

OIE Regional seminar on Lumpy Skin Disease for Central Asian countries



26-27 April 2018

Almaty, Kazakhstan

Report



Acknowledgements

The OIE express its sincere thanks to the Government of Kazakhstan, and its Veterinary Services, for the logistical and financial support provided which contributed to the success of the Regional seminar on Lumpy Skin Disease for Central Asian countries.

The OIE also acknowledge with much gratitude the valuable and continuous technical support of the three participating experts before and during the meeting.

Additionally, the OIE would like to express its deep appreciation to all countries of Central Eurasia for their participation, commitment and valuable contributions during the meeting.

Table of Contents

| | |
|--|----|
| Acknowledgements | 2 |
| Table of Contents..... | 3 |
| Abbreviations..... | 4 |
| Meeting report | 5 |
| Background..... | 5 |
| Lumpy skin disease and its control : state of play in Europe | 7 |
| Technical consideration..... | 8 |
| Getting prepared in case of an outbreak | 9 |
| Countries' LSD preventive actions..... | 9 |
| Working group session | 10 |
| Conclusions..... | 11 |
| Annex 1 - Summary of country reports | 12 |
| Annex 2 - Agenda..... | 16 |
| Annex 3 - Lists of participants..... | 18 |

Abbreviations

| | |
|---------|---|
| ARRIAH | Federal Centre for Animal Health of Russia |
| EFSA | European Food Safety Authority |
| FYROM | Former Yugoslav Republic of Macedonia |
| GF-TADs | Global Framework for the Progressive Control of Transboundary Animal Diseases |
| LSD | lumpy skin disease |
| OIE | World Organisation for Animal Health |
| PCR | Polymerase Chain Reaction |
| RT-PCR | Real time Polymerase Chain Reaction |
| SGE LSD | Standing Group of Experts on lumpy skin disease |

Meeting report

Background

A significant spread of lumpy skin disease (LSD) occurred in 2016 (mainly between April and July) in South-East Europe, a new LSD-affected region, while so far, this disease was known to be present for decades mostly in Africa and the Middle East. In the last 6 years, it moved more than 3000 kilometers northwards, permitted by favorable environmental and climatic conditions to the spread and survival of the LSD vectors (mostly mosquitos) in these more northern latitudes.

At its 6th meeting in September 2015, the Steering Committee of the Global Framework for the progressive control of Transboundary Animal Diseases (GF-TADs) for Europe decided to give an important wake-up call in 2 recommendations inviting European countries, whether infected or at risk, to consider LSD as a priority disease in Europe. A Standing Group of Experts on lumpy skin disease in South-East Europe (SGE LSD) was subsequently established in July 2016, under GFTADs umbrella, to build up closer cooperation and dialogue among affected and at-risk countries and provide them with technical guidance and harmonized courses of action to eradicate LSD. Mass vaccination with a suitable vaccine and reaching (more than 85% coverage in cattle population) proved to be an extremely efficient control measure since in some affected countries, the occurrence of new LSD outbreaks stopped within one month after completion of their vaccination campaign. Preventive vaccination is also used in some countries not affected by LSD, which share borders with LSD affected countries. LSD vaccination should be the main but not the only control measure and should be combined with several other measures including active and passive surveillance, movement control, enhanced biosecurity at farm level and live animal markets, awareness campaigns and possibly stamping out of affected holdings (total or modified).

The incursion of LSD into Europe is a perfect example of the new challenges that Veterinary Services may have to face due to emergence of "exotic" vector borne diseases that could be associated with climatic, environmental and other factors, affecting animal populations at regional or even global level. Many of these factors remain unknown or poorly understood. Therefore, the reinforcement of Veterinary Services in line with the OIE standards on the quality of Veterinary Services is a key solution to be prepared for any unknown epidemiological situation.

While mainly focusing on south-east Europe, the GF-TADs for Europe remains fully vigilant of LSD situation in Eastern Europe and West Eurasia, in light of the situation currently prevailing in Russia especially at the border with Kazakhstan (Kazakhstan and Armenia also notified LSD cases in 2016). A SGE LSD mission was notably deployed in Kazakhstan in February 2018 to assess the current preventive measures and provide recommendations on LSD surveillance, prevention and control measures in case of disease occurrence, identifying risk factors and possible routes for LSD introduction and spread in Kazakhstan.

Based on the results of this recent country mission and in light of the epidemiological situation in the sub-region, the OIE organized a workshop for five Central Asia countries, to enhance LSD preparedness and thereby encourage countries to draft/update their LSD contingency plans and possibly organize field simulation exercises.

Objectives:

The overall objective of the meeting is to increase country awareness and preparedness for LSD. More specifically, it will:

- ✓ provide information on LSD etiology and epidemiology (hosts, transmission, sources of virus, seasonal nature),
- ✓ present the LSD situation in Europe,
- ✓ understand current country prevention strategies and their challenges;
- ✓ present main measures/capacity to prevent LSD introduction in free countries, and provide rapid response in case of incursion (contingency plans) including, vaccines and vaccination, diagnostic and efficient control measures;
- ✓ share best practices from countries who successfully eradicated LSD and/or manage to maintain their free status;
- ✓ discuss regional cooperation to fight LSD.

Expected outcomes within 6 months after the OIE meeting:

- drafting/updating of contingency plans;
- when appropriate, organisation of simulation exercises;
- good understanding of transparency.

Five of the six invited countries attended the seminar on LSD, namely: Kazakhstan, Kyrgyzstan, Russia, Tajikistan, and Uzbekistan. As for Turkmenistan, they couldn't manage to attend.

Dr Tursyn Kabduldjanov, deputy Chairman of the Veterinary Committee of the hosting country, on behalf of the Minister of Agriculture, welcomed the participants and opened the meeting. Dr Mereke Taitubayev, Head of the OIE Sub-Regional representation in Astana, delivered the welcome remarks and presented the objectives of the seminar. The agenda is provided in Annex 2.

Lumpy skin disease and its control : state of play in Europe

- Dr Dimitrios Dilaveris presented the progression of LSD since 2005 in Africa, reaching Turkey in 2013, and ultimately Thrace region of Turkey in May 2015. He then highlighted its surprising quick and long-distance progress towards Europe (Greece in 2015, then Bulgaria, FYROM, Serbia, Kosovo, Albania and Montenegro in 2016). Dr Dilaveris focused on the quick changes visible in 2017, showing the effects of coordinated mass vaccination campaigns of all cattle in the entire territories of affected countries using live homologous vaccines. This vaccination strategy, where performed quickly and efficiently in the affected countries practically stopped the occurrence of new LSD outbreaks within one month from completion. Dr Dilaveris also highlighted the urgent advice on LSD, published by EFSA in 2016, and the LSD regulatory measures at EU level (control measures, notification of LSD outbreaks, LSD zoning, trade rules for animal and animal products).

From this presentation could be bear in mind the quick and long-distance spread, the importance of vaccination using effective vaccines (like the live homologous ones used in SE Europe) and proper vaccination strategy (mass vaccination of all cattle in extended areas or whole country), the important role of insects, although few data are available on vectors and unclear information on the protection linked to vector control measures, the ineffective role of geographical barriers and the apparent non-involvement of wildlife and the high risk of LSD recurrence in areas with partial vaccine coverage.

- Dr Dilaveris gave a concise presentation on the existing **Standing Group of Experts on Lumpy Skin Disease in South East Europe" ('SGE-LSD')** under the **GF-TADs umbrella**, developed under the Europe's branch of the joint FAO-OIE initiative on transboundary animal diseases (GF-TADs for Europe). After LSD had been identified as a priority disease for South-East Europe, the **SGE-LSD** has been launched on July 2016 in Brussels. The structure, objectives, activities, main outcomes and achievements in the reduction in the number and geographical spread of LSD outbreaks since 2016 have been largely developed. Participants have been invited to participate in the next planned meetings (in Paris during the OIE General Session 2018 and in FYROM in Autumn 2018).
- Dr Djahne Montabard gave a step-by-step presentation on the amount of information countries can find in the **SGE-LSD's web page** (governance, meeting reports, EFSA reports and opinions, results of regular vaccination data collection, SGE-LSD recommendations). She also reminded participating countries of the

signature, in May 2017, of a Memorandum of Understanding between 4 Central Asian countries, on the basis of which regular meetings will be planned, LSD being one of the possible topics for discussion.

Technical consideration

- Dr Kris De Clercq, reminding the particularities of the virus (stable in the environment, difficult to eradicate without vaccination, its natural resistance (only 30-70% of the animals get sick), the long recovery period and consequences in the animal production after an outbreak, consequences in trade of live cattle and their products, and relying on a large series of photos of lesions, developed the main clinical signs of LSD.

The emphasis was put on the possible difficulty to make clinical diagnosis, the importance of an early detection, including in free range herds, the differential diagnosis with vaccine induced generalized side effects in few animals (known as 'Neethling disease', a term that could be replaced with "Neethling response") and of wide awareness campaigns targeting all key people involved in animal handling (field vets, owners, traders, drivers, slaughterhouse veterinarians and personnel of cattle collecting holdings and resting stations, as well as artificial inseminators).

- Dr De Clercq set the scene of the main characteristics of LSD virus, stressing those affecting laboratory diagnostic (envelope of the virus, sensitivity to most disinfectants). With references to the methods available in the OIE **Manual of Diagnostic Tests and Vaccines for Terrestrial Animals**, he largely developed the range of diagnostic methods, their advantages, reliability, sensitivity, and the possibility to differentiate LSD vaccine from field strain. He settled the genome sequencing tool for phylogenic studies, the serology characteristics allowing detection of antibodies 6 months after outbreak.

In order to answer the countries requests to improve their ability to perform good quality diagnosis of LSD, training proposals have been presented to the participants (molecular and serological diagnostics, proficiency testing, strain analysis, clinical signs).

- According to basic information on LSD control strategies components and on LSD virus' characteristics (resistance to reinfection, silent infection, virus resistance, asymptomatic viremia, maternal passive immunity, arthropod vectors transmission even without clinical signs), Dr De Clercq gave an informative presentation on the available LSD vaccines.

A large part was given to explain the potential causes for vaccine breakdown, such as timeline for vaccination, insufficient vaccination coverage (< 80%), quality of vaccine and vaccination and herd infection status. This enables the monitoring of the efficacy of vaccination campaigns. Additionally, the virus infection model led to classify the vaccines, depending on their potential (from "very good" to "partially failing to protect").

Getting prepared in case of an outbreak

- Dr Nadav Galon presented the principles and practical approach of risk analysis, starting from hazard identification, to progress on risk assessment (stressing the need for a good, accurate information), management and communication. He declined this for LSD, based on the up to date knowledge on the possible ways of transmission, existing traceability for cattle, updated knowledge on cattle, economics information and owners' behavior. Based on OIE requirements and on past experiences, he developed the notion of surveillance, with its various aspects (passive/active, clinical/serological, before, during outbreak).

The presentation highlighted the importance of learning and planning, drafting and updating an adapted analysis, adjusted as needed, with realistic objectives, involving stakeholders. The clear chain of command and decision making remains an essential point to enable an effective control of transboundary animal diseases, together with clear collaboration and transparency.

- **Awareness, preparedness and emergency response: basic elements in drafting a plan to handle with any possible outbreak of LSD.** Dr Galon detailed the step-by-step question-based approach for the countries to get prepared. An appropriate risk communication campaign and the development of all the needed tools for an adapted contingency plan enable to fulfill the ultimate objective of being ready for an immediate emergency response. Early detection, outbreak timeline, cattle movement control, stamping out, vaccination, biosecurity, disinfection, carcass disposal are to be taken into consideration to anticipate and be ready in case of an LSD outbreak.

Countries' LSD preventive actions

- From 19 to 23 February, Nadav Galon, Kris De Clercq and Tsviatko Alexandrov conducted a mission in Kazakhstan, under the GF-TADs umbrella. Following an LSD outbreak in one herd, 80 km from the border with Russia in the West of Kazakhstan in 2016, the veterinary services settled infected, protection and observation zones. The whole herd was stamped-out and to avoid any further spread in the country, with, a wide vaccination campaign was carried out. Dr Galon detailed the actions conducted during and after the outbreak and advised for a further evaluation of the vaccine to be used. He stressed the capability of Kazakhstan to successfully handle the outbreak and preparedness, thanks to well-structured, trained and equipped services, with a strong political support.
- Dr Dimitrios Dilaveris presented the experience in South-East European countries to fight against LSD. LSD vaccination was a priority but vaccine supply was the main obstacle, that was initially addressed through the creation, for the first time, of an **EU LSD vaccine bank**. In the end vaccination stopped the progression of the disease. Croatia became the first country to implement preventive vaccination against LSD.
- Dr Dimitrios Dilaveris showed how LSD, so far, demonstrates persistence and constant seasonality. Vaccination in SE Europe in 2016-2017 appears as the key to successful control. The situation greatly improved thanks to coordinated uniformly

implemented mass vaccination campaigns, using efficient vaccines (live homologous ones), with a regional approach. It showed that preventive vaccination is still the most effective method to control LSD spread, as long as the vaccination areas are wide enough, taking into account that geographical barriers (such as mountains) may not stop disease spread.

Because the successful implement of an LSD vaccination programme depends on the availability of vaccine doses, a key factor to control LSD, countries at risk should ensure having efficient & timely procurement of sufficient vaccine doses. And to guarantee a proper understanding and implementation of the planned control policy against LSD, awareness campaigns, among all stakeholders is a key point for an early detection. A regional cooperation and coordination between countries is also a crucial requirement for effective control and prevention, in an era of new emerging transboundary animal diseases.

- The participants showed great interest in many topics, such as vaccination (vaccine type, quality and detection vs wild strain, possibility to produce vaccines), disinfection, the role of small ruminants, vectors, hosts and sero-surveillance. Questions also rose on the points having possible consequences in the spread of infection, through trade of animals and animal products, such as treatment of animals or products to avoid virus persistence to enable trade. This active exchange of questions not only highlighted the interest of participants, but also their lack of up to date information on LSD.

Working group session

- Taking into account that, for the moment, except for Kazakhstan, the countries are not yet ready to face a possible introduction of Lumpy Skin Disease virus, the participants have been proposed, based on the information received, to work on the possible measures to plan to prevent such a possible introduction in their countries. Two working groups have been proposed, one of them with Kazakhstan, already prepared for such an event.
- The participants showed, through their presentations, that they took good note of the information received and could draft the basis of a contingency plans for LSD. This includes, more specifically, preventive measures (legal, financial, wide preventive communication, exchange of information, animal movement control, veterinarians training, laboratory diagnostic improvement, improvement of surveillance and implementation of OIE Code and Manual requirements.
- Kazakhstan, based on their own experience and the good result they had in preventing a wide spread of the LSD virus in the country, gave the participants the keys for a practical implementation of the theoretical basis. Numerous details have been presented, taken from their own LSD contingency plan, including laboratory methods for investigation, zoning around a possible outbreak and actions to plan, in each zone surrounding the outbreak. They also underlined the importance of importation, farm and territory surveillance, detailed risk analysis to be sure any outbreak would be fought with appropriate measures. The importance of all stages of laboratory diagnostic of LSD was highlighted, with the great importance of having

high level laboratory capacities, within the country or available abroad in case of need. They also stressed the great importance to elaborate possible incident scenarios of incident to be sure any LSD outbreak would be handled in an appropriate way.

Conclusions

The participants took into account all the information received during the meeting :

- a) epidemiology data on the spread of LSD in Europe since 2015 until now;
- b) virus' characteristics (resistance to reinfection, silent infection, virus resistance and stability in the environment, asymptomatic viremia, maternal passive immunity, arthropod vectors transmission even without clinical signs);
- c) proportion of infected animals showing clinical signs in case of LSD occurrence (only 30-70%, 50% on average);
- d) long recovery period after an outbreak and the trade consequences;
- e) potential difficulty to make a clinical diagnostic;
- f) wide range of diagnostic methods, enabling the differentiation between wild strain and LSD vaccine;
- g) importance of a well-tailored mass vaccination plan to prevent LSD outbreaks, taking into account (local conditions ?).

They also took note of the technical support the countries could receive from the **Standing Group of Experts on Lumpy Skin Disease in South East Europe" ('SGE-LSD') under the GF-TADs umbrella.**

The participants left the meeting with practical information to take home, in order to get ready to face a possible LSD outbreak in their country:

1. early detection and immediate disease notification;
2. information and experience sharing, transparency and coordination;
3. training in risk analysis and in laboratory diagnostics for LSD;
4. wide awareness campaigns, targeting all possible stakeholders;
5. preparation of a contingency plan to ensure a proper preparedness of the country in case of LSD virus inclusion;
6. development of permanent and wide surveillance actions, to quickly handle with any outbreak of LSD in the country;
7. ensure access to efficient & timely procurement of sufficient vaccine doses

The participation of these countries in GF-TADs LSD Standing Group of experts to be held in FYROM in autumn 2018 could improve their understanding of the disease and the best ways to get prepared.

Annex 1 - Summary of country reports

| | Kazakhstan | Kyrgyzstan | Russia | Tajikistan | Uzbekistan |
|---|------------|---|---|---|--|
| Preparatory environment in place | | | | | |
| Outbreak registered | - Yes | - No | - Yes | - No | - No |
| Legal basis | - Yes | - Animal identification information system on traceability of veterinary certificates | - Law «On Veterinary Medicine» (1993) - Order on disease prevention, diagnostic and other measures, to prevent spread and eliminate outbreak of LSD (2017) - Order changing the List of contagious animal diseases (2016) | - Veterinary act - Regulation on Extraordinary Epizootic Commission (2004) - Regulation on Fund for animal disease control (2011) | - Guidelines on "LSD" - Decree №361 (25.10.2016) diagnostics, and prevention of especially dangerous diseases |
| Organization of veterinary services | - | - | - Rosselkhoznadzor - FGBI ARRIAH | - National Center for Diagnostics of Food Safety - Committee for Food Safety - No national contingency committee for LSD | - State Veterinary Committee - regional departments and district (city) veterinary departments |
| Other involved structures | - | - | - | - | - State Sanitary and Epidemiological Service - Ministry of Emergency Situations - Emergency Anti-epidemic Commission |

| | Kazakhstan | Kyrgyzstan | Russia | Tajikistan | Uzbekistan |
|--|--|---|---|--|---|
| Preparations for LSD emergency situation | - Zoning in the country (contamination, protection, observation zones) | - Rules of implementation of preventive, diagnostic and restrictive measures on LSD | - Program for surveillance and control of lumpy skin disease | - | - |
| Contingency plan for LSD | - | - Yes | - Plan for emergency response to LSD (2017) | - No | - |
| Laboratory capacity | - ELISA (antibodies) - PCR (genome) | - Virological departments accredited (ISO 17025-2009) - PCR | - network of accredited veterinary laboratories - RT-PCR - Virus isolation - Genome sequencing - Virus neutralisation | - Serology/ PCR | - virologic, serological-PCR available, but not for LSD |
| Emergency budget availability | - Funds from the national budget | - | - Yes | - No emergency budget in case of LSD outbreak or for urgent preventive measures - possibility to implement an emergency budget by legal procedure | - Emergency Budget (state budget and regional administrations) - possible to implement of emergency budget in accordance with legal procedures |

| | Kazakhstan | Kyrgyzstan | Russia | Tajikistan | Uzbekistan |
|---|--|---|--|--|--|
| Preparadnes measures | | | | | |
| Risk assessment conducted | - | - | - Yes, annually (illegal movements) | - No but major introduction and spread risks identified: contact, yearly migrations, markets | - No |
| Stakeholder awareness and collaboration | <ul style="list-style-type: none"> - Communication material developed (memos, leaflets, brochures) - Media and information seminars in villages | <ul style="list-style-type: none"> - Communication of veterinary services on the official website of GIVFB (http://gvfi.gov.kg/) - Information campaigns through media (radio and television, publications in Newspapers and magazines at the national, regional and district levels) | <ul style="list-style-type: none"> - National and regional information (owners and cattle workers): flyers, memos, newsletters, media, websites, seminars, conferences, trainings | <ul style="list-style-type: none"> - vets, livestock farmers - <u>In case of an outbreak:</u> - Information campaigns to plan (media, seminars, trainings, website, sms alerts) | <ul style="list-style-type: none"> - <u>In case of an outbreak:</u> - Information campaigns to plan (media, seminars, trainings, sms alerts) |
| Preventive measures in place | <ul style="list-style-type: none"> - Identification, movement control | <ul style="list-style-type: none"> - No vaccination | <ul style="list-style-type: none"> - Identification and control of animal movement - Rules of regionalization | <ul style="list-style-type: none"> - identification, movement control, disinfection - Improvement of biosafety, including disinfection, disinfestation | <ul style="list-style-type: none"> - Identification - Animal movement control - Regular disinfection and disinfestation - Prevention of disease introduction from other countries (quarantine) |
| In case of outbreak | <ul style="list-style-type: none"> - stamping-out (carcasses burnt), with compensation - disinfection - vaccination (100% cattle without clinical sign) - 1% post-vaccination seromonitoring | - | <ul style="list-style-type: none"> - Stamping out, with compensation | <ul style="list-style-type: none"> - No stamping out, no compensation | <ul style="list-style-type: none"> - Stamping out in specialized slaughterhouses - No compensation |

| | Kazakhstan | Kyrgyzstan | Russia | Tajikistan | Uzbekistan |
|---|--|---|---------------------------------|--|--|
| Vaccine procurement already launched | - Yes - live homologus attenuated (strain of Neethling virus) : Lumpivax | - | - Yes (2016, 2017, 2018) | - No vaccine procurement launched or planned | - No |
| Local authorities involved | - | - In charge of communication activities in village | - Only state veterinary service | - Not yet | - Yes, in case of outbreak |
| Key challenges faced by the country | | | | | |
| Identified deficiencies to face a possible outbreak | - | - legal framework - knowledge, - experience, - specific information - entomologic study | - No | - | - Specific LSD laboratory capacities |
| Possible trade issues | - | - | - | - | - |
| Support needed | - vaccine effectiveness - recommendations for LSD zoning recognition - international technical support for training seminars | - technical assistance on virus and vectors - laboratory training | - No | - Diagnostic - Training on laboratory, sampling - Disease monitoring - Risk analysis - Case study - Development of warning system | - LSD courses - laboratory diagnostics of LSD |

Annex 2 - Agenda



OIE Regional seminar on Lumpy Skin Disease for Central Asian countries



26-27 April 2018





Almaty, Kazakhstan

DRAFT AGENDA

| Time | Topic | Speaker |
|---------------------------------------|--|---|
| Day 1 : Thursday 26 April 2018 | | |
| 08:30-09:00 | Registration | |
| 09:00 - 09:15 | Opening Adoption of the agenda Presentation of the objectives of the meeting | Kazakhstan OIE |
| 09:15 - 09:45 | Presentation on LSD and its epidemiology in Europe and neighbouring regions | Dimitrios DILAVERIS European Commission |
| 09:45 - 10:15 | GF-TADs Standing Group of Experts for LSD: presentation and achievements | Dimitrios DILAVERIS European Commission |
| 10:15 - 10:45 | Coffee break | |
| 10:45 - 11:15 | Technical presentation: LSD clinical and laboratory diagnostic | Kris De Clercq CODA-CERVA |
| 11:15 - 11:45 | Technical presentation: LSD Risk Assessment and Surveillance | Nadav Galon Independent expert |
| 11:45 - 12:30 | Discussion | All participants |

| Time | Topic | Speaker |
|---|--|---|
| 12:30 - 14:00 | Lunch | |
| 14:00 - 14:30 | Technical presentation: LSD Vaccines, vaccines quality and vaccination (preventive) | Kris De Clercq CODA-CERVA |
| 14:30 - 15:00 | Technical presentation: LSD awareness preparedness and emergency response | Nadav Galon Independent expert |
| 15:00 - 15:30 | Discussion | All participants |
| 15:30 - 16:00 | Coffee break | |
| 16:00 - 17:30 | Country presentations: situation and current state of preparedness (15 minutes per country) | Countries |
| 17:30 - 18:00 | SGE LSD mission in Kazakhstan: main findings and aspects of interest for the sub-region | Nadav Galon Independent expert |
| 18:00 | End of day 1 | |
| Day 2 : Friday 27 April 2018 | | |
| Time | Topic | Speaker |
| 09:00 - 09:15 | Day 2 opening | OIE |
| 09:15 - 09:45 | Balkan country's experience in preventing/fighting LSD | Dimitrios DILAVERIS European Commission |
| 09:45 - 10:00 | Presentation of the Group session | OIE |
| 10:00 - 10:30 | Coffee break | |
| 10:30 - 11:45 | Group session and reporting | Countries |
| 11:45 - 12:05 | Discussions and conclusions: Possible regional activities to enhance LSD preparedness | All participants |
| 12:05 - 12:15 | LSD Standing Group of Expert's website | Djahne MONTABORD OIE SRR Astana |
| 12:15 - 12:30 | Closing remarks | Kazakhstan OIE |
| 12:30 - 14:00 | Lunch | |
| Celebration of the World Veterinary Day 2018 | | |
| Kazakh National Agrarian University (KazNAU) | | |

Annex 3 - Lists of participants

| N° | Country / Organisation Name / Last name | Photo | N° | Country / Organisation Name / Last name | Photo |
|--------------------------|---|---|----|--|---|
| Experts | | | | | |
| 1 | Kris DE CLERCQ |  | 3 | Nadav GALON |  |
| 2 | Dimitrios DILAVERIS |  | | | |
| Invited countries | | | | | |
| 4 | Kazakhstan Tursyn KABDULDANOV |  | 5 | Kazakhstan Taskyn KYZAI BAYEV |  |
| 6 | Kyrgyzstan Shabdanbek AKYLBEKOV |  | 7 | Kyrgyzstan Murat ABDYRAEV |  |
| 8 | Tajikistan Zarafshon MAKHMADSHOEVA |  | 9 | Tajikistan Sadullo KARIMOV |  |
| 10 | Uzbekistan Otabek ISANOV |  | 11 | Uzbekistan Gulmurod MAMADULLAEV |  |

| N° | Country / Organisation Name / Last name | Photo | N° | Country / Organisation Name / Last name | Photo |
|--|---|---|----|--|---|
| 12 | Russia Andrei MUKOVNIN |  | 13 | Russia Aleksandr KONONOV |  |
| OIE staff | | | | | |
| 14 | OIE Central Asia Mereke TAITUBAYEV | | 15 | OIE Central Asia Djahne MONTABORD | |
| 16 | OIE Central Asia Aigerim ZHORGABAYEVA | | | | |
| Additional participants of Kazakhstan | | | | | |
| Astana | | | | | |
| 17 | Samat TYULEGENOV |  | 18 | Abylai SANSYZBAI |  |
| 19 | Lespek KUTUMBETOV |  | 20 | Balzhan MYRZAKHMETOV A |  |
| 21 | Nurlan SBANOV |  | 22 | Saltanat ABYLKASSYMOVA |  |
| 23 | Akhmetzhan SULTANOV |  | 24 | Meruyert BORANBAYEVA | |
| 25 | Sarsenbai ABDRAKHMANOV | | 26 | Altynbek URKENBAYEV | |
| Atyrau | | | | | |
| 27 | Galymbek BISENGALIYEV | | 28 | Elionora DAUTBAYEVA | |
| 29 | Nurken BOYAROV | | 30 | Aizhan DAULETIYAROVA | |
| West-Kazakhstan | | | | | |

| N° | Country / Organisation Name / Last name | Photo | | N° | Country / Organisation Name / Last name | Photo |
|------------------|--|-------|--|----|--|-------|
| 31 | Temirkhan KUNAKBAYEV | | | 32 | Serik NURMAGANBETO V | |
| 33 | Maksut TAPANOV | | | | | |
| Aktobe | | | | | | |
| 34 | Temirbek NURTAZIN | | | 35 | Lyazzat KUSHEKBAYEVA | |
| 36 | Safiulla ZARMANOV | | | 37 | | |
| Kostanay | | | | | | |
| 37 | Orazbek BATYRBEOV | | | 38 | Berikzhan AIYPBAI | |
| 39 | Tolegen IMANBAYEV | | | | | |
| Mangystau | | | | | | |
| 40 | Kuanyshkerei MYRZATOV | | | 41 | Shangali KHAMIYEV | |
| 42 | Oryspai MUYSMOV | | | | | |