

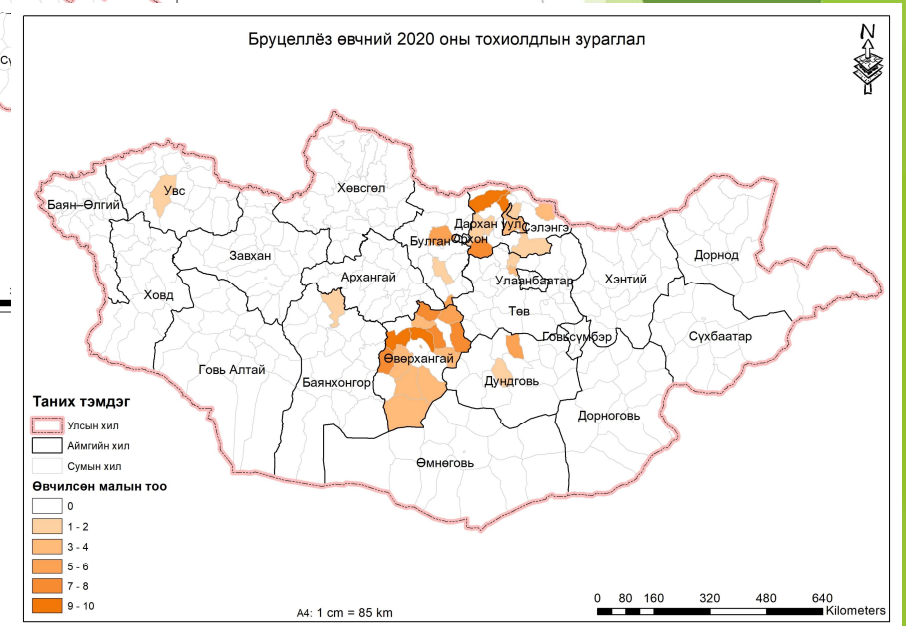
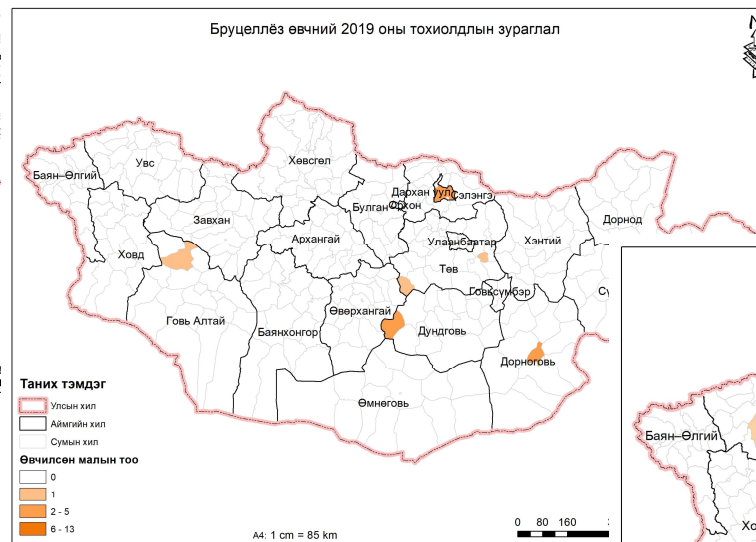
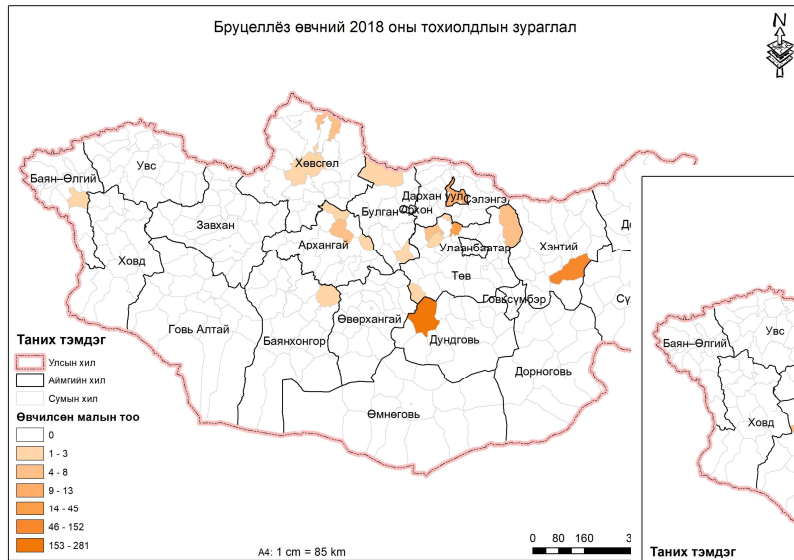
# National Brucellosis Control Program - progress challenges, and way forward

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**MONGOLIA**

OIE Webinar on Progress and Challenges in Brucellosis  
Control in the Asia Pacific Region  
29 July 2021, 3 PM Japan Time



# Disease situational analysis



- Annual incidence of animal brucellosis is significantly decreased in last years.

# National Brucellosis Control Program

- **STRATEGY AND ACTION PLAN FOR CONTROLLING ANIMAL BRUCELLOSIS** is developed and approved by Decree of Minister for Food and Agriculture of Mongolia in Dec. of 2015

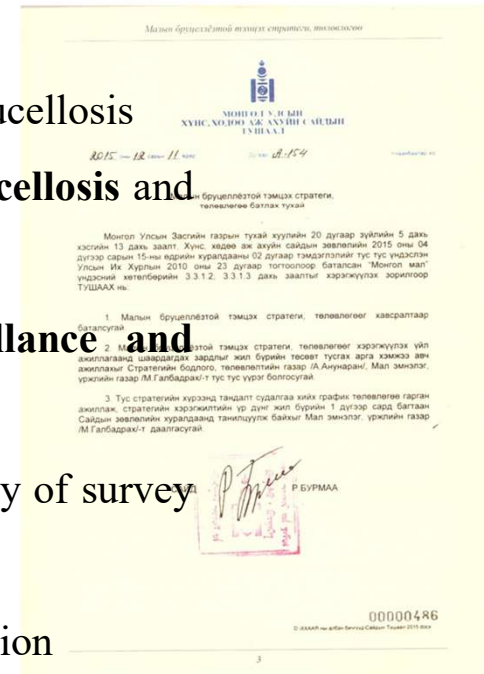
Objective 1: To improve **legal framework** for controlling animal brucellosis

Objective 2: To confine the **prevalence and spread of animal brucellosis** and ensure conditions of the disease eradication

Objective 3: To monitor results of animal brucellosis **surveillance and vaccination**

Objective 4: To upgrade capacity of **diagnosis**, quality and adequacy of survey and research on brucellosis

Objective 5: To enhance awareness, advertisement and public education



|   | ACTION PLANS   | SCHEDULED TIME     | RESPONSIBLE ORGANIZATION               | COOPERATION ORGANIZATION                                 | IMPLEMENTED ACTIONS  |
|---|--|--------------------|--|--|--|
| <b>Objective 1: To improve legal framework for controlling animal brucellosis</b> |  |                    |  |  |  |
| 1.1   | To update or develop newly a guideline of REV 2 and Strain 19 vaccines for prevention of brucellosis   | In 2015            | MOFALI, DVAB, "Biocombinat" SOE        | IVM, SQCLVD  | Vaccine standarts and guideline re-developed for Br.abortus 19, Br.Melitensis Rev.1strains in 2016   |
| 1.2   | To update or develop newly pharmacopoeia articles, SOPs and guidelines for diagnosis and laboratory testing of animal brucellosis  | First half of 2015 | MOFALI, DVAB                           | Pharmacopoeia Committee, SQCLVD, Biocombinat, SCVL, IVM, | 1 Pharmacopoeia article, 8 SOP developed   |
| 1.3   | To re-estimate service charges of vaccination for prevention of brucellosis, and collection of samples for surveillances   | 2015-2021          | MOFALI, DVAB                           | SDA-Project for the animal health                        | The production and transportation of brucellosis vaccines, the service charges for veterinarians, and post-vaccination monitorings are all planned and funded by the state budget.   |
| 1.4   | Implement measures to transfer compensation for the slaughter of sick animals to the local budget  | 2015 -2021         | MOFALI, DVAB                           | Aimag Governer, Food and Agriculture Departments         | No substantiated figures or evidence were found Clarification from MOFALI and GAVS needed  |
| 1.5   | To create legal environment to certify a herd/flock, which is free from this disease   | 2015-2016          | MOFALI, DVAB                           | SCVL, IVM  | Procedure for determination of communicable animal diseases and information on free status by region and countrywide was approved by decree of Minister of Food and Agriculture in 2019. Omnogovi and UB vet services followed surveillance with this procedure. |
| 1.6   | To introduce a system for information sharing and collaboration on human and animal diseases within and between sectors at all levels, develop and observe related guideline | 2015 -2021         | MOFALI, DVAB                           | MOH, NCCD, NCZD  | "Procedures and composition of the joint council to protect public health from zoonotic diseases" is approved by joint decree of Minister of Food and Agriculture, Minister of Health in 2019  |
| 1.7   | To ensure the human brucellosis to be included in the list of occupational diseases  | From 2015          | MOFALI, MOH, National Insurance Agency | Mon.Vet.Assoc, NCCD, NCZD SCVL, SQCLVD                   | No substantiated figures or evidence were found Clarification from MOFALI and GAVS needed  |

|   | ACTION PLANS  | SCHEDULED TIME | RESPONSIBLE ORGANIZATION | COOPERATION ORGANIZATION  | IMPLEMENTED ACTIONS  |
|---|---|----------------|--------------------------|---------------------------|--|
| <b>Objective 2: To confine the prevalence and spread of animal brucellosis and ensure conditions of the disease eradication</b> |   |                |                          |                           |  |
| 2.1   | to vaccinate annually all lambs, kids and female calves according to producers instructions   | From 2015      | VABA, AD-VABA, IVM       | СЗДТГ, МЭҮТ, МЭҮҮН        | The strategy is being implemented according to plan  |
| 2.2   | to conduct targeted testing to identify brucellosis cases and assess the risk level   | From 2015      | VABA, AD-VABA, PVS       | ҮМЭАЦТЛ, МЭХ, МЭҮТ, МЭҮҮН | No substantiated figures or evidence were found<br>Clarification from MOFALI and GAVS needed   |
| 2.3   | to implement comprehensive measures complying with COP in brucellosis infected area   | From 2015      | VABA, AD-VABA, PVS       | NCZD                      | According to the information provided by GAEM, human and animal brucellosis information was regularly exchanged within the framework of inter-sectoral cooperation. Joint training and advocacy work was carried out. In addition, a joint order of the Minister of Food, Agriculture and Light Industry and the Minister of Health is working to develop a strategic plan to control zoonoses. However, these are insufficient to be considered as reasonable and conclusive facts and figures. |
| 2.4   | to investigate and implement brucellosis eradication and test-and-slaughter measures in livestock populations of Umnugobi aimag                   | 2015 - 2021    | MOFA, IVM, VABA          | SCVL                      | Umnugovi Aimag has provided funding from the Oyu Tolgoi Mining Company. In 2019, 1,200 cattle, 3,600 goats and 3,600 sheep from 240 households in 12 soums were tested for brucellosis in order to ensure that they are healthy from brucellosis.  |
| 2.5   | to ensure involvement of all animals of intensified farming in annual brucellosis eradication and testing, and carry out necessary actions        | 2015 - 2021    | MOFA, VABA, AD-VABA      | SCVL, IVM                 | In 2019-2020, more than 35,000 cattle belonging to enterprises, farmers and individual herder households in the capital city were tested for brucellosis to ensure their healthy status.   |
| 2.6   | to provide with ear tags for all animals which were involved in eradication measure and surveillance and record small ruminant flocks with coding | From 2015      | MOFA, VABA, AD-VABA      | SPVS, PVS                 | In 2019, 35.0 thousand cattle in the suburbs of the capital city were tested for brucellosis and registered with 100% ear tags.  |

|   | ACTION PLANS   | SCHEDULED TIME | RESPONSIBLE ORGANIZATION                             | COOPERATION ORGANIZATION  | IMPLEMENTED ACTIONS  |
|---|--|----------------|--|---|--|
| <b>Objective 3: To monitor results of animal brucellosis surveillance and vaccination</b> |  |                |  |   |  |
| 3.1   | To ensure that camels, bulls, rams and bucks are tested at least twice each year for brucellosis and necessary actions carried out   | 2015-2021      | MOFALI, DVAB, State Local departments of DVAB (SLDD) | State public veterinary services, Private veterinary services (SPVS, PVS) | All breeding male animals have been tested for brucellosis and the being regulated not using positive tested animals for breeding. The Aimag Veterinary Departments have been implementing with their local budget resources since 2015, and State Central Veterinary Laboratory implemented by the order of the GAVS in 2018-2019 |
| 3.2   | To ensure that herders, animal husbandry specialists and urban area human populations under risks are involved in surveillance and testing via collaboration with human health care organizations based on brucellosis infected area | 2015-2021      | DVAB, SLDD   | NCCD, SLDD, SPVS, State local hospitals (SLH)                             | No substantiated figures or evidence were found<br>Clarification from MOFALI and GAVS needed   |
| 3.3   | To conduct regular surveillance of brucellosis in slaughter houses and meat processing plants  | Each year      | DVAB, SLDD, SCVL                                     | PVS,  | No substantiated figures or evidence were found<br>Clarification from MOFALI and GAVS needed   |
| 3.4   | To conduct annually post vaccination monitoring surveillance at least in 6 aimag and assess the results  | 2015-2021      | MOFALI, DVAB, SLDD                                   | SPVS, SLDD  | Post vaccination monitoring implemented by the financial support project for animal health of SDA in 2012-2015, and State Central Veterinary Laboratory implemented by the order of the GAVS in 2016-2019  |
| 3.5   | To conduct annual questionnaire surveys on brucellosis among animal husbandry specialists and herders in regions at risk   | 2015-2021      | SLDD   | Soum governors, SPVS  | Annual questionnaire surveys have been used in countrywide operations for the breeding male animals of a total of 43971 households of 976 baghs from 273 soums and districts, in 2018 and 50596 households of 1236 baghs in 321 soums and districts, were surveyed in 2019, respectively.  |
| 3.6   | To ensure that all pigs farms are involved in testing each quarter and necessary actions are carried out   | 2015-2021      | DVAB, SLDD   | SPVS, PVS   | No substantiated figures or evidence were found<br>Clarification from MOFALI and GAVS needed   |
| 3.7   | To conduct on-going and final stage monitoring and evaluation on implementation of measures to confine animal brucellosis  | 2016, 2021     | MOFALI, DVAB   | IVM, SPVS   | No substantiated figures or evidence were found<br>Clarification from MOFALI and GAVS needed   |

## Objective 4. To upgrade capacity of diagnosis, quality and adequacy of survey and research on brucellosis

|      |  |           |                     |                                  |  |
|------|--|-----------|---------------------|----------------------------------|--|
| 4.1. | to establish national reference laboratory on animal brucellosis, increase capacity, and ensure the involvement in network and in competence assessment of regional and international reference laboratories;  | 2015-2017 | VABA, SDA/AHP       | SCVL, IVM, SQCLVD                | In 2016, the “National Brucellosis Reference Laboratory” was established at the SCVL. No activity report was provided.   |
| 4.2  | Capacity building of regional and aimag laboratories, networking and skills assessment   | 2015-2017 | VABA, SCVL, SDA/AHP | IVM, AD-VABA, SQCLVD             | No substantiated figures or evidence were found<br>Clarification from MOFALI and GAVS needed   |
| 4.3  | to improve capacity of veterinary laboratories at all levels for diagnosis of brucellosis, organize training, ensure involvement in internal assessment of competence, and provide with required equipment, tools, supplies, diagnostics and reagents; | 2016-2021 | MOFA, VABA          | IVM, SCVL, SDA/AHP               | Every year, the issue is resolved within the framework of state budget investment and foreign and domestic projects and programs   |
| 4.4  | to identify the species and biotypes of “brucella” which is distributed among livestock populations in Mongolia;   | 2015-2018 | VABA, IVM, SCVL     | SQCLVD, Biocombinat SOE, SDA/AHP | Within the framework of this work, a detailed study of camel, yak, reindeer, cattle, sheep, goat, dog and horse brucellosis was conducted in collaboration with the livestock brucellosis research team and other researchers to identify the types and sera of the causative agent and submit a report to the IVM. and has written research articles and published them in international and domestic journals. |
| 4.5  | to clarify the control measures (vaccination) against brucellosis in camel, ram and buck based on scientific evidences and create environment for its implementation;  | 2015-2021 | MOFA, VABA          | IVM, SCVL                        | In 2012-2013, the project was implemented and handed over to the SCVL at the request of the VABA.  |
| 4.6  | to train, and improve qualification and skills of veterinary field professionals;  | 2015-2018 | VABA, SCVL, AD-VABA | SDA/AHP                          | No substantiated figures or evidence were found<br>Clarification from MOFALI and GAVS needed   |
| 4.7  | to collaborate with domestic and international organizations and implement projects and programs to control brucellosis;   | 2015-2021 | MOFA, VABA,         | International projects           | Since 2018, a research team led by Dr. V.Batbaatar has been conducting a detailed study of brucellosis pathogens under the project “Study of genotypes and phenotypes of yam and brucellosis pathogens” funded by the International Atomic Energy Agency and the Ministry of Education, Culture and Science.   |
| 4.8  | to ensure the involvement of reindeers and dogs in brucellosis surveillance and carry out necessary  | 2015-2021 | VABA, SCVL, AD-VABA | SDA/AHP, IVM                     | A team of researchers from the IVM, funded by the Asian Development Bank and the Science and Technology Foundation, conducted a study on the pathogenesis of reindeer brucellosis and  |

## Objective 5. To enhance awareness, advertisement and public education:

|     |   |           |   |   |   |
|-----|---|-----------|---|---|---|
| 5.1 | to broadcast information on harms of brucellosis through mass media according to specific plan, schedule and timetable (spots, interview, programs, discussions etc);   | From 2014 | MOFA, VABA, SCVL, IVM                               | International projects, Nat.Vet.Asso. /NVA/ | A wide range of broadcasts and discussions on animal brucellosis control policy, implementation methods and prevention through social media (TV, radio, newspapers, websites, etc.) has been implemented.until the end of 2016.                           |
| 5.2 | to organize training and advertisement of vaccination benefits, methods of organizations, related guidelines and recommendations for relevant professionals and veterinarians of aimags and soums prior to the vaccination campaign;        | From 2014 | VABA, IVM, SCVL                                     | SDA/AHP, SQCLVD, Biocombinat SOE, NVA       | Annual brucellosis vaccination orders were issued, and guidelines for vaccination were issued. Aimag and capital city veterinary organizations are introducing guidelines and methodologies to soum and district PVSs, signing and handing over vaccines. |
| 5.3 | to organize training and advertisement on improving health education of herders, professionals and decision makers in animal husbandry practice;  | 2015-2021 | MOFA, VABA, aimag dept of MOFA, aimag depts of VABA | IVM, SCVL, SVM, SDA/AHP, NVA                | The VABA, GAVS, and the SDC Project prepared a television program on brucellosis, which was distributed throughout the country, and recommendations and manuals on combating and preventing it were prepared and distributed online.                      |
| 5.4 | to organize awareness and advertisement activities on harms of brucellosis during the offspring delivery, milking, slaughtering, preparation, processing and selling of raw materials, and travel-vacation periods in specific local areas. | 2015-2021 | VABA, aimag depts of VABA                           | SCVL, SDA/AHP, NVA                          | The VABA, GAVS and the project program prepared a TV program on brucellosis, broadcast it throughout the country, prepared and distributed recommendations and manuals on controlling and preventing the disease, and published it online.                |
| 5.5 | Төрийн ба төрийн бус, хувийн хэвшлийн байгууллага, хамт олон, иргэдийн идэвх санаачлагыг дэмжиж ажиллах   | 2015-2021 | ҮХААЯ, МЭҮ Г  | МЭХ, УМЭАЦТЛ, МоҮМЭХ, МЭМТ, Биокомбинат     | No substantiated figures or evidence were found<br>Clarification from MOFALI and GAVS needed  |

## Funding mechanisms and sustainability

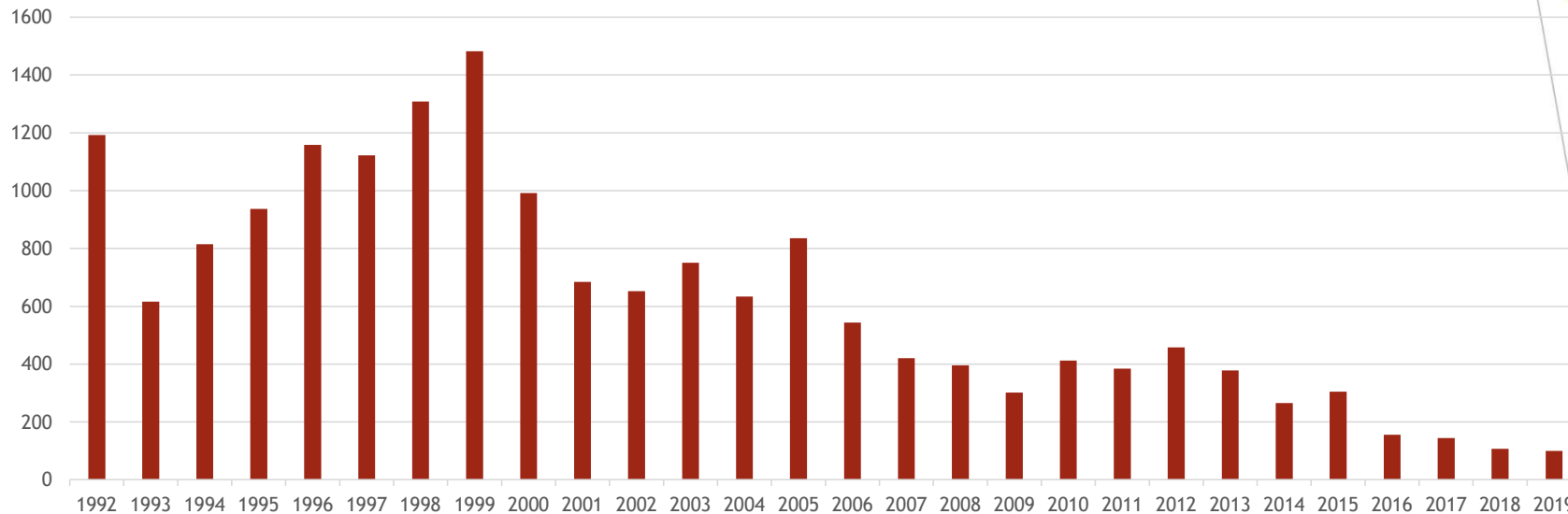
|              | Vaccination and service fee / thousand MNT/ | Surveillance of Br.ucellosis in breeding male animals /thousand MNT | Post-vaccination monitoring / thousand MNT / | Total /thousand.MNT /                    |
|--------------|---|---|--|--|
| 2015         | 4,430,308.6                                 | 0.0   | <b>Provided</b>                              | 4,430,308.6                              |
| 2016         | 4,195,743.4                                 | 0.0   | <b>funding from SDC</b>                      | 4,195,743.4                              |
| 2017         | 5,124,946.5                                 | 0.0   |  | 5,124,946.5                              |
| 2018         | 4,030,264.7                                 | 131,297.9   | 33,205.0                                     | 4,194,767.6                              |
| 2019         | 4,950,203.3                                 | 239,087.2   | 26,290.0                                     | 5,215580.5                               |
| <b>Total</b> | <b>22,731,466.5</b><br><b>/7981.00\$/</b>   | <b>370,385.1</b><br><b>/130.00\$/</b>                               | <b>59,495.0</b><br><b>/20.08\$/</b>          | <b>23,161,346.6</b><br><b>/8132.4\$/</b> |

- ▶ Total amount of financial report on brucellosis prevention and control performance in 2015-2019

**(Expenses for vaccination, service fee, and post-vaccination monitoring required for brucellosis should be included in the annual state budget and other sources)**

| year | Young animals planned to be vaccinated / thousand heads / |         |         |         | The amount of vaccine required      |   | Total cost of vaccines and diluents / thousand MNT / | Total required service fee / thousand MNT / | Total amount                    |
|------|---|---------|---------|---------|-------------------------------------|---|--|---|---------------------------------|
|      | calf  | Lamb    | Goat    | Total   | Br.abortus-S19 strain /thou.doses / | Br.melitensis Rev-1 strain /thou.doses/ |  |   |                                 |
| 2015 | 500.0   | 5966.2  | 8033.8  | 14500.0 | 500.0                               | 10000.0                                 | 2271830.0  | 2158478.7                                   | <b>4,430,308.7</b>              |
| 2016 | 658.0   | 6545.8  | 5796.2  | 13658.0 | 658.0                               | 13000.0                                 | 2160835.9  | 2034907.5                                   | <b>4,195,743.4</b>              |
| 2017 | 600.0   | 8791.7  | 7208.3  | 16600.0 | 600.0                               | 16000.0                                 | 2604946.5  | 2520000.0                                   | <b>5,124,946.5</b>              |
| 2018 | 723.1   | 6967.4  | 5728.2  | 13427.8 | 732.1                               | 12595.6                                 | 2092284.8  | 1937979.9                                   | <b>4,030,264.7</b>              |
| 2019 | 892.5   | 8154.5  | 6821.7  | 15868.7 | 892.5                               | 14976.2                                 | 2525271.8  | 2424931.4                                   | <b>4,950,203.2</b>              |
| Дүн  | 3373.6  | 36425.6 | 33588.2 | 74054.5 | 3382.6                              | 66571.8                                 | 11655169.0   | 11076297.5                                  | <b>22,731,466.5 /7981.00\$/</b> |

## Key achievements in brucellosis control

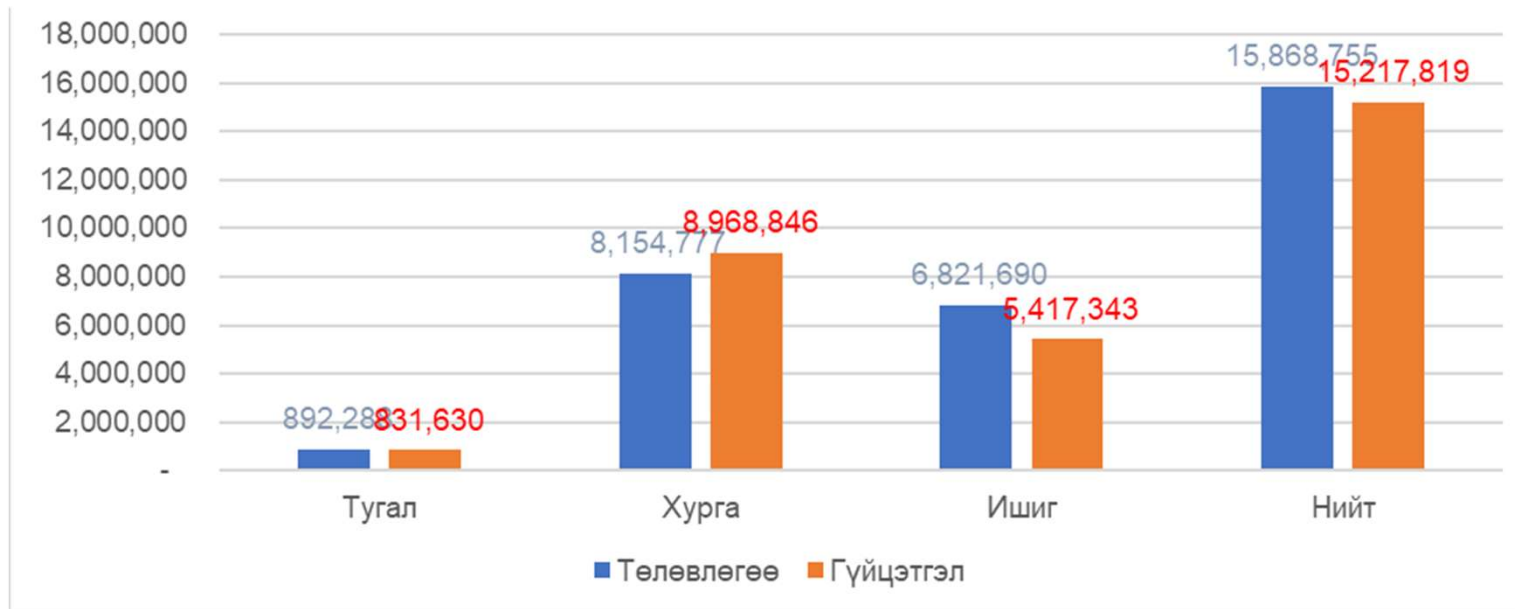


Human Brucellosis cases in Mongolia between 1992 and 2019.

- ▶ Brucellosis in livestock is one of the main risks for infection with Brucellosis in humans and thus affecting human health. Based on results shared by the Ministry of Health, the number of confirmed cases of Brucellosis in the human population has reduced from more than 1000 confirmed cases between 1996 till 2000 to fewer than one hundred cases since 2016.
- ▶ It is understood that active surveillance on human Brucellosis is reduced since 2016. That may well explain the stark reduction of Brucellosis cases in humans since 2016.

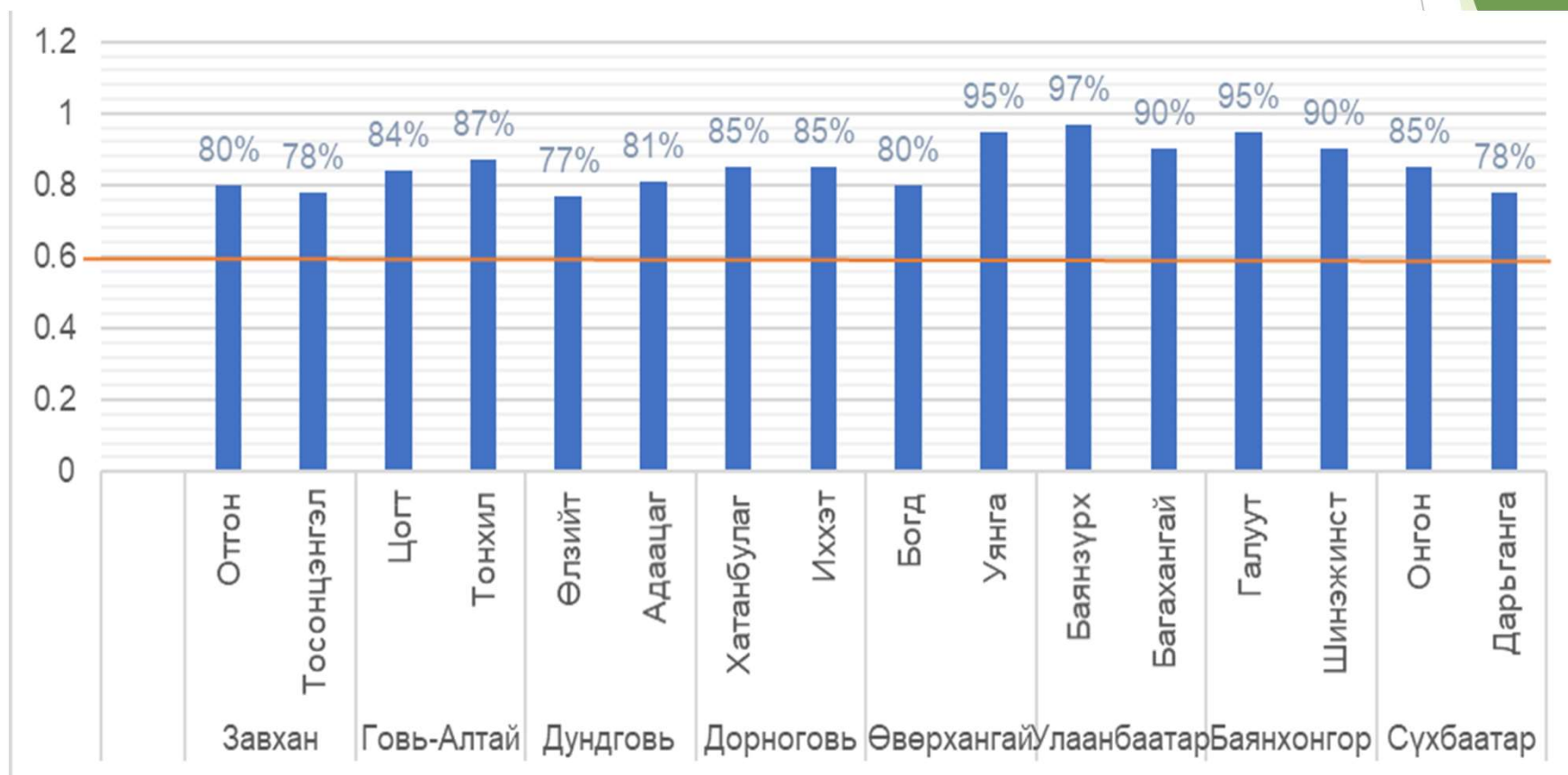
## Key implementation challenges

- ▶ **VACCINATION AGAINST BRUCELLOSIS.** A total of 831.6 thousand calves vaccinated nationwide from scheduled 892.3 thousand calves, including 8.15 million lambs out of 8.15 million lambs, 5.41 million goats out of 6.82 million goats, and 15,217 million female offspring were vaccinated out of 15.86 million or 95.9%, and the vaccine was delivered to the local area by concluding an agreement with Biocombinat SOE on “Sale and purchase of veterinary biopreparations” in every year.



## Post-vaccination monitoring

According to the results of monitoring of brucellosis vaccination in 9088 young animals in 16 soums of 8 aimags of Eastern, Western and Central regions of Mongolia, the level of immune response was 85.5%. This indicates that the level of immunization is good.



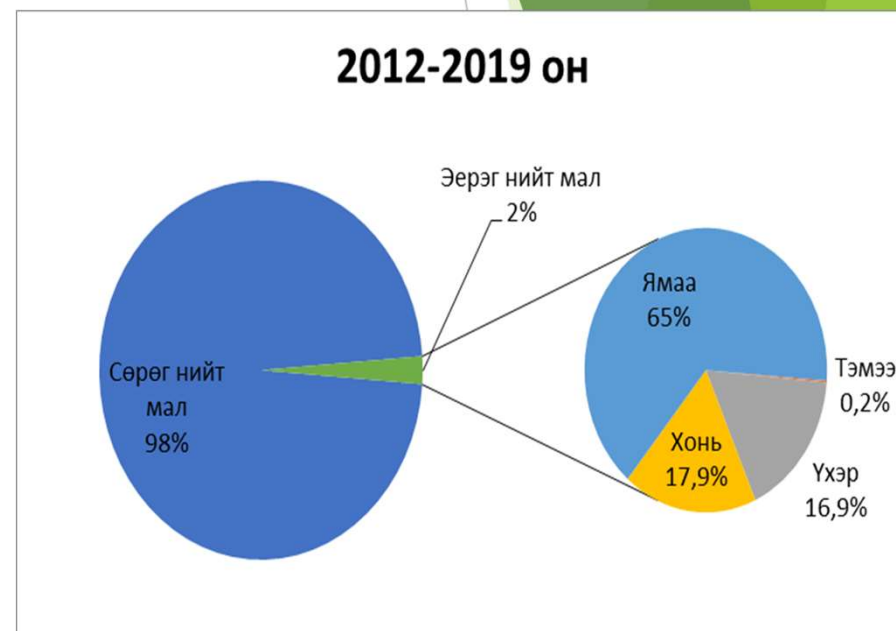
# Brucellosis sero-surveillance for breeding male animals

- ▶ The countrywide sero-surveillance in last three years, brucellosis antibodies were detected in 0.2% (496/247043) in 2020, 0.26% (758/294140) in 2019, 0.35% (856/242350) in 2018 respectively.

| Sero-survey | Cattle testing positive % [95%CI] | Rams testing positive % [95%CI] | Billy goats testing positive % [95%CI] |
|-------------|-----------------------------------|---------------------------------|--|
| 2018        | 0.6% [0.5-0.7%]                   | 0.3% [0.3-0.4%]                 | 0.3% [0.3-0.4%]                        |
| 2019        | 0.5% [0.4-0.6%]                   | 0.2% [0.2-0.3%]                 | 0.2% [0.2-0.2%]                        |
| 2020        | 0.2% [0.2-0.3%]                   | 0.2% [0.2-0.3%]                 | 0.1% [0.2-0.3%]                        |

## ***SURVEILLANCE OF ANIMAL BRUCELLOSIS*** ***/FUNDED BY GOVERNMENT OF MONGOLIA/***

Nationwide, between 2012 and 2019, a total of 1,976,901 head of livestock were tested for brucellosis, of which 1,930,486.0 or 98% of all animals tested for brucellosis tested negative and 46,332 or 2% of all animals tested positive for brucellosis. Of these 46,332 head of livestock, 65% (30,155) were goats, 16.9% (7,846) were cattle, 17.9% (8,273) were sheep, and 0.2% (108) were camels.



## BRUCELLOSIS SERO-SURVEY 2020, *funded by Livestock Commercialization Project (LCP) of FAO in Mongolia*

- ▶ The study results produces prevalence estimates that are two- to five times higher, compared with the results of GAVS-directed sero-monitoring for Brucellosis in breeding males between 2018 and 2020. The Rose-Bengal test used in this study, has not been validated prior to this study or recent national sero-monitoring studies. It is recommended to participate in proficiency testing for Brucellosis testing organized by the Asian region;

| Brucellosis test-system  | Positive tested heads of livestock (#, %, [95%CI]) | # herds with test-positive animals (#, %, [95%CI]) | # bags with test-positive animals (#, %, [95%CI]) |
|--------------------------|--|--|---|
| Screening by Rose-Bengal | 84<br>1.3%<br>[1.1-1.6%]                           | 64<br>10.1%<br>[7.9-12.7%]                         | 28<br>41.7%<br>[29.8-54.5%]                       |
| Confirmation by CFT      | 55<br>0.9%<br>[0.7-1.1%]                           | 47<br>7.4%<br>[5.5-9.8%]                           | 20<br>30%<br>[19.3-42.3%]                         |

## Way forward in accelerating brucellosis control

- ▶ **BRUCELLOSIS HERD-HEALTH CERTIFICATION.** Ulaanbaatar department veterinary laboratory has a pilot on providing dairy herds with Brucellosis-free certificates based on regular testing for Brucellosis. General authority for veterinary services seeks to extending that pilot for all dairy herds that supply milk, cheese etc to Ulaanbaatar and other cities with the collaborative support from the Livestock Commercialization Project (LCP) of FAO, Mongolia.
- ▶ GAVS consider to design and plan for a **BRUCELLOSIS ERADICATION PROGRAM** in livestock herds based on a regular testing of herds. When a herd is tested Brucellosis negative for a number of times (4-6 times), will be certified Brucellosis-free.

THANK YOU FOR YOUR ATTENTION

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. These shapes are primarily located on the right side of the slide, with some extending towards the center. The overall aesthetic is clean and modern.