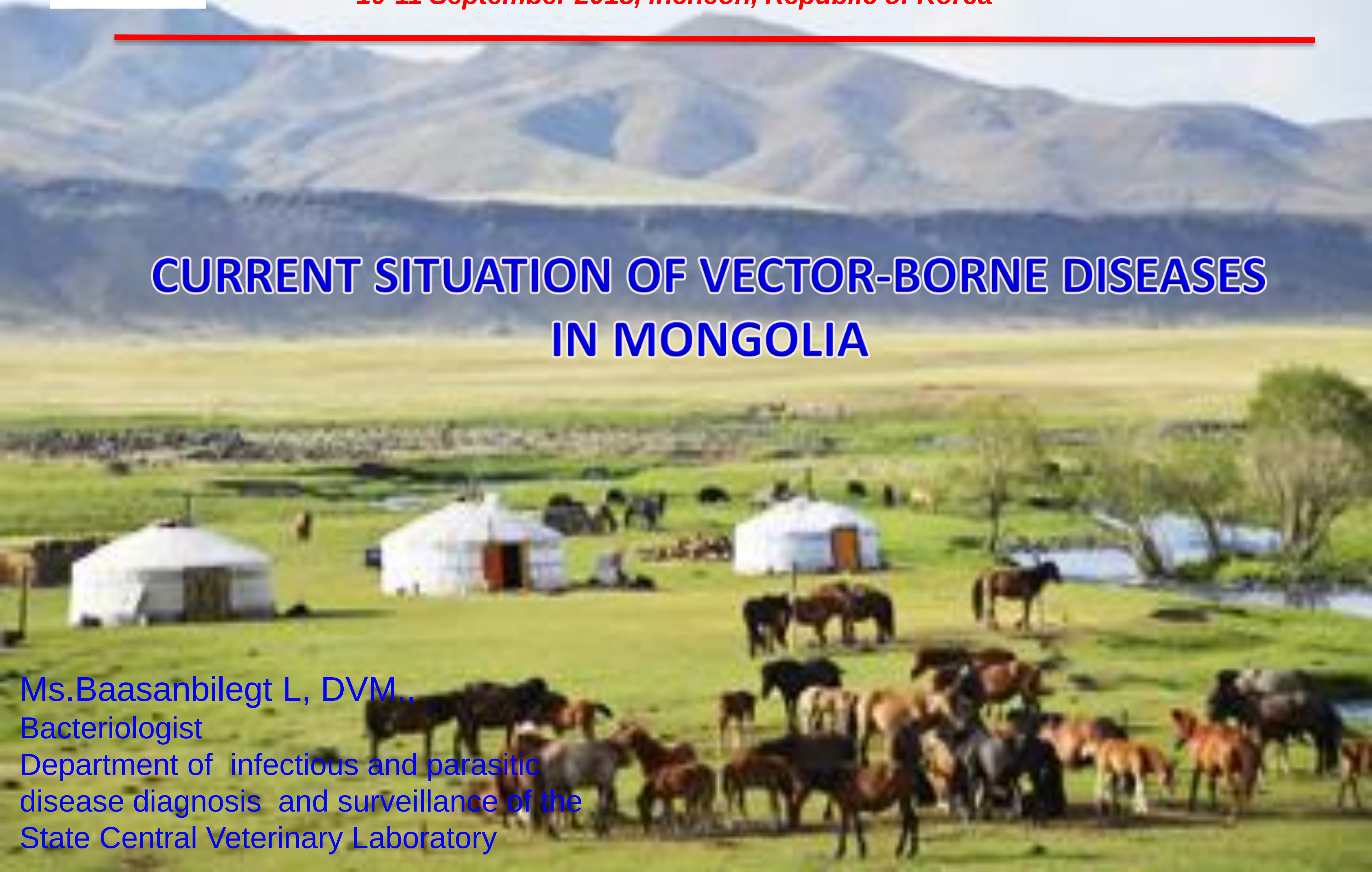
OIE REGIONAL WORKSHOP ON VECTOR BORNE DISEASE IN THE ASIA-PACIFIC REGION

10-11 September 2018, Incheon, Republic of Korea



CURRENT SITUATION OF VECTOR-BORNE DISEASES IN MONGOLIA

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OUTLINE

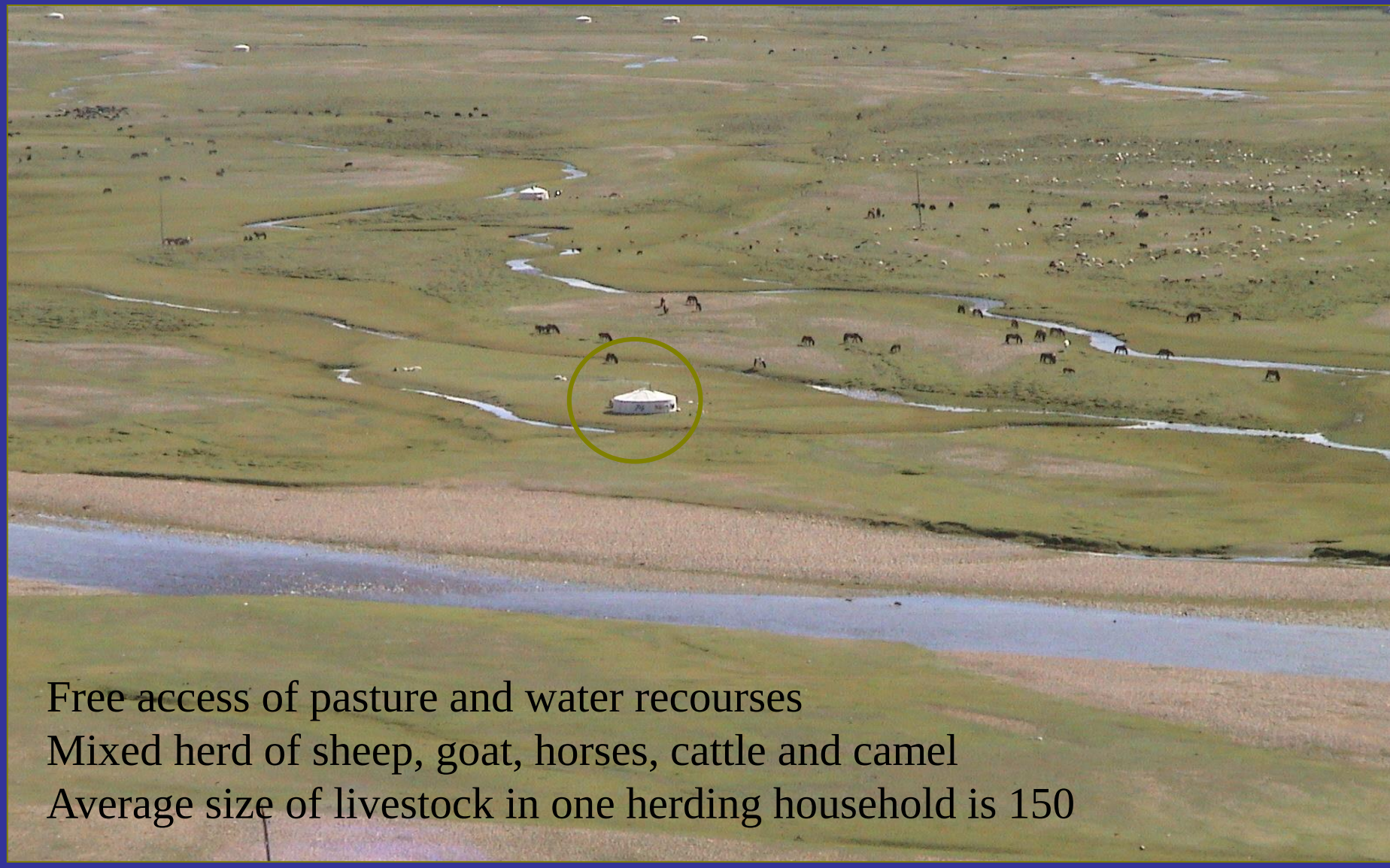
1. **Country Profile**
2. **Organization chart in SCVL**
3. **Problems of Vector- Born Diseases in Mongolia**

1.COUNTRY PROFILE

Mongolia is located in the heart of Central Asia, sandwiched between the two superpowers China and Russia.

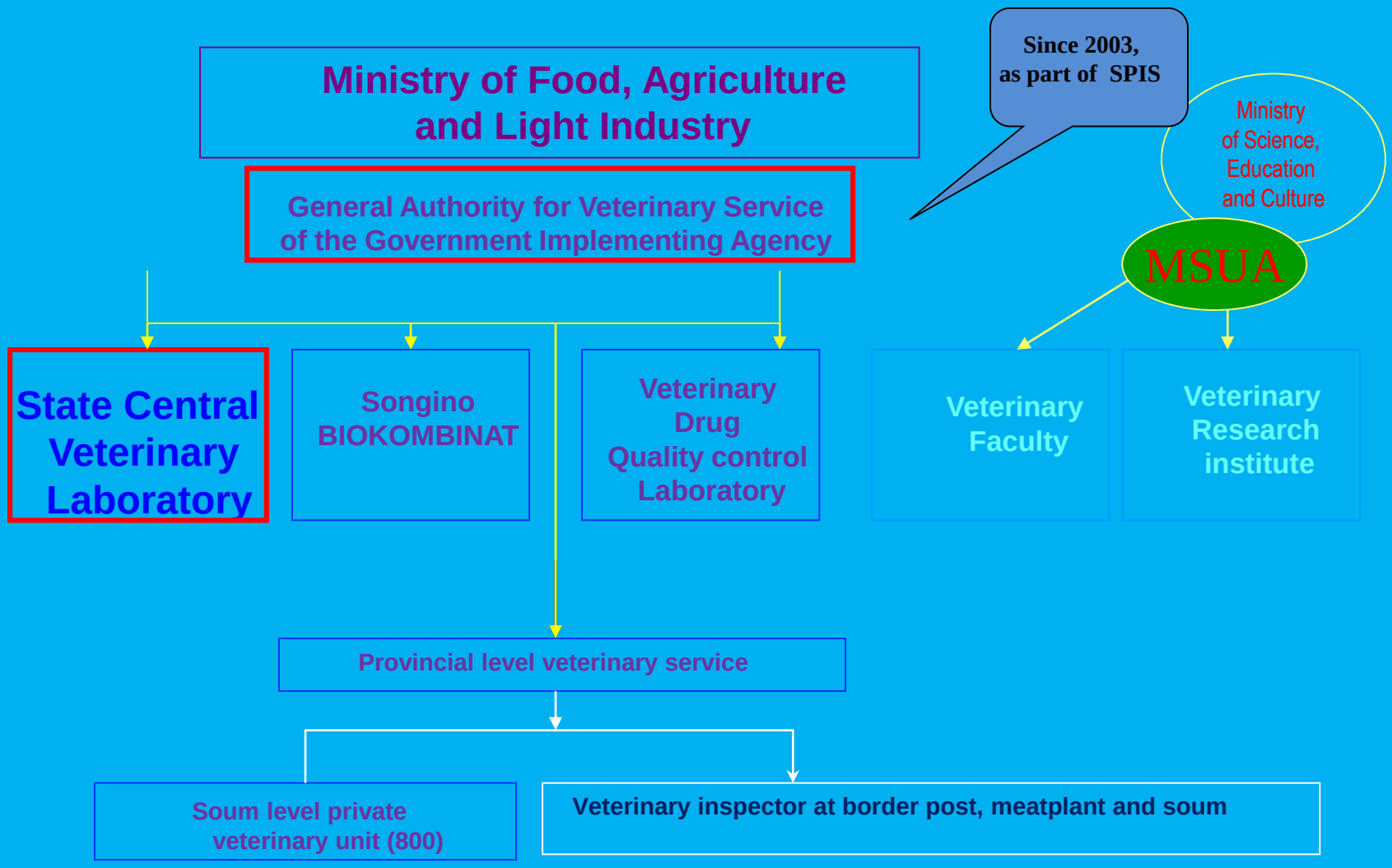
Area: 1.566 thous sq. km
Population: 3,061,600 (Dec, 2015 estimate)
Capital city: Ulaanbaatar
(Literally, 'Red Hero')
Language(s): Mongolian (90%), Khazakh
Livestock; 66.2 million

Summer view of Mongolian herding household



Free access of pasture and water recourses
Mixed herd of sheep, goat, horses, cattle and camel
Average size of livestock in one herding household is 150

VETERINARY SERVICE OF MONGOLIA



2. ORGANIZATION CHART IN SCVL

BRIEF IN HISTORY

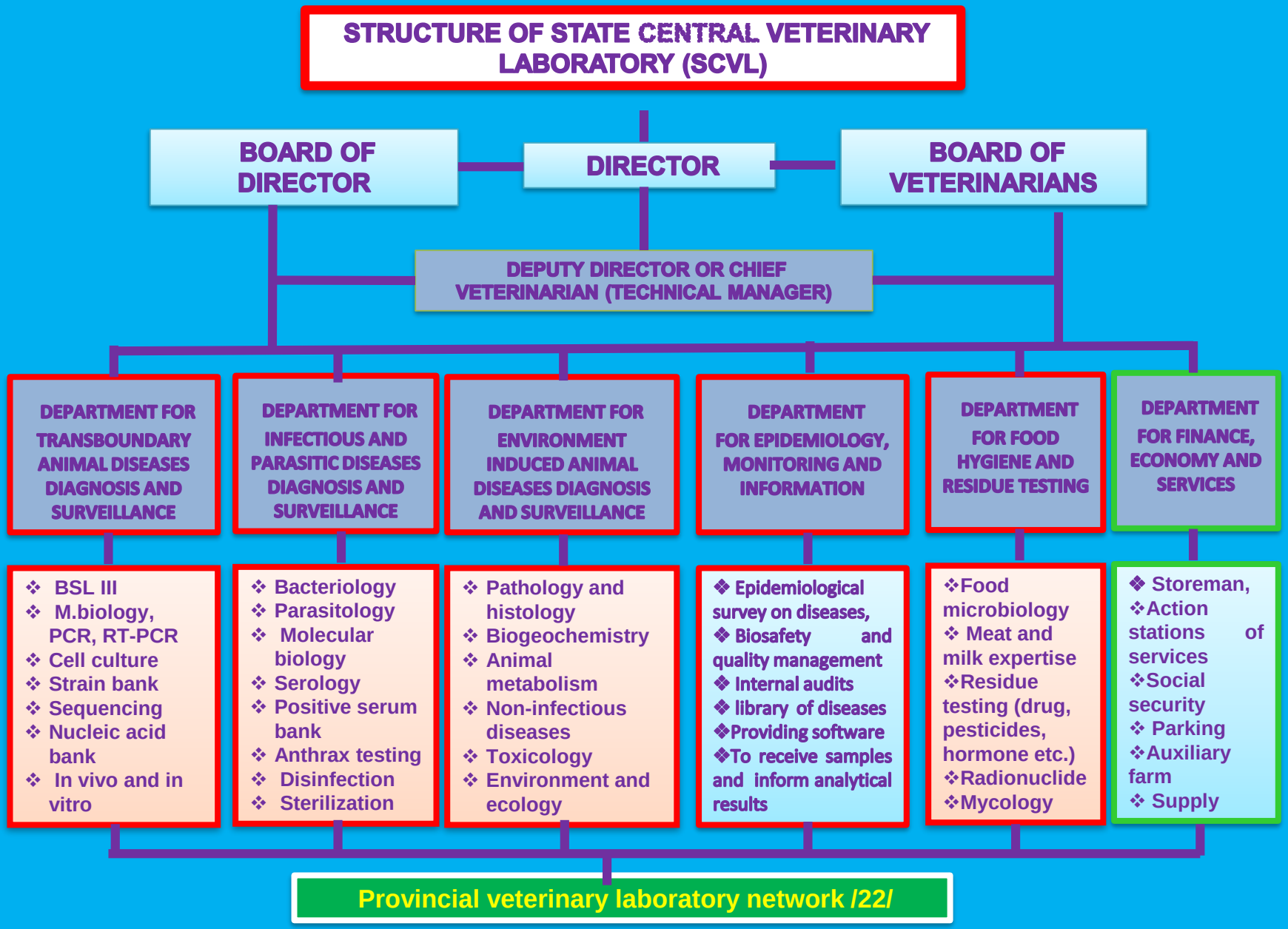
ESTABLISHED: 1965

STATUS: **Government institution**

STAFF: 52 (Scientist, veterinarian, chemist, biotechnologist, physicist and others)

FINANCE SOURCE: 60% State budget

- Self in come
- **Local and International project**


STRUCTURE OF STATE CENTRAL VETERINARY LABORATORY (SCVL)
BOARD OF DIRECTOR
DIRECTOR
BOARD OF VETERINARIANS
DEPUTY DIRECTOR OR CHIEF VETERINARIAN (TECHNICAL MANAGER)
DEPARTMENT FOR TRANSBOUNDARY ANIMAL DISEASES DIAGNOSIS AND SURVEILLANCE
DEPARTMENT FOR INFECTIOUS AND PARASITIC DISEASES DIAGNOSIS AND SURVEILLANCE
DEPARTMENT FOR ENVIRONMENT INDUCED ANIMAL DISEASES DIAGNOSIS AND SURVEILLANCE
DEPARTMENT FOR EPIDEMIOLOGY, MONITORING AND INFORMATION
DEPARTMENT FOR FOOD HYGIENE AND RESIDUE TESTING
DEPARTMENT FOR FINANCE, ECONOMY AND SERVICES
❖ BSL III
❖ M.biology, PCR, RT-PCR
❖ Cell culture
❖ Strain bank
❖ Sequencing
❖ Nucleic acid bank
❖ In vivo and in vitro
❖ Bacteriology
❖ Parasitology
❖ Molecular biology
❖ Serology
❖ Positive serum bank
❖ Anthrax testing
❖ Disinfection
❖ Sterilization
❖ Pathology and histology
❖ Biogeochemistry
❖ Animal metabolism
❖ Non-infectious diseases
❖ Toxicology
❖ Environment and ecology
❖ Epidemiological survey on diseases,
❖ Biosafety and quality management
❖ Internal audits
❖ library of diseases
❖ Providing software
❖ To receive samples and inform analytical results
❖ Food microbiology
❖ Meat and milk expertise
❖ Residue testing (drug, pesticides, hormone etc.)
❖ Radionuclide
❖ Mycology
❖ Storeman,
❖ Action stations of services
❖ Social security
❖ Parking
❖ Auxiliary farm
❖ Supply
Provincial veterinary laboratory network /22/

THE MAIN TASKS

- ANIMAL DISEASE DIAGNOSIS AND IMPLEMENTATION OF CONTROL MEASURES

- VETERINARY SANITARY EXPERTISE IN EXPORTING AND IMPORTING FOODS AND RAW MATERIALS OF ANIMAL ORIGIN

- TRAINING OF LABORATORY STAFF OF PREFERIAL VETERINARY LABORATORIES AND DISTRIBUTION OF TRAINING MATERIALS

3. PROBLEMS VECTOR-BORN DISEASES IN MONGOLIA

Vector-born diseases have been diagnosed in Mongolia as below are:

- **Blue tongue**
- **West Nile Fever**
- **Equine Infectious Anemia**
- **Q Fever**
- **Tick-born Encephalitis**
- **Tick-Born Ricketsioses**
- **Leshmaniasis**
- **Anaplasmosis**
- **Camel trypanosomiasis**
- **Bovine Babesiosis**
- **Equine trypanosomiasis**
- **Dourine**
- **Crimean Congo hemorrhagic fever**
- **Tick-Born Borreliosis**

National surveillance of Vector born diseases in Mongolia

We have been focused some of vector born diseases in Mongolia under the national surveillance program as below are:

- Blue tongue
- West Nile Fever
- Tick-borne encephalitis
- Crimean-Congo hemorrhagic fever
- Q fever

❖ Blue tongue

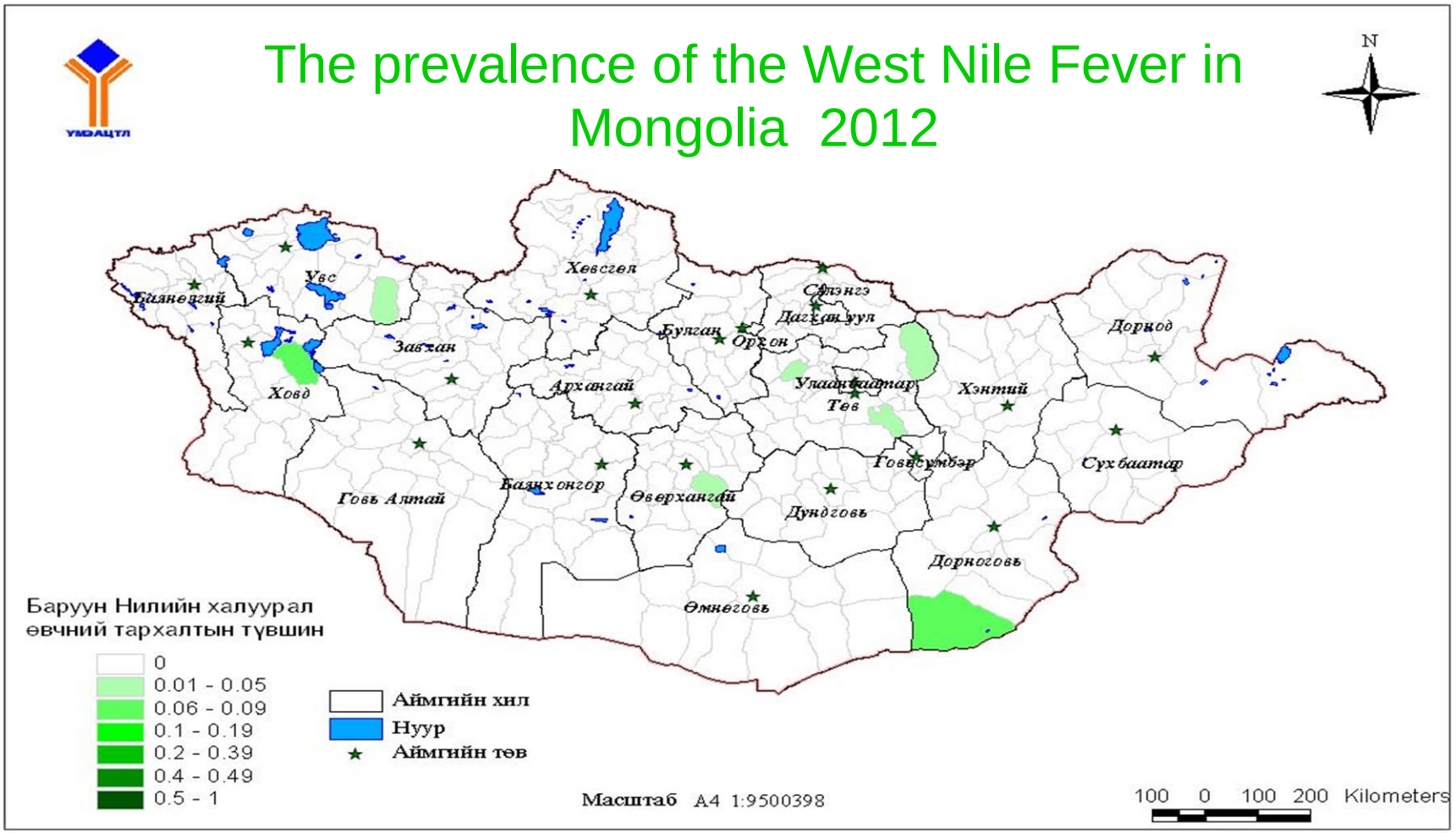
➢ 2007-2009

National surveillance was conducted with 4704 cattle, 2380 sheep, 2377 goats for blue tongue disease. Surveillance result showed wide variation in sero-positive, with goats having a higher average sero-positive (80%) than sheep (50%) or cattle (10%).

➢ 2009-2010

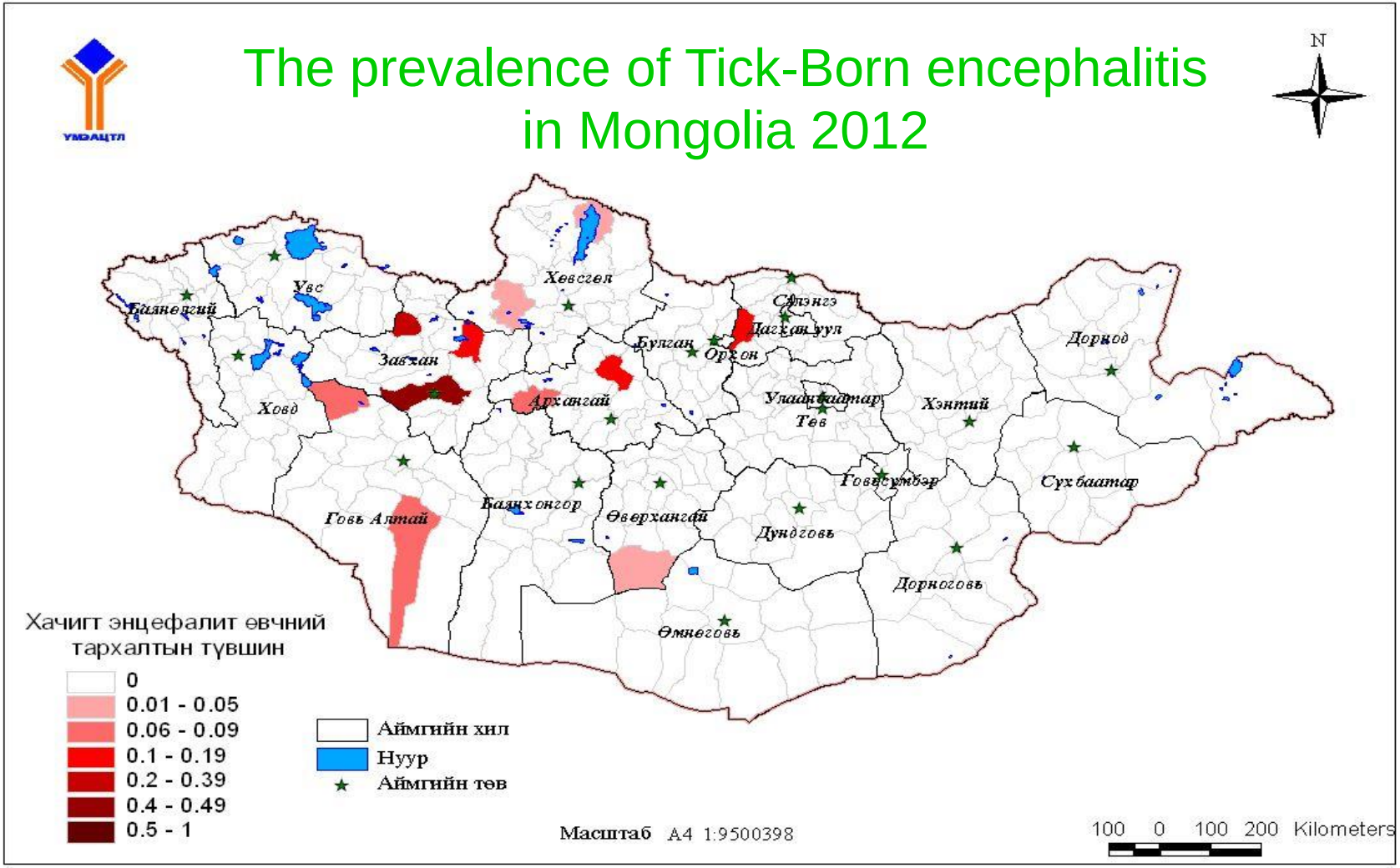
Surveillance was performed in 3 provinces in eastern side. In the results, sero-positive were shown as 96% of goat, 66.8% of sheep and 34.1% of cattle.

❖ West Nile Fever



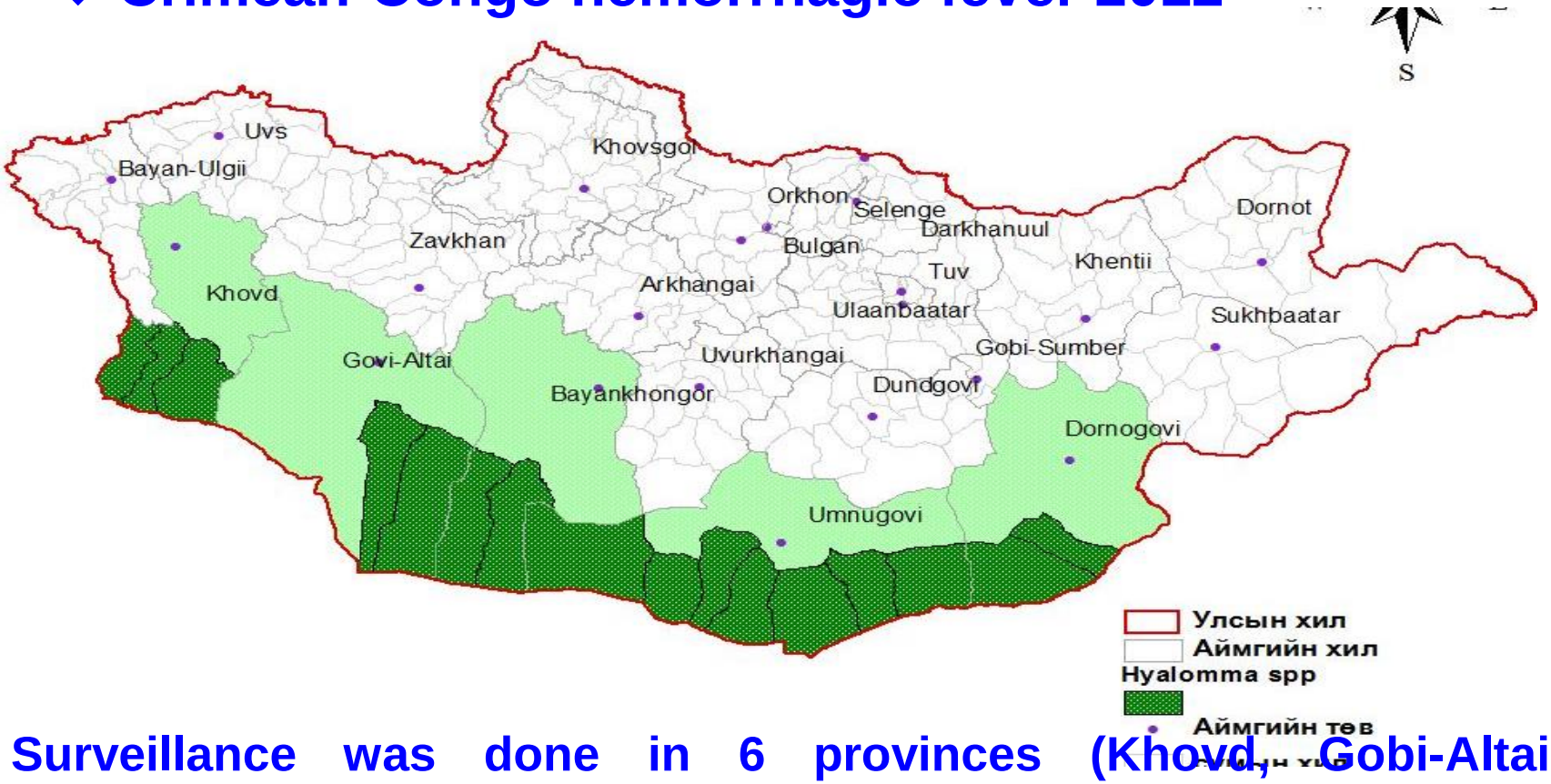
The antibody of West Nile Fever was detected in 5 provinces (Oborkhangai, Tuv, Uvs, Khovd, Dornogobi). 0.55% of horses at the national level and 3,7% of horses in provinces with positive results are predicted to be infectious.

❖ Tick-borne encephalitis



A total of 1456 horse blood were analyzed, 2.5% (37/1456) had antibodies against Tich borne disease.

❖ Crimean-Congo hemorrhagic fever 2012



Surveillance was done in 6 provinces (Khovd, Gobi-Altai, Bayankhongor, Dornogobi, Omnogobi, Selenge) with 1716 samples.

The percentage of positive samples were found in the following order: 27 % from Khobd and Gobi-Altai province, 13.8 % from Bayarkhongor province, 8.6 % from Dornogobi and Omnogobi province.

❖Q fever

ELISA results in samples from different species under the surveillance are:

Animal species	Number of animals tested	Results			
		Discrepant	Negative	Positive	(%)
Cattle	282	0	273	9	(1.84)
Goat	55	3	50	2	(0.41)
Sheep	151	2	133	16	(3.28)
Total	488	5	456	27	(5.53)

A total of 488 serum samples were analyzed, 5.53% (27/488) had antibodies to *Coxiella burnetii*.

PRELIMINARY VULNERABILITY ASSESSMENT:

Summary based on relation on climate parameters and vector born diseases:

- **More direct effects**
  - Changed the environment
  - Changed agents of vector born diseases
  - Changed human life-style
  - Increased frequency of outbreak of vector born diseases
  - Increased frequency of emerging and remerging infectious diseases

- **More indirect effects**
  - Population migration and getting increase tourism and international trade
  - Increased poverty
  - Increased burden of economic
  - Increased risk of exposure of the population to the vector born and infectious diseases

CONCLUSION

1) The studied vector born diseases have a relation with climate parameters such as air temperature and precipitation including tourism and trade.

2) In some of provinces, the vector –borne diseases are higher than in other provinces. It defends the climate change and ecological factors.

3) Since there is lack of registration and reporting system of animal morbidity nationwide, we had have difficulties to study the relation of vector born diseases and climate parameters including other factors.

4) The intersectoral collaboration mechanism for sharing the information is also insufficient.

OBJECTIVES OF STRATEGY

1. Surveillance, monitoring, epidemiological and risk assessments will be carried out and inform decisions to restricted provinces of vector borne diseases.

- Eradicate the disease and regain disease free status.
- Rapid detection and the implementation of appropriate control measures if incursion does occur.
- Vector borne disease free zone may be declared following surveillance evidence that no virus serotypes are circulating in part of a restricted zone in the vector activity period.
- Surveillance, contingency planning and preparation to reduce the impact of such an incursion.

RECOMMENDATION

1. To revise the reporting, pidemiological analysis system of vector born diseases.

2. To establish the early warning and response (EWAR) system into the intersectoral activities and regional joint technical and scientific projects.

3. To improve the technical and human capacity for vector born diagnosis and to implement the short and long term scientific projects to study the correlation of climate change and emerging and re-emerging diseases.

4. To organize the prevention activities among the animal population depending on regional climate and vector born diseases features.


THANK YOU FOR ATTENTION
Photo by Baku