



**Agreement Chart and work plan for the CAMENET
(Camel Middle East NETWORK)**

A- CAMENET: The Concept

RATIONALE

Considering the:

- Multifunctional importance of the camel as an animal of production, services and leisure, and the peculiarities of the camel livestock in the Middle East region (GCC, Yemen, Jordan, Iraq);
- Increasing demand for live camels and their products;
- Higher risk of TADs and zoonotic diseases with growing international trade of camels, especially from the Horn of Africa to the Middle East;
- Lack of knowledge on the pathology and need for specific diagnostic tests and vaccines to better investigate and control the camel diseases (OIE recommendation of the AHG on camel diseases);
- The major camel diseases present in the region:
 - ✓ Gastro-intestinal and blood parasites: Surra;
 - ✓ Skin diseases: contagious ecthyma, camelpox, ringworm;
 - ✓ Multifactorial diseases: camel calves diarrhoea, respiratory syndrome;
 - ✓ Endemic zoonosis: brucellosis, Rift Valley Fever, rabies, tuberculosis;
 - ✓ Pandemic threats of animal origin: MERS-CoV;
 - ✓ Other diseases of economic impact.
- **Need to set up a network of laboratories for diseases of camelids was expressed by the OIE Ad hoc group for camel diseases and confirmed by the OIE biological standards commission;**
- Importance of the husbandry practices, producing systems and trade as potential risk factors for camel disease occurrence, spread and transmission;
- The FAO/OIE Global framework for the progressive control of transboundary animal diseases (GF TADs) meeting on camel diseases held in Abu Dhabi 14-16 February 2016 with the endorsement of the ministry of Environment and Climate change of the United Arab Emirates and the generous contribution of the Abu Dhabi Food control authority (ADFCA), delivered recommendations to establish, a sub-regional network of laboratories, epidemiologists and husbandry specialists in camel in the Middle East:

the **CAMENET (Camel Middle East NETwork)**;

OBJECTIVES OF CAMENET

The **main objective** of the network is to assist member countries to develop their camel sector, in particular through the control of camel diseases.

More specifically, CAMENET will aim at:

1. **Improving scientific and technological capacities in epidemiology and diagnostic of camel diseases in the sub-region:**
 - Promotion of research in camel diseases' epidemiology and pathology;
 - Training of member countries staff on surveillance, diagnosis and prevention of camel diseases;
 - Information and management of health crisis related to the camels;
2. **Contributing to the development, standardization and validation of specific diagnostic methods for major camel diseases according to OIE standards and procedures:**
 - Design and dissemination of specific biosecurity elements in the laboratories of the region;
 - Development and validation of camel diseases' diagnostic techniques;
 - Production and distribution of diagnostic reagents;
 - Harmonization of laboratory methods used in member countries;
 - Development and validation of curative products for camel diseases;
 - Development and quality control of specific camel vaccines;
3. **Coordinating the support of international organizations (FAO/OIE/WHO) to the national authorities (including the veterinary services) of the member countries in their surveillance and**
4. **control of camel diseases including emerging diseases;**
5. **Facilitating collaboration between the national, regional and international institutions and FAO/OIE reference laboratories and collaborating centers for capacity building and exchange of expertise and cooperation;**
6. **Promoting specific studies on husbandry/ camel breeding practices, socio-economics and other risk factors at the animal-human-environment interface.**
7. **Disseminating knowledge on camel diseases' control and camel production best practices to member countries and the international scientific community.**

CAMENET ESTABLISHMENT AND GOVERNANCE

1. The activities of the network will be supervised by a **Steering Committee (SC)** composed of:
 - a. The Chief Veterinary Officers/Delegates of the member countries;
 - b. The representatives from OIE (1) and from FAO (1);
 - c. The Executive Director of Animal Wealth of ADFCA;
 - d. The Director of the veterinary laboratories in ADFCA;
2. Consultative ad hoc experts will be invited to the steering committee meetings as required.

3. The SC will meet at least once a year. Additional meetings can be decided according to the request(s) made by member countries.
4. ADFCA will assure the **Secretariat** of CAMENET in close coordination with the regional GF TADs permanent secretariat in the Middle East.
5. The role of the national focal points for epidemiology, laboratories and husbandry will be defined by the SC.
6. The **work plan, the budget and the financial contributions** will be regularly discussed and updated during the meetings of the SC.
7. The CAMENET **website** will be funded and hosted by ADFCA as of May 2016.
8. The OIE will make available to CAMENET the OIE Reference Laboratory network and Collaborating Centres for the achievement of its objectives.

ROLES OF MEMBER COUNTRIES AND ADFCA

For the establishment and proper functioning of CAMENET, member countries are required to:

- Designate 3 Contact Persons (CP) operating in the field of camel husbandry, epidemiological surveillance and laboratory diagnosis of camel diseases;
- Designate one or more national laboratories to participate in the network activities.

As part of the regular activities of CAMENET, member countries are required to:

- Participate in various meetings of the SC and network conferences and inform on the ongoing work in the country and the obtained results;
- Inform the network on endemic or sporadic diseases in the country as well as any health event and emerging diseases;
- Collect samples from clinical cases or in slaughterhouses, markets and sensitive points, to be sent when needed, to the OIE Reference Centers within the network activities;
- Establish a protocol to conduct regular serological surveys on the population of camels in the country. The number and location of sampling are determined by the CP based on the size, geographic distribution of the population and types of livestock (milk or meat production, racing and leisure, transport and agriculture). Ideally sampling may concern 10% of the population;
- Collection and shipment of clinical and serological samples to the OIE Reference Laboratories according to IATA recommendations for air transport of biologicals;
- Participate in laboratory analysis and interpretation;
- Send frameworks for training in monitoring and diagnosis of camel diseases;
- Participate in inter-laboratory testing (Proficiency) for validation and harmonization of diagnostic methods, communicate results and analyse areas for improvement;

- Suggest activities for the CAMENET and participate in the arrangements of activities.
- Participate in research and studies related to camel diseases and husbandry.

International Organizations OIE and FAO may support countries in need for the accomplishment of the survey and for capacity building's activities.

ADFCA will coordinate the activities of CAMENET through hosting its Secretariat and the meetings of the Steering Committee. Meetings can be hosted by other member countries as desired and planned.

Besides, ADFCA laboratory will centralize, analyse and disseminate, with the cooperation of the world reference laboratories and collaborating centers, all data relating to the activities of the CAMENET.

B- CAMENET PROJECT PLAN OF ACTION

The CAMENET project involves from each country three focal persons:

- One camel Husbandry expert/technician
- one camel epidemiologist or clinician and,
- One laboratory vet or technician,

Selected among the following camel rearing countries in the Middle East:

- **Bahrain**
- **Iraq**
- **Jordan**
- **Kuwait**
- **Oman**
- **Qatar**
- **Saudi Arabia**
- **Syria**
- **United Arab Emirates**
- **Yemen.**

TASKS TO BE COMPLETED BY EACH MEMBER COUNTRY

After designation of Contact persons and the national laboratory, building the CAMENET network will start effectively by collecting samples from the local and imported camel population according to a well-established protocol allowing statistical data analysis.

SERUM SAMPLES WILL BE RANDOMLY COLLECTED FROM LIVE ANIMALS OR SLAUGHTERHOUSES IN THE OBJECTIVE TO PERFORM A SEROLOGICAL SURVEY TO DETERMINE

ECONOMICALLY IMPORTANT CAMEL DISEASES. SPECIMEN OF ORGANS OR SWABS WITH SUSPICIOUS LESIONS FOR DIAGNOSTIC CONFIRMATION WILL ALSO BE COLLECTED.

Each country has first to collect and communicate data to CAMENET about the wide national survey, as following:

1- **The camel Husbandry Contact person** will transmit a report regarding the existing camel population in the country with information on the number, type of breeds, geographical distribution, the origin (autochthone or imported) and any other information that may help in the sampling design.

2- **The epidemiologist** will propose the survey protocol, defining the specimen number, specific breeds, localization, age, sex and origin. Samples number should be representative for each category of population. The epidemiologist will design the survey according available data on local pathology of camels. He will organize the survey and supervise the sampling and produce the database of collected specimens.

3- **The Laboratory Contact person** is responsible of specimen reception, treatment, analysis and storage in recommended conditions and the shipment to ADFCA or the OIE reference laboratories if required. Each serum is divided into two or three aliquots, one stored in the country of origin, one for ADFCA collection of biologicals and one for analysis at the OIE RL. The national laboratory is responsible for specimen identification storage and shipment.

Acting as the base of the regional reference lab, the ADFCA Laboratory in collaboration with OIE RL will supervise the entire operation of the survey design and execution in each country, organize reception, storage and shipment to the OIE RL. Data interpretation is OIE RL responsibility while diffusion is the work of the CAMENET secretariat with the support of the OIE RR ME.

Analysis will be carried out using appropriate techniques on the following non-exclusive list of diseases to establish the prevalence of important camel diseases in the different region:

- **Camel pox ;**
- **Bluetongue ;**

- **Rift Valley fever;**
- **Brucellosis ;**
- **Pasteurellosis ;**
- **Peste des Petits Ruminants ;**
- **Rabies;**
- **Tuberculosis;**
- **West Nile fever.**

Techniques validation and results interpretation will be discussed with invited OIE experts from RL during the workshop and meetings, conclusions and orientations will be proposed for diagnostic techniques validation.

Most representative pathologies will be selected for vaccination trials and follow up. Those experiments will be taken in charge by countries with animal housing facilities to conduct safety and potency study on vaccinated camels. Adapted protocols will be defined for each disease and applied on representative groups of vaccinated or control animals.

For vaccination trial, the priority will be done to the following diseases:

- **Camel pox ;**
- **Bluetongue ;**
- **Rift Valley fever;**
- **Brucellosis.**

NETWORK MEETINGS

Meetings will be organized yearly for the network members:

- 1- A regional starting communication to set the roadmap for the project. Candidate countries will have 6 months to collect epidemiological data and specimens ;
- 2- A regional midterm meeting will be organized to discuss the obtained epidemiological data and laboratory results, proposes and validates vaccination protocols to be tested for diseases of interest.

3- A regional final meeting to discuss epidemiological data and laboratory results, proposes publishing papers and organization of the international congress;

4- An international congress for data dissemination.

In addition, there will be:

5- A meeting for the regional group of epidemiologist and laboratory focal persons to discuss collected data and organize laboratory analysis;

6- Two workshops for laboratory staff group to perform analysis and validate diagnostic techniques;

Diagnostic tests and Vaccines for diseases of priority:

Disease	Diagnostic test	Vaccine
Camel Pox	Elisa/VN/PCR	Live or inactivated
Bluetongue	Elisa/VN/PCR	Live or inactivated
Rift Valley fever	Elisa/PCR	Live
Brucellosis	Elisa/PCR	Live
Peste des Petits Ruminants PPR (Surra ?)	Elisa/PCR	Live attenuated
Rabies	IF/PCR	Inactivated
Pasteurellosis	Isolation /PCR	Inactivated

N.B: Because of the large number of camels imported from the horn of Africa, there is interest to contact the **East African** quarantine stations (mainly in Somalia and Djibouti) to potential provisions of specimens of camel sera or organs. An agreement between CAMENET SC and these stations could be written and signed to allow this work to be completed. Focal person/s will be designed and job description will be defined.

Governance

- Draft work plan by the secretariat of CAMENET, May 2017
- Formation of the SC: May 2017
- First meeting of the CAMENET SC: TBC before the end 2017

Camel diseases survey plan

- Survey protocol establishment and organization: 2017 second semester
- Samples collection and treatment : 2018 first semester
- Laboratory analysis and interpretation: 2018 second semester
- Data presentation and publications: 2019 during the mid-term network conference
- Second survey on specific diseases, organization, protocol definition: 2019
- Data presentation and publications: 2020 during the final network conference

Specimen of tissues from clinical cases will be collected and sent within normal activities of the network.

CAMENET three years action plan to be discussed and agreed by CAMENET SC:

CAMENET 3 year Action Plan (2018-2020)												
Activities	Year 2018				Year 2019				Year 2020			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Inter-laboratory comparison program												
Agree on action plan for epidemiology and lab focal points during CAMENET meeting												
Sample collection, handling and transfer												
Laboratory testing												
CAMENET meeting												
Data analysis												
Inter-laboratory comparison program												
CAMENET meeting												
