
Laboratory for Quarantine and Plant Protection, Uzbekistan 17.3 Development of a national monitoring system of the impact of locust control on human health and the environment in Turkmenistan	17.3	17.3. Turkmenistan	14.30-17.30 (with 30-min. tea/coffee-	
18. Progress made on control operations, on use of pesticides and on safety and environmental precautions	WP 18 (template)	Countries' feedback: all	break)	
19. Further testing/use of the Locust Pesticide Management System (Locust- PMS) – pilot activity in Georgia	WP 19	Country presentation: Georgia		

In-between sessions - for Central Asian countries				
Project GCP/INT/384/JPN - Fourth meeting of the Project Steering Committee (PSC 4)	Meeting document	Facilitator: Mr Alexandre Latchininsky, NSPMD Presenter: Ms Marion Chiris, NSPMD	Thursday 23 November 9.00-11.00	
Session 6: Locust Programme in CCA: what is next?				
20. Towards the establishment of a FAO Commission on locusts in CCA – Update	-	Ms Marion Chiris, NSPMD	Thursday 23 November	
21. Programme of work during 2024	WP 21	Ms Marion Chiris, NSPMD	11.30-13.00	
Closing				
22. Any other business Incl. updates on Moroccan Locust in Sardinia, Italy, and on Migratory Locust in Madagascar, Indonesia	-	Mr Shoki Al Dobai, NSPMD, Mr Alexandre Latchininsky, NSPMD & any other presenters	14.00-15.00	
Drafting Committee (preparation of the bilingual report)	-	FAO Locust Team and Drafting Commitee	Thursday 23 November afternoon	
23. Adoption of the draft report	-	Mr Alexandre Latchininsky, NSPMD	Friday 24 November	
24. Closure	-	Mr Shoki Al Dobai, NSPMD	11.00- 13.00	

Annex III - Tentative expenditures for Programme Year 12 (1st October 2022 – 30 September 2023)

Res. & Act.	Tentative expenditures for Programme Year 12 (1 Oct. 2022 - 30 Sept. 2023)	YEAR 12 (1 Oct. 2022- 30 Sept. 2023)		GCP/INT/384/JCA JICA project		GCP/GLO/963/USA USAID project		FAO Regular Programme (RP)		
		Budget Year 12	Expend. Vear 12	Budget Vear 12	Expend. Year 12	Budget Year 12	Expend. Year 12	Budget Year 12	Expend. Year 12	
R1 - Regi	onal cooperation further developed	467.000	340.132	427.000	298.362	35.000	6.282	5.000	35.488	
1.1. Facil	itate regional exchanges to manage locust situations	116,000	98,266	110,000	91,984	6,000	6,282	0	0	
1.1.1. Re bulleting	gular information sharing of standardized data: national and regional monthly issued yearly from March to October	24,000	20,618	18,000	14,336	6,000	6,282			
1.1.2. Di	ect experience exchange: annual Technical Workshops in CCA	92,000	77,648	92,000	77,648					
1.2. Supp	oort joint or cross-border surveys (CBS)	57,000	13,651	44,000	13,651	13,000				
1.3. Orga	nize country-to-country visits within the region	11,000	12,643	11,000	12,643					
1.4. Iden	tify the best long-term solution for sustainable regional cooperation	86,000	0	70,000		16,000				
1.5. Allo	w technical, programmatic, operational and financial project management	107.000	215 572	192,000	180,084			F 000) DE 499	
and coor	dination within the whole Programme	197,000	215,572					5,000	30,400	
R2 - National capacities further strengthened		287,000	279,789	259,000	218,933	28,000	56,286	0	4,570	
2.1. Exte	nd Training-of-Trainers (ToT) on locust management to all CCA countries	242,000	232,723	214,000	186,722	28,000	42,601	0	3,400	
2.1.1. Regional sessions/Refresher course (for Master Trainers)		90,000	84,564	90,000	84,109	0	455			
2.1.2. National sessions (for staff)		128,000	129,907	100,000	84,361	28,000	42,146		3,400	
2.1.3. Bri	efing sessions (for staff/ local manpower)	24,000	18,252	24,000	18,252					
2.2. Mak	e available background documentation (Guidelines, monographs, etc.)	15,000	16,159	15,000	1,304		13,685	0	1,170	
a Biblio	Material to be made available (e-committee)	0	0							
b Mono	ographs	0	#REF!		1 204		13,685		1,170	
c Guide	lines	15,000	1,304	15,000	1,304					
2.3 Orga	nize exposure visits on locust management outside CCA	30,000	30,907	30,000	30,907					
2.4. Supp	oort post-graduate education/fellowships	0	0							
2.4. Supp	oort applied research	0	0							
R3 - Locust issues and disasters better anticipated and mitigated		376,000	349,157	320,000	262,252	56,000	83,505	0	3,400	
3.1. Strengthen human and operational capacities for locust monitoring		131,000	171,636	110,000	126,515	21,000	45,121	0	0	
3.1.1. Human capacities on survey		0	3,586		3,586					
3.1.2. Operational capacities (survey equipment)		131,000	168,050	110,000	122,929	21,000	45,121			
3.2 Develop monitoring and analyzing systems		235,000	177,521	200,000	135,737	35,000	38,384	0	3,400	
3.2.1. AS	DC: tablets delivered	30,000	27,566	20,000	18,533	10,000	9,033			
3.2.2. CC	ALM: support for use at the national level (GIS introduction and trainings)	120,000	82,381	100,000	56,016	20,000	22,965		3,400	
3.2.3. CC	ALM: support for use at the regional level (GIS management and improvement	85,000	67,575	80,000	61,188	5,000	6,387			
3.4. Enha	nce preparedness for risk reduction through national contingency plans (at lea	10,000	0	10,000	0					

ti ਦ Tentative expenditures for Programme Year 12 ਅ (1 Oct. 2022 - 30 Sept. 2023)	TOTAL EXI (1 30	PENDITURES (USD) YEAR 12 . Oct. 2022- Sept. 2023)	GCP/II JIC/	NT/384/JCA A project	GCP/G USA	LO/963/USA ID project	Regula	FAO r Programme (RP)
	Budget Year 12	Expend. Year 12	Budget Year 12	Expend. Year 12	Budget Year 12	Expend. Year 12	Budget Year 12	Expend. Year 12
R4- Improved response mechanisms to locust outbreaks	181,000	241,394	78,000	123,061	103,000	99,983	0	18,350
4.1. Strengthen human and operational capacities for locust control	0	30,869	0	19,176	0	11,693		
4.1.1. Human capacities on control	0	0						
4.1.2. Operational capacities (control equipment)	0	30,869		19,176		11,693		
4.2. Promote less harmful pesticides and alternatives to conventional pesticides	181,000	210,525	78,000	103,885	103,000	88,290		18,350
4.2.1 E-Committee on pesticides.	0	0						
4.2.2. Promotion of the ULV technology	11,000	2,821	8,000		3,000	2,821		
4.2.3. Alternatives to conventional chemical pesticides: video tutorial on Insect Growth	0	1,951		1,951				
4.2.4. Alternatives to conventional chemical pesticides:	0	0	70,000	101,934	100,000	85,469	0	18,350
a Field trial/ demonstration on biopesticides use			70,000	101,934	40,000	64,063		18,350
b Post-application environmental monitoring & taxonomic identification					60,000	21,406		
R5 - Impact on human health and the environment mitigated and monitored	194,262	133,216	107,262	57,700	87,000	75,516	0	0
5.1. Mitigate impact of locust control operations on human health and the environmen	67,000	46,984	10,000	-841	57,000	47,825		0
5.1.1. Personal protective equipment (PPE) delivery	23,000	14,465		-3,911	23,000	18,376		
5.1.2. Pesticides and empty containers management:	30,000	19,190			30,000	19,190		
5.1.2 Extension material for staff	14.000	12 220	10.000	2 070	4 000	10 250		
5.2 Monitor impact of locust control operations on human health and the environment	127 262	86 737	97 262	58 541	30,000	27 691		
5.2.1. Human capacities and national systems for health and environmental	127,202	00,232	57,202	50,541	30,000	27,001		
monitoring of locust control	30,000	26,331	30,000	26,331				
5.2.2. Human Health and Environmental Monitoring Teams	77,762	48,065	55,262	25,042	22,500	23,023		
5.2.3. Health and environment monitoring equipment	18,000	6,114	12,000	7,168	6,000	-1,054		
5.2.4. Pesticide residue analysis and impact assessment	1,500	5,722			1,500	5,722		
R6 - Public information and awareness increased	11,100	14,122	5,000	3,605	6,100	10,517	0	0
6.1. Develop awareness among local populations	5,000	6,094			5,000	6,094		
6.2. Enhance visibility of locust issues to promote regional cooperation	6,100	8,028	5,000	3,605	1,100	4,423		
Other	0	0	0	0	0	0	0	0
Reporting and Evaluation	0	0						
TSS	0	0						
Sub-total	1,516,362	1,357,809	1,196,262	963,913	315,100	332,088	5,000	61,808
Support cost	136,639	146,946	83,738	111,907	52,900	35,039		
Total	1,653,000	1,504,755	1,280,000	1,075,820	368,000	367,127	5,000	61,808

Annex IV - Tentative budget for Programme Year 13 (1st October 2023 – 30 September 2024)

ນັບ Description - Activities envisaged for Year 13 and tentative budget ຜູ້ (1 Oct. 2023- 30 Sept. 2024)	TOTAL BUDGET (USD) YEAR 13 (1 Oct. 2023- 30 Sept. 2024)	GCP/INT/384/JCA JICA project	GCP/GLO/963/USA USAID project	FAO Regular Programme (RP)
	Tentative budget Year 13	Tentative budget Year 13	Tentative budget Year 13	Tentative budget Year 13
R1 - Regional cooperation further developed	460,000	425,000	35,000	0
1.1. Facilitate regional exchanges to manage locust situations	101,000	95,000	6,000	0
1.1.1. Regular information sharing of standardized data: national and regional monthly	21.000	15 000	C 000	
bulletins issued yearly from March to October	21,000	15,000	6,000	
1.1.2. Direct experience exchange: annual Technical Workshops in CCA	80,000	80,000	0	
1.2. Support joint or cross-border surveys (CBS)	73,000	60,000	13,000	0
1.3. Organize country-to-country visits within the region	8,000	8,000	0	0
1.4. Identify the best long-term solution for sustainable regional cooperation	86,000	70,000	16,000	0
1.5. Allow technical, programmatic, operational and financial project management	192.000	192.000	0	0
and coordination within the whole Programme	192,000	192,000	U	0
R2 - National capacities further strengthened	248,000	175,000	65,000	8,000
2.1. Extend Training-of-Trainers (ToT) on locust management to all CCA countries	200,000	140,000	55,000	5,000
2.1.1. Regional sessions/Refresher course (for Master Trainers)	0	0	0	
2.1.2. National sessions (for staff)	175,000	115,000	55 000	5,000
2.1.3. Briefing sessions (for staff/ local manpower)	25,000	25,000		
2.2. Make available background documentation (Guidelines, monographs, etc.)	48,000	35,000	10,000	3,000
a Biblio & Material to be made available (e-committee)	0			
b Monographs	13,000	35.000	10,000	3,000
c Guidelines	35,000	,		
2.3 Organize exposure visits on locust management outside CCA	0	0	0	0
2.4. Support post-graduate education/fellowships	0	0	0	0
2.4. Support applied research	0	0	0	0
R3 - Locust issues and disasters better anticipated and mitigated	347,000	317,000	30,000	0
3.1. Strengthen human and operational capacities for locust monitoring	87,000	87,000	0	0
3.1.1. Human capacities on survey	0	07.000		
3.1.2. Operational capacities (survey equipment)	87,000	87,000	20.000	
3.2 Develop monitoring and analyzing systems	245,000	215,000	30,000	U
3.2.1. ASDC. Idulets delivered	125.000	35,000	15,000	
3.2.2. CCALM: support for use at the regional level (GIS management and improvement	135,000	120,000 60.000	15,000	
3.4. Enhance preparedness for risk reduction through national contingency plans (at lea	15.000	15.000		

تن Description - Activities envisaged for Year 13 من and tentative budget	TOTAL BUDGET (USD) YEAR 13 (1 Oct. 2023- 30 Sept. 2024)	GCP/INT/384/JCA JICA project	GCP/GLO/963/USA USAID project	FAO Regular Programme (RP)
	Tentative budget	Tentative budget	Tentative budget	Tentative budget
	Year 13	Year 13	Year 13	Year 13
R4- Improved response mechanisms to locust outbreaks	230,000	111,000	117,000	2,000
4.1. Strengthen human and operational capacities for locust control	67,000	60,000	7,000	,
4.1.1. Human capacities on control	7,000	0	7,000	
4.1.2. Operational capacities (control equipment)	60,000	60,000		
4.2. Promote less harmful pesticides and alternatives to conventional pesticides	163,000	51,000	110,000	2,000
4.2.1 E-Committee on pesticides.	0	0		
4.2.2. Promotion of the ULV technology	93,000	3,000	90,000	
4.2.3. Alternatives to conventional chemical pesticides: video tutorial on Insect Growth	0	0		
4.2.4. Alternatives to conventional chemical pesticides:	0	48,000	20,000	2,000
a Field trial/ demonstration on biopesticides use		48,000	20,000	2,000
b Post-application environmental monitoring & taxonomic identification		,	,	· · · ·
R5 - Impact on human health and the environment mitigated and monitored	125,000	57,000	68,000	0
5.1. Mitigate impact of locust control operations on human health and the environmen	45,000	2,000	43,000	
5.1.1. Personal protective equipment (PPE) delivery	18,000	0	18,000	
5.1.2. Pesticides and empty containers management:	25.000		25.000	
pilot activity/ Locust-Pesticide Management System	25,000		25,000	
5.1.3. Extension material for staff	2,000	2,000		
5.2. Monitor impact of locust control operations on human health and the environment	80,000	55,000	25,000	
5.2.1. Human capacities and national systems for health and environmental	0	0		
monitoring of locust control	0	0		
5.2.2. Human Health and Environmental Monitoring Teams	80,000	55,000	25,000	
5.2.3. Health and environment monitoring equipment	0	0		
5.2.4. Pesticide residue analysis and impact assessment	0	0		
R6 - Public information and awareness increased	9,346	4,720	4,626	0
6.1.Develop awareness among local populations	0			
6.2. Enhance visibility of locust issues to promote regional cooperation	9,346	4,720	4,626	
Other	0	0	0	0
Reporting and Evaluation	0			
TSS	0			
Sub-total	1,419,346	1,089,720	319,626	10,000
Support cost	98,654	76,280	22,374	
Total	1,518,000	1,166,000	342,000	10,000

Annex V - List of FAO publications related to the Locust Programme in CCA (bilingual)

LOCUSTS IN CCA САРАНЧОВЫЕ В КЦА

СІТ Monograph (2022) / Монография – Итальянская саранча (2022)

[Calliptamus italicus (Linnaeus, 1758)]

Language / Язык	Link on FAO website "Locust Watch in CCA":
	ссылка на сайт ФАО – Саранча на Кавказе и в Центральной Азии:
	https://www.fao.org/locusts-cca/bioecology/italian-locust-cit/en/
RUS	http://www.fao.org/3/cb7921ru/cb7921ru.pdf

DMA Monograph (2022) / Монография – Мароккская саранча (2023)

[Dociostaurus maroccanus (Thunberg, 1815)]

Language / Язык	Link on FAO website "Locust Watch in CCA":
	ссылка на сайт ФАО – Саранча на Кавказе и в Центральной Азии:
	https://www.fao.org/locusts-cca/bioecology/moroccan-locust-dma/en/
RUS	https://www.fao.org/3/cc7159ru/cc7159ru.pdf

Practical Guidelines on the three locust pests in CCA (PG 3P - 2020) Практическое Руководство по трём видам стадных саранчовых в КЦА (2020)

Language /	Link on FAO website "Locust Watch in CCA":	
Язык	ссылка на сайт ФАО – Саранча на Кавказе и в Центральной Азии:	
	https://www.fao.org/locusts-cca/bioecology/en/	
RUS	https://www.fao.org/3/cb0879ru/cb0879ru.pdf	
Azeri	http://www.fao.org/3/cb0879az/cb0879az.pdf	
Georgian	http://www.fao.org/3/cb0879ka/cb0879ka.pdf	
Kyrgyz	https://www.fao.org/3/cb0879ky/cb0879ky.pdf	
Tajik	http://www.fao.org/3/cb0879tg/cb0879tg.pdf	
Turkmen	http://www.fao.org/3/cb0879tk/cb0879tk.pdf	

Posters DMA (2021) / Плакаты по DMA (2021)

Country /	Link on FAO website "Locust Watch in CCA":
Страна	ссылка на сайт ФАО – Саранча на Кавказе и в Центральной Азии:
	https://www.fao.org/locusts-cca/bioecology/moroccan-locust-dma/en/
AFG	http://www.fao.org/3/cb3568en/cb3568en.pdf
AZE	https://www.fao.org/3/cb3568az/cb3568az.pdf
GEO	https://www.fao.org/3/cb3568ka/cb3568ka.pdf
KYR	Kyrgyz: https://www.fao.org/3/cb3568ky/cb3568ky.pdf
	Russian: https://www.fao.org/3/cb3568ru/cb3568ru.pdf
TAJ	https://www.fao.org/3/cb3568tg/cb3568tg.pdf
ТИК	https://www.fao.org/3/cb3568tk/cb3568tk.pdf
UZB	https://www.fao.org/3/cb3568uz/cb3568uz.pdf

Posters CIT (2021) / Плакаты по CIT (2021)

Country /	Link on FAO website "Locust Watch in CCA":	
Страна	ссылка на сайт ФАО – Саранча на Кавказе и в Центральной Азии:	
	https://www.fao.org/locusts-cca/bioecology/italian-locust-cit/en/	
AZE	https://www.fao.org/3/cb3567az/cb3567az.pdf	
GEO	https://www.fao.org/3/cb3567ka/cb3567ka.pdf	
KYR	Kyrgyz: https://www.fao.org/3/cb3567ky/cb3567ky.pdf	
	Russian: https://www.fao.org/3/cb3567ru/cb3567ru.pdf	
TAJ	https://www.fao.org/3/cb3567tg/cb3567tg.pdf	
тик	http://www.fao.org/3/cb3567tk/cb3567tk.pdf	
UZB	https://www.fao.org/3/cb3567uz/cb3567uz.pdf	

AUTOMATED SYSTEM FOR DATA COLLECTION (ASDC) АВТОМАТИЗИРОВАННАЯ СИСТЕМА СБОРА ДАННЫХ (ASDC)

ASDC Video - "Get started with ASDC" (2022) / Видео урок по ASDC – начните работу с ASDC (2022)

Language / Язык	Link on FAO website "Locust Watch in CCA":
	ссылка на сайт ФАО – Саранча на Кавказе и в Центральной Азии:
	https://www.fao.org/locusts-cca/activities/locust-gis/en/
EN (youtube)	https://youtu.be/5kdXRocsOkQ
RUS (youtube)	https://www.youtube.com/watch?v=qchZtE3atNA

LOCUST CONTROL AND PESTICIDE RISK REDUCTION ПРОТИВОСАРАНЧОВЫЕ ОБРАБОТКИ И СНИЖЕНИЕ РИСКА ПРИМЕНЕНИЯ ПЕСТИЦИДОВ

Ultra-low volume technology

Технология ультрамалообъемное опрыскивание

Ultra-Low Volume (ULV) spraying for locust control (2018)

Ультрамалообъемное опрыскивание (УМО) для борьбы с саранчой (2018)

Language / Язык	Link on FAO website "Locust Watch in CCA":
	ссылка на сайт ФАО – Саранча на Кавказе и в Центральной Азии:
	https://www.fao.org/locusts-cca/activities/control/en/
EN (youtube)	https://youtu.be/7qOACEOKT-c
RUS (youtube)	https://youtu.be/yJ6s5zm713Y

Advocacy material (leaflet) on ULV (2022)

Информационно-разъяснительный материал (брошюра) по УМО (2022)

Language / Язык	Link on FAO website "Locust Watch in CCA":
	ссылка на сайт ФАО – Саранча на Кавказе и в Центральной Азии:
	https://www.fao.org/locusts-cca/activities/control/en/
EN	http://www.fao.org/3/cc2513en/cc2513en.pdf
RUS	http://www.fao.org/3/cc2513ru/cc2513ru.pdf

Biopesticide use against locusts Использования биопестицидов против саранчовых

Locust control using biopesticides (advocacy video) (2018)

Борьба с саранчой с помощью биопестицидов (информационное видео) (2018)

Language / Язык	Link on FAO website "Locust Watch in CCA": ссылка на сайт ФАО – Саранча на Кавказе и в Центральной Азии: https://www.fao.org/locusts-cca/activities/control/en/
EN (youtube)	https://youtu.be/3jfuB6pwWcs
RUS (youtube)	https://youtu.be/jnhO-JghPIE

Biopesticides: operational use against locusts (tutorial video) (2018)

Биопестициды: практическое использование против саранчовых (обучающее видео) (2018)

Language / Язык	Link on FAO website "Locust Watch in CCA": ссылка на сайт ФАО – Саранча на Кавказе и в Центральной Азии:
	https://www.fao.org/locusts-cca/activities/control/en/
EN (youtube)	https://youtu.be/-J5gwDnO9mE
RUS (youtube)	https://youtu.be/QoPqJ6wc4fQ

LEAFLET "Biopesticides – Operational use against locusts" (2023)

БУКЛЕТ «Биопестициды для борьбы с саранчовыми» (2023)

POSTER "How to use biopesticides in locust control?" (2023) ПЛАКАТЫ «Как использовать биопестициды?» (2023)

Language / Язык	Link on FAO website "Locust Watch in CCA":
	ссылка на сайт ФАО – Саранча на Кавказе и в Центральной Азии:
	https://www.fao.org/locusts-cca/activities/control/en/
EN	https://www.fao.org/3/cc4173en/cc4173en.pdf
RUS	https://www.fao.org/3/cc4173ru/cc4173ru.pdf

Pesticide risk reduction measures Меры по снижению риска применения пестицидов

Practical Guidelines on Pesticide Risk Reduction for Locust Control in CCA (PG RR - 2019)

Практическое Руководство по снижению отрицательного воздействия пестицидов при проведении противосаранчовых обработок в КЦА (2020)

Language /	Link on FAO website "Locust Watch in CCA":
Язык	ссылка на сайт ФАО – Саранча на Кавказе и в Центральной Азии:
	https://www.fao.org/locusts-cca/activities/human-health-and-the-environment/en/
EN	https://www.fao.org/3/ca4029en/ca4029en.pdf
RUS	https://www.fao.org/3/ca4029ru/ca4029ru.pdf
Dari	https://www.fao.org/3/ca4029fa/ca4029fa.pdf
Azeri	http://www.fao.org/3/ca4029az/ca4029az.pdf
Georgian	http://www.fao.org/3/ca4029ka/ca4029ka.pdf
Kyrgyz	https://www.fao.org/3/ca4029ky/ca4029ky.pdf
Tajik	https://www.fao.org/3/ca4029tg/ca4029tg.pdf
Turkmen	http://www.fao.org/3/ca4029tk/ca4029tk.pdf
Uzbek	http://www.fao.org/3/ca4029uz/ca4029uz.pdf

POSTER "Personal Protective Equipment (PPE) – Why using PPE in locust control?" (2023) ПЛАКАТЫ «Средства индивидуальной защиты (СИЗ) - Зачем использовать СИЗ при борьбе с саранчой?» (2023)

Language / Язык	Link on FAO website "Locust Watch in CCA":
	ссылка на сайт ФАО – Саранча на Кавказе и в Центральной Азии:
	https://www.fao.org/locusts-cca/activities/human-health-and-the-environment/en/
EN	https://www.fao.org/3/cc4174en/cc4174en.pdf
RUS	https://www.fao.org/3/cc4174ru/cc4174ru.pdf

POSTER "Empty containers - How to manage empty containers in locust control?" (2023)

ПЛАКАТЫ «Порожняя тара - Как обеспечить безопасное обращение с порожней тарой из-под пестицидов, используемых в борьбе с саранчой» (2023)

Language / Язык	Link on FAO website "Locust Watch in CCA":
	ссылка на сайт ФАО – Саранча на Кавказе и в Центральной Азии:
	https://www.fao.org/locusts-cca/activities/human-health-and-the-environment/en/
EN	https://www.fao.org/3/cc4172en/cc4172en.pdf
RUS	https://www.fao.org/3/cc4172ru/cc4172ru.pdf

Locust-Pesticide Referee Group

Экспертная Группа по Пестицидам – Саранчовые

Report of the 11th meeting of the Locust-PRG (2021)

Отчет 11-й встречи экспертной группы по пестицидам – саранчовые (2021)

Language / Язык	Link on FAO website "Locust Watch in CCA":
	ссылка на сайт ФАО – Саранча на Кавказе и в Центральной Азии:
	https://www.fao.org/locusts-cca/activities/control/en/
EN	https://www.fao.org/3/cb7897en/cb7897en.pdf
RUS	http://www.fao.org/3/cb7897ru/cb7897ru.pdf

Information of local populations on safety measures Информирование местного населения о мерах безопасности

Calendars on safety measures associated with locust control (2022)

Календари по мерам безопасности при проведении противосаранчовых обработок (2022)

Country / Страна	Link on FAO website "Locust Watch in CCA":
	ссылка на сайт ФАО – Саранча на Кавказе и в Центральной Азии:
	https://www.fao.org/locusts-cca/activities/human-health-and-the-environment/en/
TUK/Turkmen	http://www.fao.org/3/cb6968tk/cb6968tk.pdf
UZB/Uzbek	http://www.fao.org/3/cb6968uz/cb6968uz.pdf

Calendars on safety measures associated with locust control (2023)

Календари по мерам безопасности при проведении противосаранчовых обработок (2023)

Country / Страна	Link on FAO website "Locust Watch in CCA":
	ссылка на сайт ФАО – Саранча на Кавказе и в Центральной Азии:
	https://www.fao.org/locusts-cca/activities/human-health-and-the-environment/en/
GEO/Georgian	http://www.fao.org/3/cc2507ka/cc2507ka.pdf
ARM/Armenia	http://www.fao.org/3/cc2507hy/cc2507hy.pdf
AZE/Azerbaijan	https://www.fao.org/3/cc2507az/cc2507az.pdf

BROCHURES ON JICA AND USAID PROJECTS / БРОШЮРЫ ПРОЕКТОВ JICA И USAID

JICA Brochure (2021) / Брошюра проекта JICA (2021)

Language / Язык	Link on FAO website "Locust Watch in CCA":
	ссылка на сайт ФАО – Саранча на Кавказе и в Центральной Азии:
	https://www.fao.org/locusts-cca/programme-and-donors/projects-donors/ru/
EN	https://www.fao.org/3/cb6850en/cb6850en.pdf
RUS	https://www.fao.org/3/cb6850ru/cb6850ru.pdf

USAID Brochure (2022) / Брошюра проекта USAID (2022)

Language / Язык	Link on FAO website "Locust Watch in CCA":
	ссылка на сайт ФАО – Саранча на Кавказе и в Центральной Азии:
	https://www.fao.org/locusts-cca/programme-and-donors/projects-donors/ru/
EN	http://www.fao.org/3/cc2109en/cc2109en.pdf
RUS	http://www.fao.org/3/cc2109ru/cc2109ru.pdf
Annex VI - List of National Focal Points (bilingual)

ENGLISH	RUSSIAN
AFGHANISTAN (FAO)	АФГАНИСТАН (ФАО)
FAO-Afghanistan	FAO-Afghanistan
ARMENIA	АРМЕНИЯ
Ms Rima KARAPETYAN Head, Phytosanitary Division, Food Safety Department, Ministry of Economy of Armenia Address: 5, Mher Mkrtchyan, Yerevan	Г-жа Рима КАРАПЕТЯН Заведующая отдела фитосанитарии, Департамента Пищевой Безопасности, Министерство экономики Армении Адрес: г. Ереван, ул. Мхер Мкртчян
AZERBAIJAN	АЗЕРБАЙДЖАН
Mr Jafar MAHARRAMOV Deputy Chairman, Agrarian Services Agency, Ministry of Agriculture of Azerbaijan GEORGIA	Г-н Джафар МАХАРРАМОВ Заместитель председателя, Агентство Аграрных Услуг при Министерстве Сельского Хозяйства Азербайджана ГРУЗИЯ
Mr Lasha NUTSUBIDZE Deputy Head of the Plant Protection Department, National Food Agency (NFA), Ministry of Environment Protection and Agriculture of Georgia Address: 6, Marshal Gelovani Ave., 0159, Tbilisi	Г-н Лаша НУЦУБИДЗЕ Зам. Начальника Департамента Защиты Растений, Национальное Агентство Продовольствия (НАП), Министерство Охраны Окружающей Среды и Сельского Хозяйства Грузии Адрес: Проспект Маршала Геловани 6, 0159, Тбилиси
& Mr Bejan REKHVIASHVILI Head, Plant Quarantine Division, National Food Agency (NFA), Ministry of Environment Protection and Agriculture of Georgia Address: 6. Marshal Gelovani Avenue 0159, Tbilisi	& Г-н Бежан РЕХВИАШВИЛИ Начальник, Отдел Карантина Растений, Национальное Агентство Продовольствия (НАП), Министерство Охраны Окружающей Среды и Сельского Хозяйства Грузии Адрес: Проспект Маршала Геловани 6, 0159, Тбилиси
KAZAKHSTAN	КАЗАХСТАН
Mr Mukhtar ZHANABAEV Chief Expert, State Phytosanitary Department, State Inspection Committee in the Agricultural Sector, Ministry of Agriculture Address: 36 Kenessary str, Office 704, Astana, 010000	Г-н Мухтар ЖАНАБАЕВ Главный эксперт, Государственная Фитосанитарная Инспекция, Комитет Государственной Инспекции в Агропромышленном комплексе, Министерство Сельского Хозяйства Адрес: ул. Кенесары, 36, Каб. 704, 010000, Астана
& Mr Zhanybek KENESBEKOV Director, Republican State Institution "Republican Methodological Center for Phytosanitary Diagnostics and Forecasts", State Inspection Committee, Ministry of Agriculture	& Г-н Жаныбек КЕНЕСБЕКОВ Руководитель, Республиканское государственное учреждение «Республиканский методический центр фитосанитарной диагностики и прогнозов», Комитет государственной инспекции в агропромышленном комплексе, Министерство сельского хозяйства
KYRGYZSTAN	КЫРГЫЗСТАН
Mr Diykanbai Bakashovich KENJEBAEV Director, Department of Chemicalization and Plant Protection, Ministry of Agriculture Address: 96a, Kiev st., 720040, Bishkek	Г-н Дыйканбай Бакашович КЕНЖЕБАЕВ Директор, Департамент Химизации и Защиты Растений, Министерство Сельского Хозяйства Адрес: Ул. Киевская 96-а, 720040, г. Бишкек

RUSSIAN FEDERATION	РОССИИСКАЯ ФЕДЕРАЦИЯ
Mr Alexander MALKO Director, Federal State Institution "Russian Agricultural Center", Ministry of Agriculture Address: 11/1 Sadovaya-Spasskaya str., 107078, Moscow	Г-н Александр МАЛЬКО Директор, Федеральное государственное учреждение «Российский сельскохозяйственный центр", Министерство Сельского Хозяйства Адрес: 107078, г. Москва, ул. Садовая-Спасская, д. 11/1
& Mr Dmitrii GOVOROV Deputy Director, Federal State Institution "Russian Agricultural Center", Ministry of Agriculture & Mr Andrei ZHIVYKH	& Г-н Дмитрий ГОВОРОВ Заместитель Директора, Федеральное государственное бюджетное учреждение «Российский сельскохозяйственный центр", Министерство Сельского Хозяйства
Head of Department, Federal State Institution	& Г-н Андрей ЖИВЫХ
Agriculture	пачальник отдела, федеральное государственное бюджетное учреждение «Российский
	сельскохозяйственный центр", Министерство Сельского Хозяйства, Российская Федерация
TAJIKISTAN	ТАДЖИКИСТАН
Mr Nusratullo Bodom NOZANINZODA Head, State Entity "Locust Control Expedition", Ministry of Agriculture, Dushanbe, Tajikistan Address: 27 Rudaki Ave., Dushanbe	Г-н Нусратулло Бодом НОЗАНИНЗОДА Начальник, Государственное Учреждение "Экспедиция по Борьбе с Саранчой", Министерство Сельского Хозяйства Адрес: проспект Рудаки 27, г. Душанбе
TURKMENISTAN	ТУРКМЕНИСТАН
TURKMENISTAN Mr Malikmuhammet CHARYYEV Chief specialist, Plant Protection Service, Ministry of Agriculture Address: 92 Archabil st., Ashgabat	ТУРКМЕНИСТАН Г-н Маликмухаммет ЧАРЫЕВ Главный специалист, Службы защиты растений, Министерство Сельского Хозяйства, Туркменистан Адрес: г. Ашхабад, ул. Арчабил 92
TURKMENISTAN Mr Malikmuhammet CHARYYEV Chief specialist, Plant Protection Service, Ministry of Agriculture Address: 92 Archabil st., Ashgabat Ms Ejebay KOKANOVA	ТУРКМЕНИСТАН Г-н Маликмухаммет ЧАРЫЕВ Главный специалист, Службы защиты растений, Министерство Сельского Хозяйства, Туркменистан Адрес: г. Ашхабад, ул. Арчабил 92 Г-жа Эджебай КОКАНОВА
TURKMENISTAN Mr Malikmuhammet CHARYYEV Chief specialist, Plant Protection Service, Ministry of Agriculture Address: 92 Archabil st., Ashgabat Ms Ejebay KOKANOVA Leading researcher at the National Institute of Deserts, Flora and Wildlife, Ministry of	ТУРКМЕНИСТАН Г-н Маликмухаммет ЧАРЫЕВ Главный специалист, Службы защиты растений, Министерство Сельского Хозяйства, Туркменистан Адрес: г. Ашхабад, ул. Арчабил 92 Г-жа Эджебай КОКАНОВА Ведущий научный сотрудник Национального Института пустынь, растительного и животного мира, Министерство
TURKMENISTAN Mr Malikmuhammet CHARYYEV Chief specialist, Plant Protection Service, Ministry of Agriculture Address: 92 Archabil st., Ashgabat Ms Ejebay KOKANOVA Leading researcher at the National Institute of Deserts, Flora and Wildlife, Ministry of Environmental Protection	ТУРКМЕНИСТАН Г-н Маликмухаммет ЧАРЫЕВ Главный специалист, Службы защиты растений, Министерство Сельского Хозяйства, Туркменистан Адрес: г. Ашхабад, ул. Арчабил 92 Г-жа Эджебай КОКАНОВА Ведущий научный сотрудник Национального Института пустынь, растительного и животного мира, Министерство охраны окружающей среды
TURKMENISTAN Mr Malikmuhammet CHARYYEV Chief specialist, Plant Protection Service, Ministry of Agriculture Address: 92 Archabil st., Ashgabat Ms Ejebay KOKANOVA Leading researcher at the National Institute of Deserts, Flora and Wildlife, Ministry of Environmental Protection Adress: 15, Neutral Turkmenistan st., Ashgaabt	 ТУРКМЕНИСТАН Г-н Маликмухаммет ЧАРЫЕВ Главный специалист, Службы защиты растений, Министерство Сельского Хозяйства, Туркменистан Адрес: г. Ашхабад, ул. Арчабил 92 Г-жа Эджебай КОКАНОВА Ведущий научный сотрудник Национального Института пустынь, растительного и животного мира, Министерство охраны окружающей среды Адрес: г. Ашхабад, ул. Нейтральный Туркменистан 15
TURKMENISTAN Mr Malikmuhammet CHARYYEV Chief specialist, Plant Protection Service, Ministry of Agriculture Address: 92 Archabil st., Ashgabat Ms Ejebay KOKANOVA Leading researcher at the National Institute of Deserts, Flora and Wildlife, Ministry of Environmental Protection Adress: 15, Neutral Turkmenistan st., Ashgaabt UZBEKISTAN	 ТУРКМЕНИСТАН Г-н Маликмухаммет ЧАРЫЕВ Главный специалист, Службы защиты растений, Министерство Сельского Хозяйства, Туркменистан Адрес: г. Ашхабад, ул. Арчабил 92 Г-жа Эджебай КОКАНОВА Ведущий научный сотрудник Национального Института пустынь, растительного и животного мира, Министерство охраны окружающей среды Адрес: г. Ашхабад, ул. Нейтральный Туркменистан 15 УЗБЕКИСТАН
 TURKMENISTAN Mr Malikmuhammet CHARYYEV Chief specialist, Plant Protection Service, Ministry of Agriculture Address: 92 Archabil st., Ashgabat Ms Ejebay KOKANOVA Leading researcher at the National Institute of Deserts, Flora and Wildlife, Ministry of Environmental Protection Adress: 15, Neutral Turkmenistan st., Ashgaabt UZBEKISTAN Mr Bakhodir Abdikarimovich KHUDAYKULOV Head of the Locust and Mulberry Pyralid Control Department, Agency on Quarantine and Plant Protection, Ministry of Agriculture Address: 2, University st., Kibray district, Tashkent 	 ТУРКМЕНИСТАН Г-н Маликмухаммет ЧАРЫЕВ Главный специалист, Службы защиты растений, Министерство Сельского Хозяйства, Туркменистан Адрес: г. Ашхабад, ул. Арчабил 92 Г-жа Эджебай КОКАНОВА Ведущий научный сотрудник Национального Института пустынь, растительного и животного мира, Министерство охраны окружающей среды Адрес: г. Ашхабад, ул. Нейтральный Туркменистан 15 УЗБЕКИСТАН Г-н Баходир Абдикаримович ХУДАЙКУЛОВ Начальник Отдела по борьбе с саранчой и тутовой огневкой, Агентство по карантину и защите растений, Министерство Сельского Хозяйства Адрес: г. Ташкент, Кибрайский район, ул. Университет 2 & Г-н Фуркат ГАППАРОВ