China, Mongolia, and Central Asia Episystem Workshop for Peste des petits ruminants (PPR) eradication

Ulaanbaatar, Mongolia, 1-3 April 2025

With support from:

中华人民共和国农业农村部
Ministry of Agriculture and Rural Affairs of the People's Republic of China

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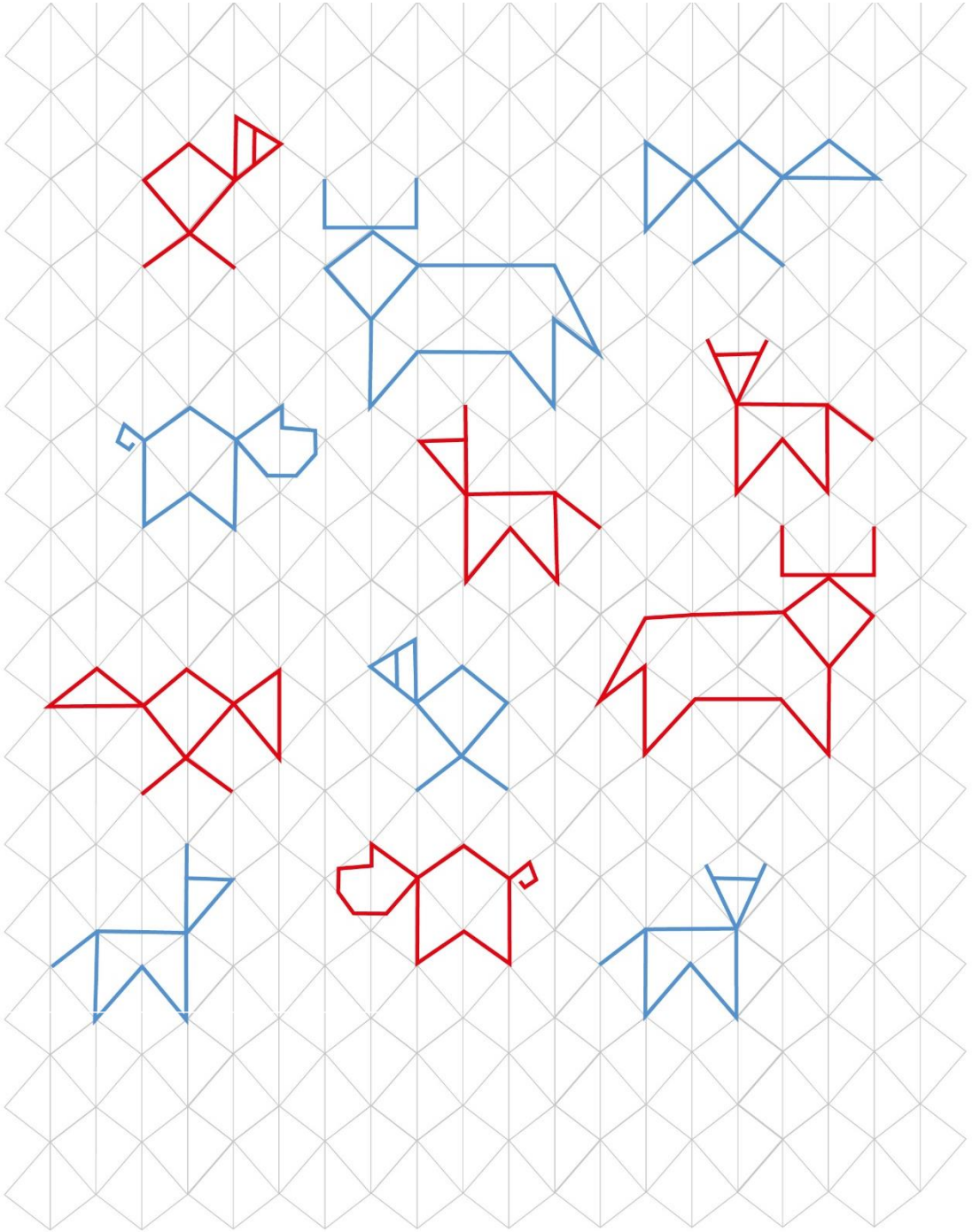
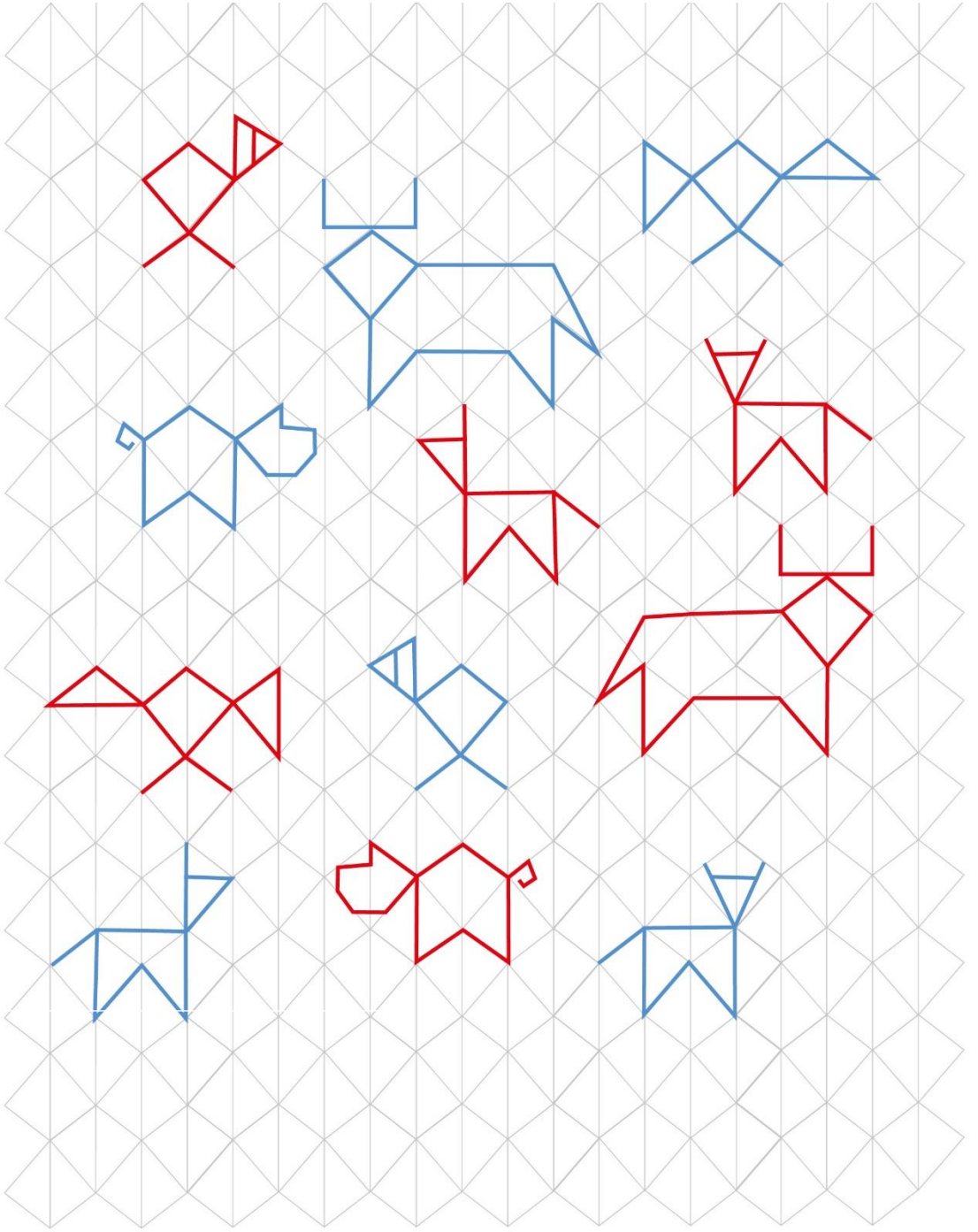


Report from Mongolia

Dr A.Narantuya, Director of GAVS and CVO of Mongolia, PhD
Dr Munkhbayar, GAVS officer for PPRV
Dr Munkhduuren, Chief Veterinarian of SCVL



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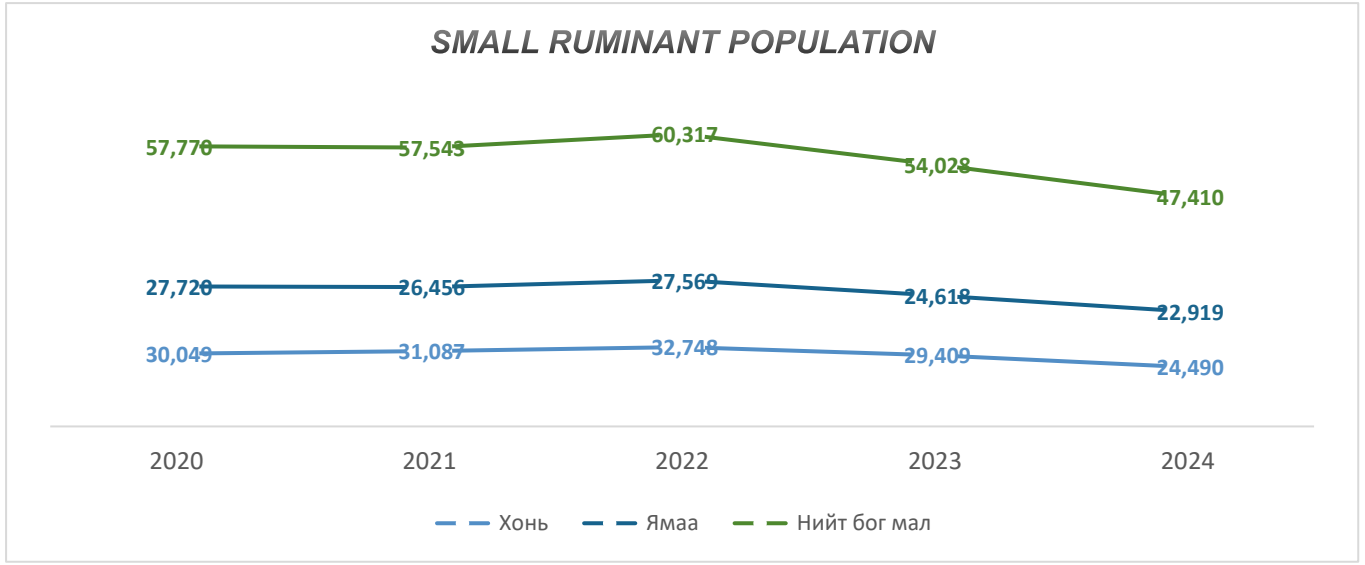
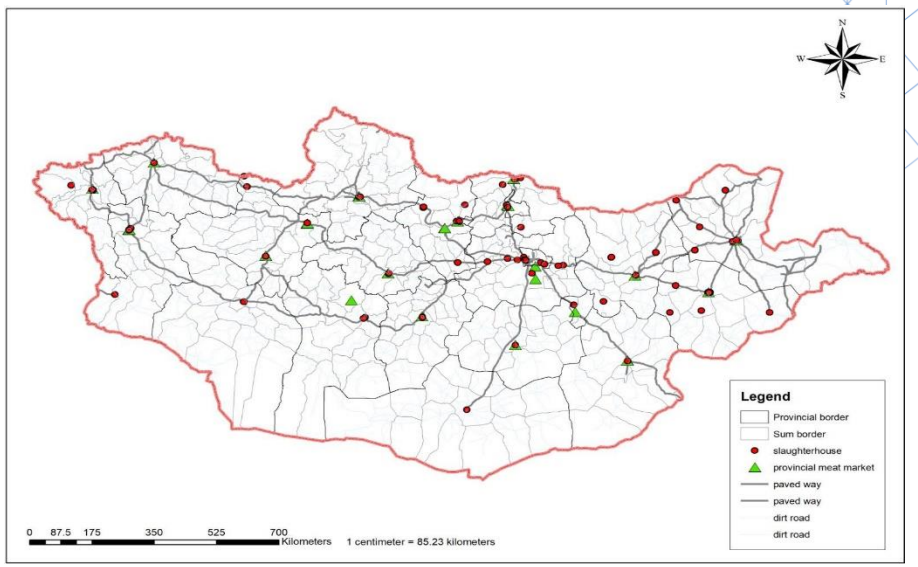
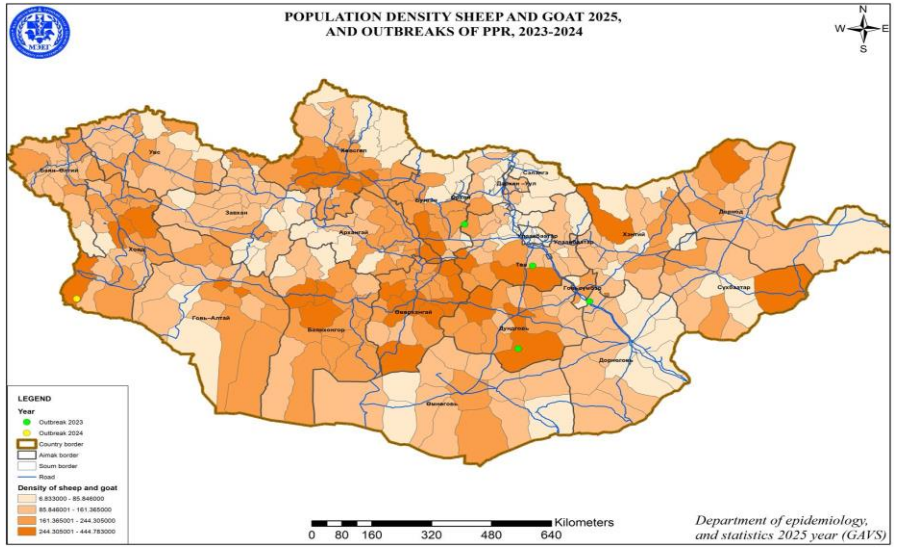
Background

- As of 2024, 82.2% of Mongolia's total livestock, or 47.4 million heads, are small ruminants (sheep and goats).
- Across the country, there are a total of 160 meat processing plants, with 53 operating in Ulaanbaatar and 107 in local areas. Out of the 63 meat marketing centers, 12 are located in Ulaanbaatar, while 51 operate in rural areas.
- The most recent case of PPR was reported on December 7, 2024, in one outbreak in Bulgan soum, Khovd province, where 14 goats were infected and completely culled. The spread of the disease has now been fully contained.
- The PMAT assessment report was submitted in May 2024.

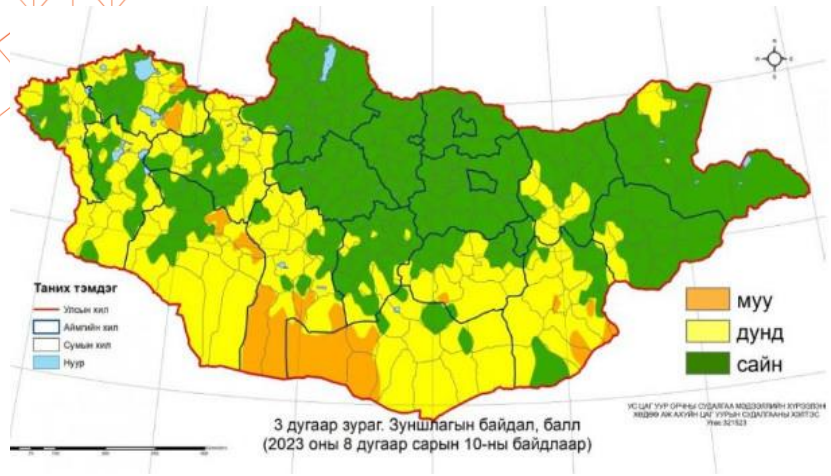






Risk Maps & SR movement pattern

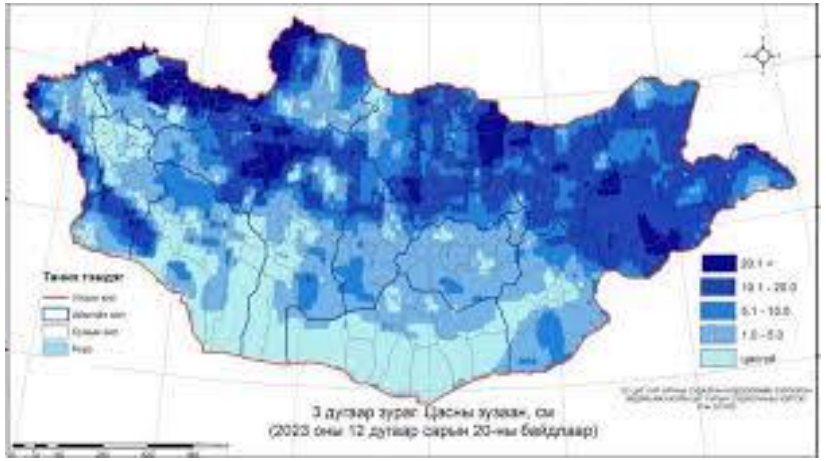
Summer condition /August 2023/



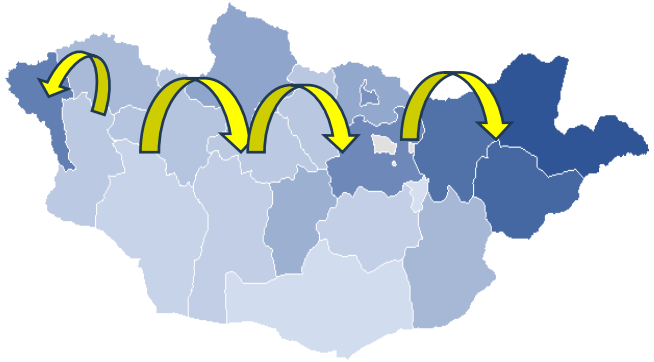
Livestock seasonal migration in Mongolia varies each year depending on the specific conditions of the country's pastureland-based livestock husbandry system and weather patterns.

The figure below shows how the livestock seasonal migration is influenced by Mongolia's summer grazing conditions in August 2023 and the winter conditions in December 2024.

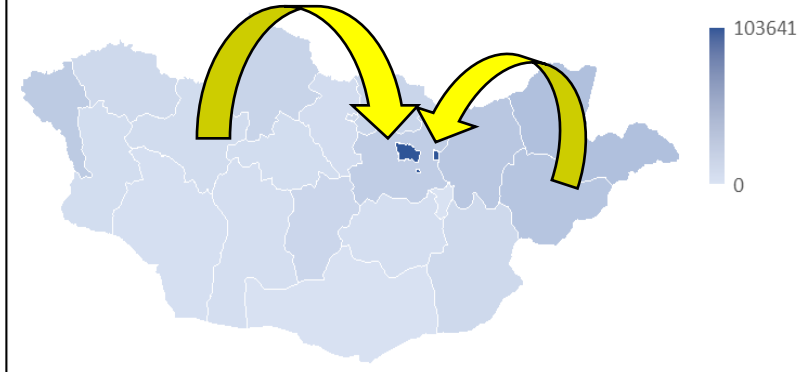
Dzud risk assessment/December 2023/



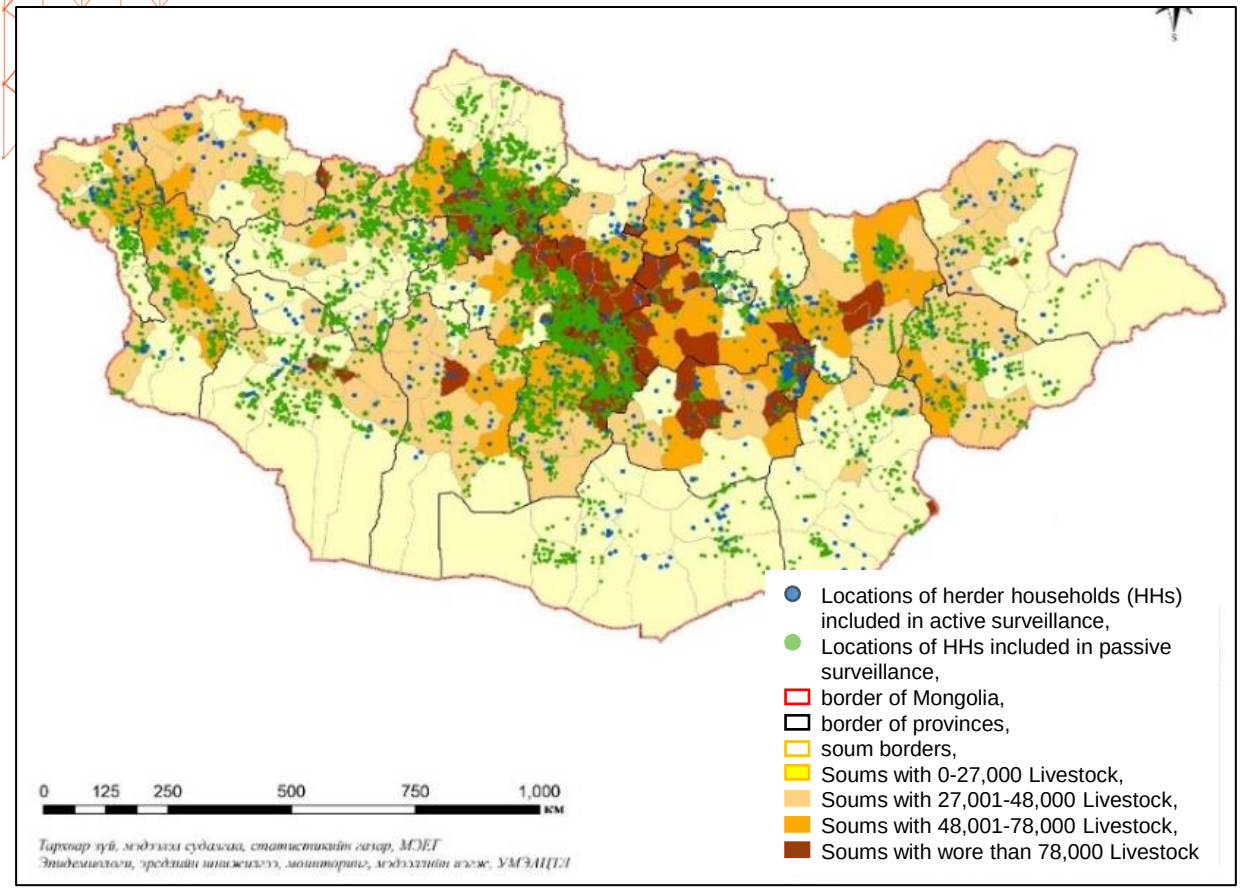
The provinces that received livestock seasonal migration

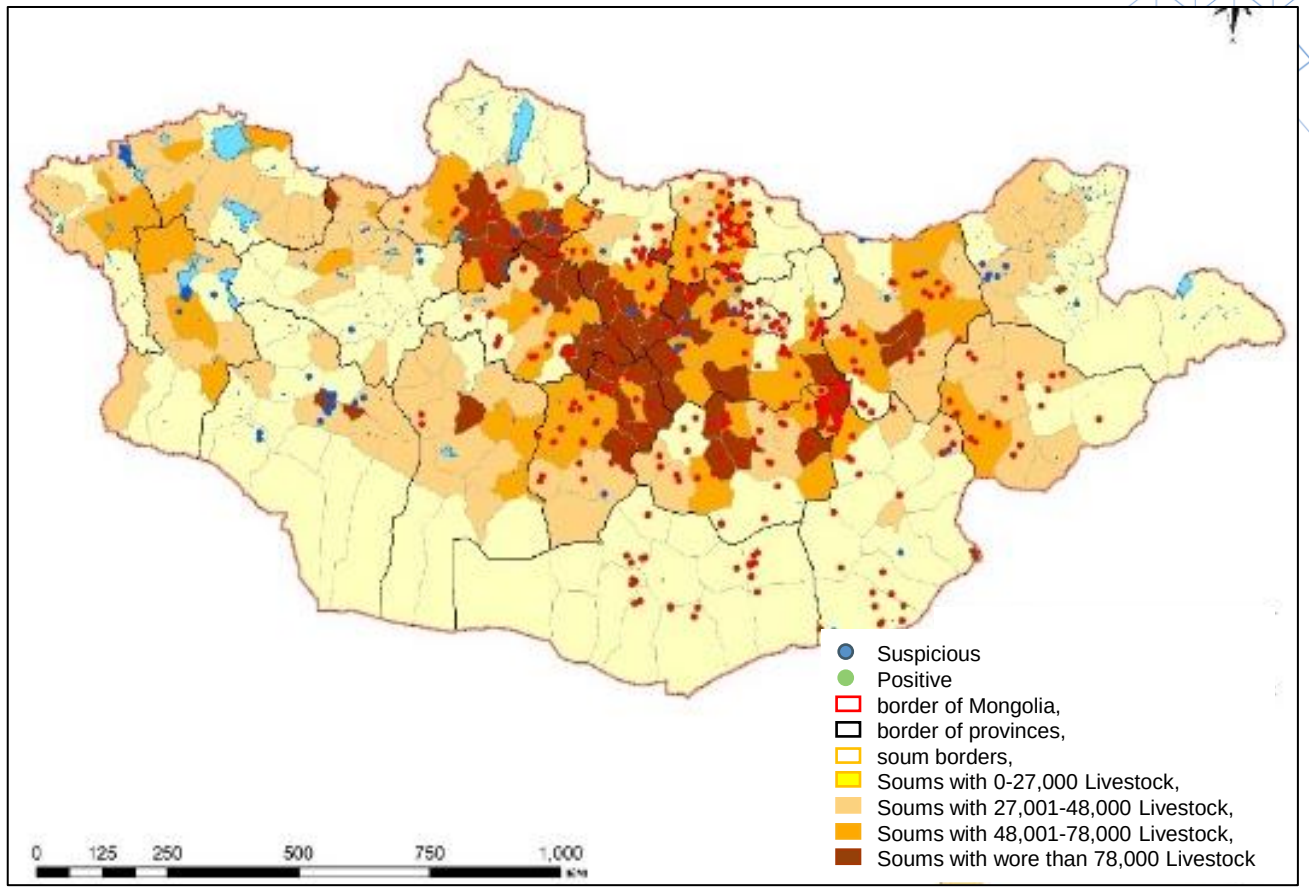


The livestock to be consumed



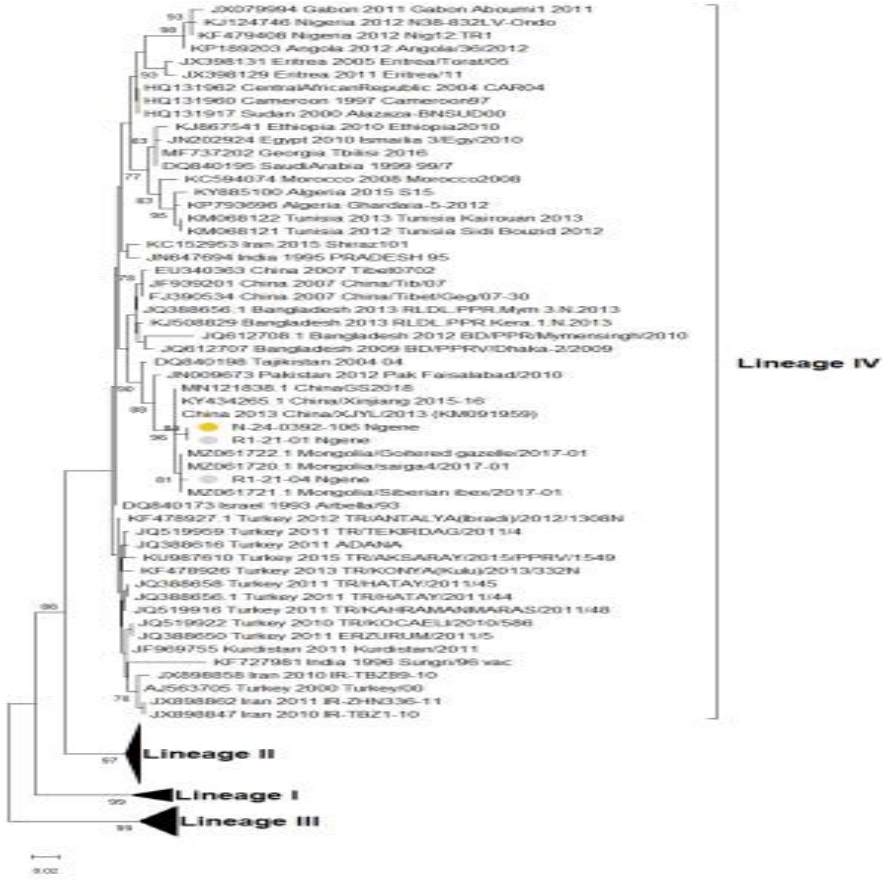
The active and passive surveillance of PPRV in 2024





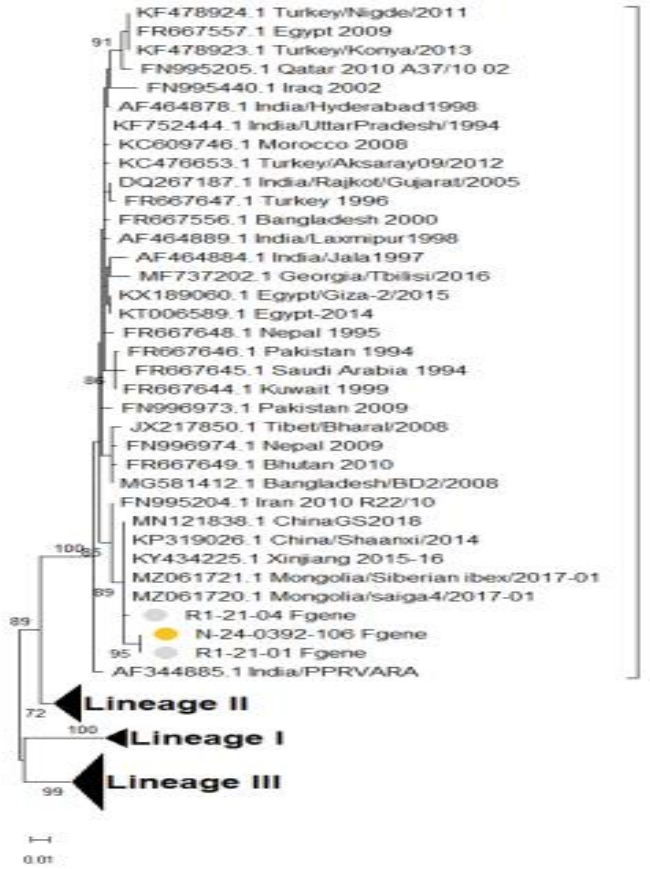
PPRV MOLECULAR EPIDEMIOLOGY, LINEAGES & PHYLOGENETIC ANALYSES

Comparison of 303 bp of the N gene



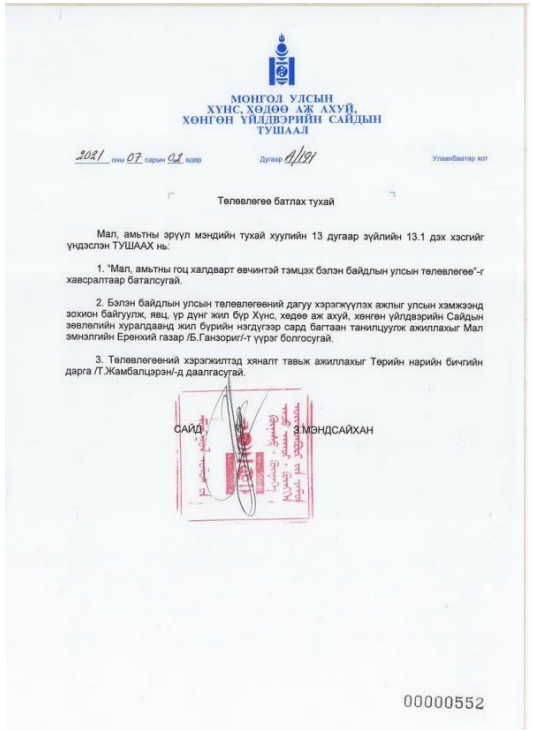
Resulting sequences were assembled using SeqMan Pro and phylogenetic analysis was performed using MEGA 11. N-24-0392-106 belongs to lineage IV when compared to PPRV reference strains and shared 99.1% nucleotide identity, across 303 bp of the N gene, with publicly available sequences from China (MN121838.1

Comparison of 322 bp of the F gene



Resulting sequences were assembled using SeqMan Pro and phylogenetic analysis was performed using MEGA 11. N-24-0392-106 belongs to lineage IV when compared to PPRV reference strains and shared 99.0% nucleotide identity, across 322 bp of the F gene, with publicly available sequences from Iran (FN995204.1), China (MN121838.1, KP319026.1) and Mongolia (MZ061720.1, MZ061721.1). N-24-0392-106 also shared 98.4% and 96.4% nucleotide identity, across 322 bp of the F gene, with previously submitted PPVR samples, R1-21-01 and R1-21-04 respectively.

Contingency and response plan



МОНГОЛ УЛСЫН
ХҮНС, ХӨДӨӨ АЖ АХУЙ,
ХӨНГӨН ҮЙЛДВЭРИЙН САЙДЫН
ТУШААЛ

2021 оны 07 сарын 02 өдөр Дугаар А/191 Улаанбаатар хот

Төлөвлөгөө батлах тухай

Мал, амьтны эрүүл мэндийн тухай хуулийн 13 дугаар зүйлийн 13.1 дэх хэсгийг үндэслэн ТУШААХ нь:

1. "Мал, амьтны гоц халдварт өвчинтэй тэмцэх бэлэн байдлын улсын төлөвлөгөө"-г хавсралтаар батлуулсугай.

2. Бэлэн байдлын улсын төлөвлөгөөний дагуу хэрэгжүүлэх ажлыг улсын хэмжээнд зохион байгуулж, явц, үр дүнг жил бүр Хүнс, хөдөө аж ахуй, хөнгөн үйлдвэрийн Сайдын зөвлөлийн хуралдаанд жил бүрийн нэгдүгээр сард багтаан танилцуулж ажиллахыг Мал эмнэлгийн Ерөнхий газар /Б.Ганзориг/-т үүрэг болгосугай.

3. Төлөвлөгөөний хэрэгжилтэд хяналт тавьж ажиллахыг Төрийн нарийн бичгийн дарга /Т.Жамбалцэрэн/-д даалгасугай.

САЙД З.МӨНДСАЙХАН

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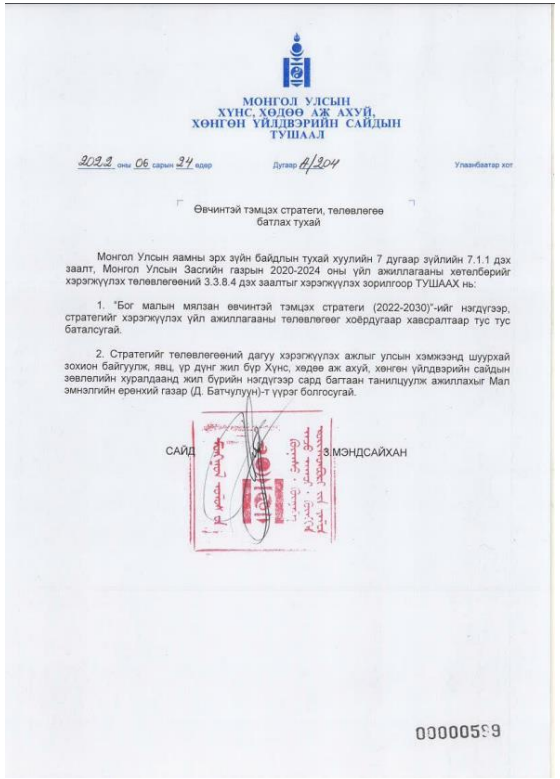

МОНГОЛ УЛСЫН
ХҮНС, ХӨДӨӨ АЖ АХУЙ,
ХӨНГӨН ҮЙЛДВЭРИЙН САЙДЫН
ТУШААЛ

2022 оны 06 сарын 24 өдөр Дугаар А/204 Улаанбаатар хот

Өвчинтэй тэмцэх стратеги, төлөвлөгөө батлах тухай

Монгол Улсын ямны эрх зүйн байдлын тухай хуулийн 7 дугаар зүйлийн 7.1.1 дэх заалт, Монгол Улсын Засгийн газрын 2020-2024 оны үйл ажиллагааны хөтөлбөрийг хэрэгжүүлэх төлөвлөгөөний 3.3.8.4 дэх заалтыг хэрэгжүүлэх зорилгоор ТУШААХ нь:

1. "Бог малын мялзан өвчинтэй тэмцэх стратеги (2022-2030)"-ийг нэгдүгээр, стратегийг хэрэгжүүлэх үйл ажиллагааны төлөвлөгөөг хоёрдугаар хавсралтаар тус тус батлуулсугай.

2. Стратегийг төлөвлөгөөний дагуу хэрэгжүүлэх ажлыг улсын хэмжээнд шуурхай зохион байгуулж, явц, үр дүнг жил бүр Хүнс, хөдөө аж ахуй, хөнгөн үйлдвэрийн сайдын зөвлөлийн хуралдаанд жил бүрийн нэгдүгээр сард багтаан танилцуулж ажиллахыг Мал эмнэлгийн ерөнхий газар (Д. Батчулуун)-т үүрэг болгосугай.

САЙД З.МӨНДСАЙХАН

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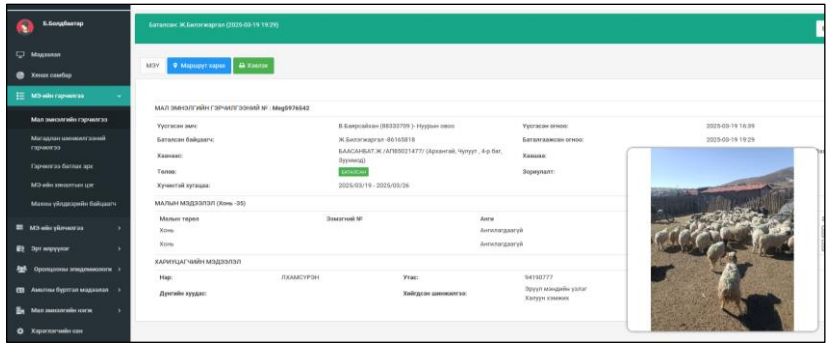
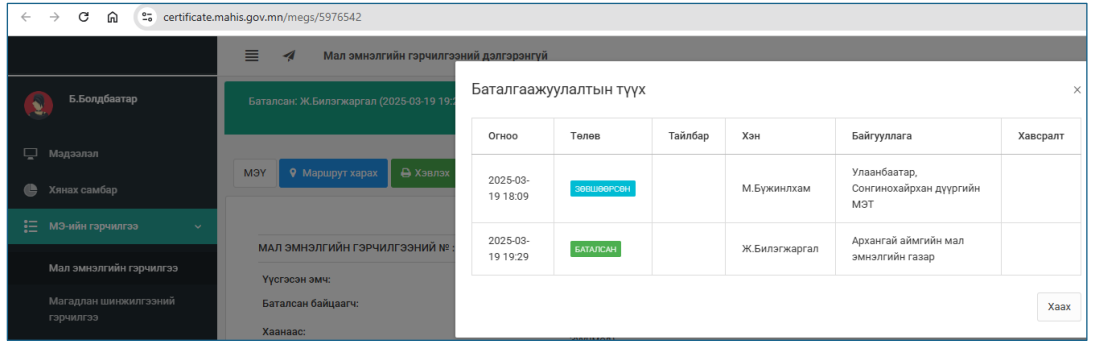
- The "National Plan for Preparedness to Combat Highly Infectious Diseases," approved by Order A/191, issued on July 2, 2021, by the Minister of Food, Agriculture, and Light Industry, has been implemented.
- By Order A/204, issued on June 24, 2022, by the Minister of Food, Agriculture, and Light Industry, the "Strategy for combating PPR (2022-2030)" and its detailed action plan were approved.

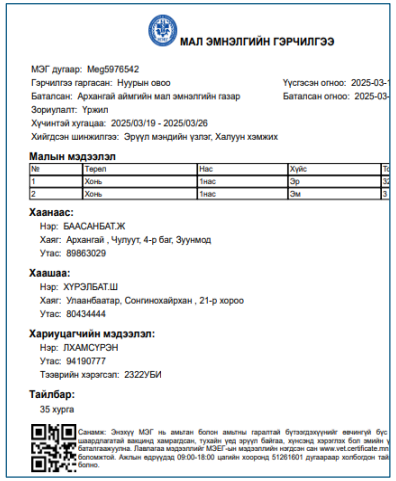
Animal movement and trade

For any livestock movement, an animal health certificate must be obtained. A private veterinary doctor issues a health certificate based on the veterinary services and clinical examination performed on animals within their designated area. When transporting live animals, the health certificate is verified and stamped at veterinary quarantine checkpoints and by police. Veterinary quarantine checkpoints are located at all entry and exit points of Ulaanbaatar and along major national highways.

Livestock movement monitoring through the MAHIS-II system.







Creating a veterinary certificate (or certificate of origin)

Affiliated Private Veterinary Unit (PVU)
- Livestock health examination
- Veterinary services

Validating a veterinary certificate

Veterinary division (VD, Government unit)
- Receiving livestock movement and approving the certificate
- The veterinary division issuing the livestock movement must validate the certificate

Livestock movement control

Veterinary control post
Police
- Checking the certificate information
- Checking the veterinary certificate during the livestock movement process.
- In necessary cases, conduct a veterinary examination and impose quarantine

Receiving

Receiving at the PVU and VD
- Livestock health examination
- Isolating in necessary cases

Animal movement and trade

DOMESTIC (IN-COUNTRYSIDE) LIVESTOCK MOVEMENT

- The movement is monitored through the MAHIS-2 system. In 2024, 3.8 million livestock were involved in movement with 201,000 certificates issued. Additionally, 420 violations of livestock movement were detected, resulting in fines totaling 194.3 million MNT.

LEGAL FRAMEWORK

- Article 7 of the Law on Animal Health
- The Government Resolution No. 43, issued in 2019, outlines the "Regulation on Managing Livestock Movement, Disruption on Transport and Herding Routes, and Quarantine Control Measures“
- The "Model of Veterinary Certificate and Usage Instructions" approved by Order A/67 of the Director of the GAVS in 2021.

Animal type	Slaughter		Transhumance		Breeding		Total	
	AH certificate	Number of animals	AH certificate	Number of animals	AH certificate	Number of animals	**AH certificate**	**Number of animals**
Cattle	49192	167453	8762	48794	7494	24137	**65455**	**240384**
Camel	1606	6153	527	4202	56	164	**2189**	**10519**
Sheep	83868	2330811	4959	167480	1301	21347	**90131**	**2519638**
Goat	37598	863195	4081	142035	1335	17392	**43501**	**1022622**
Total	172264	3367612	18329	362511	10186	63040	**201276**	**3793163**

INTERNATIONAL LIVESTOCK MOVEMENT

- Since 2016, livestock movement has been conducted with four countries.

LEGAL FRAMEWORK

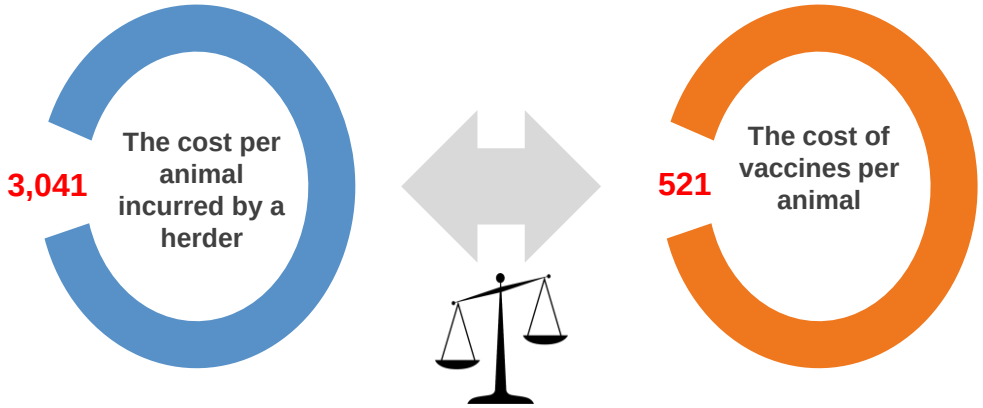
- The quarantine control and inspection of animals, plants, and their derived raw materials and products during their import and export at the national border
- Regulations on the control and inspection of animals, plants, raw materials, and products during their import and export at the national border
- Mongolia collaborates with 32 countries in the field of veterinary services
- Mongolia has agreed on the conditions and requirements for veterinary certificates with 15 countries

Year	Country	Livestock species	Export	Import
2016	France	sheep, goat	-	117
2017	France	sheep, goat		687
2020	China	sheep, goat	29,808	
2021	Russia	sheep, goat		50
2022	Russia	sheep, goat		122
2022	France	sheep, goat		300
2023	China	sheep, goat	173,074	
2023	Russia	sheep, goat		44
2024	China	sheep, goat	51,300	
2024	Uzbekistan	sheep, goat	2,880	
2025	China	sheep, goat	2,860	
2025	Uzbekistan	sheep, goat	2,061	
TOTAL			261,983	1,320

Cost benefit impact of PPR Бог малын мялзан өвчний зардал үр ашгийн нөлөөлөл

HH number	# of Total livestock	# of diseased livestock	# of died livestock	Cost of combating /MNT/	Sales loss /# of livestock/	Sales loss /MNT/	cost of deceased livestock /MNT/	Cost of losses incurred by a herder	Total cost spent on one animal /MNT/
1	1119	65	63	150,000	9	1,002,624	7,056,000	8,208,624	7,336
2	860	30	17	927,000	7	770,560	1,904,000	3,601,560	4,188
3	750	24	5	25,000	6	672,000	560,000	1,257,000	1,676
4	940	50	41	40,000	8	842,240	4,592,000	5,474,240	5,824
5	700	47	47	-	6	627,200	5,264,000	5,891,200	8,416
6	600	2		-	5	537,600		537,600	896
7	1100	9		420,000	9	985,600		1,405,600	1,278
8	550	2		25,000	4	492,800		517,800	941
9	731	44	30	50,000	6	654,976	3,360,000	4,064,976	5,561
10	1100	11	2	-	9	985,600	224,000	1,209,600	1,100
11	600	14	4	25,000	5	537,600	448,000	1,010,600	1,684
12	1100	34		-	9	985,600		985,600	896
13	1180	17	6	500,000	9	1,057,280	672,000	2,229,280	1,889
14	610	18	0	-	5	546,560		546,560	896
Нийт	11940	367	215	2,162,000		1,518,598	1,518,598	1,518,598	1,518,598

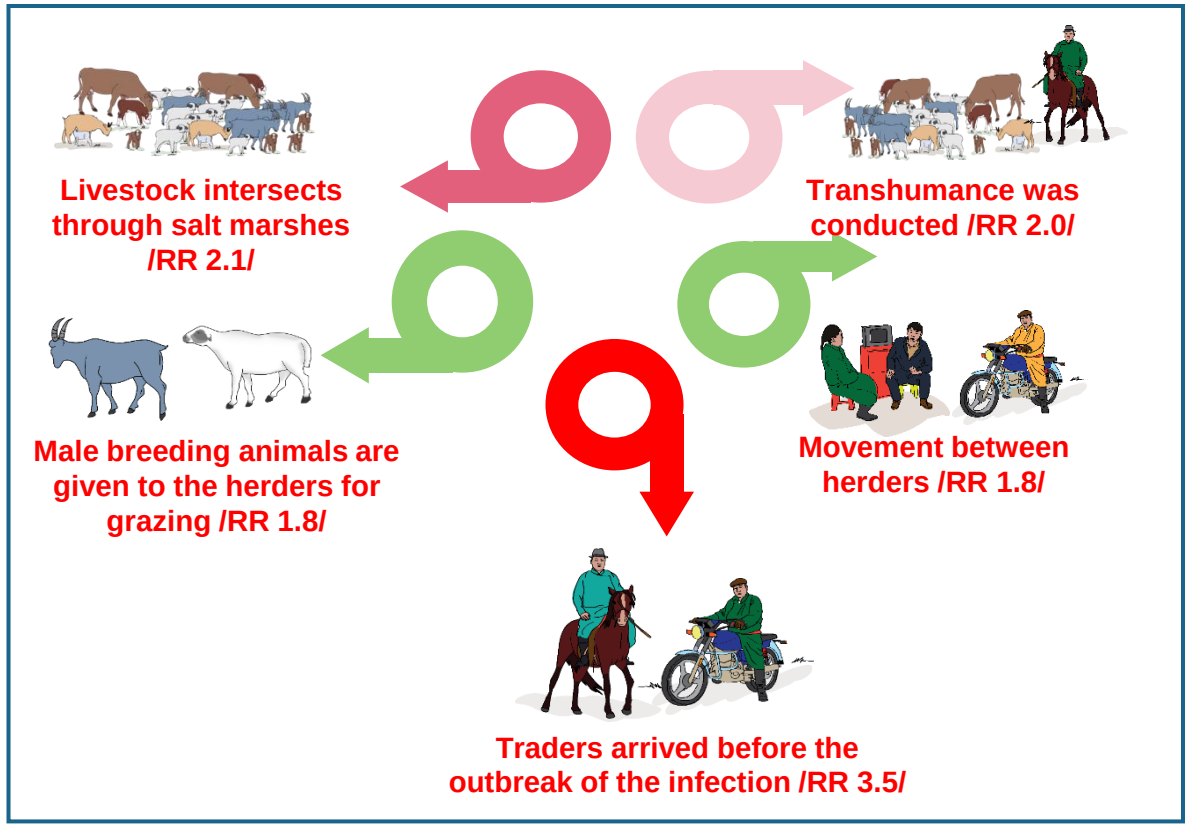
- The primary source of income for herders is meat and animal-derived products. An economic impact study was conducted on the HHs in provinces where the PPR has been reported.
- In cases of an outbreak of infectious disease, 3,401 MNT was spent per animal from the state budget, whereas preventive measures cost 521 MNT, which is five times less.



Risk factors for the spread of infection

№	The names of risk factors	2022 /RR/	2023 /RR/	2023 /RR/	2024 /RR/	Average /RR/
1	Water source	1.5	1.2	1.1	0.0	0.9
2	Pasture	3.0	2.2	3.0	3.0	**2.8**
3	Animals received from outside	1.0	1.2	1.2	1.0	1.1
4	Livestock sold to	1.0	0.2	3.7	0.0	1.2
5	Meat and milk supplied	1.0	0.0	2.8	0.0	1.2
6	Movement between herders	1.5	1.8	2.0	2.0	**1.8**
7	Traders arrived before the outbreak of the infection	3.0	1.6	9.5	0.0	**3.5**
8	Traders arrived after the outbreak of the infection	2.5	2.2	0.0	0.0	1.2
9	Transhumance was conducted	3.0	1.5	1.6	2.0	**2.0**
10	Transhumance migration route passes through	0.0	0.0	0.0	0.0	0.0
11	Stray animals graze	0.0	0.0	0.0	0.0	0.0
12	Pasture intersects with areas where stray animals graze	0.0	0.0	0.0	0.0	0.0
13	Livestock intersects through salt marshes	2.0	3.4	0.0	3.0	**2.1**
14	Male breeding animals are given to the herders for grazing	3.0	2.9	0.0	1.3	**1,8**

An evaluation of 14 risk factors for the spread of PPR was conducted, tailored to the characteristics of Mongolia's pasture-based livestock husbandry. Among these, the presence of traders before the outbreak of the infection was identified as the highest risk factor.

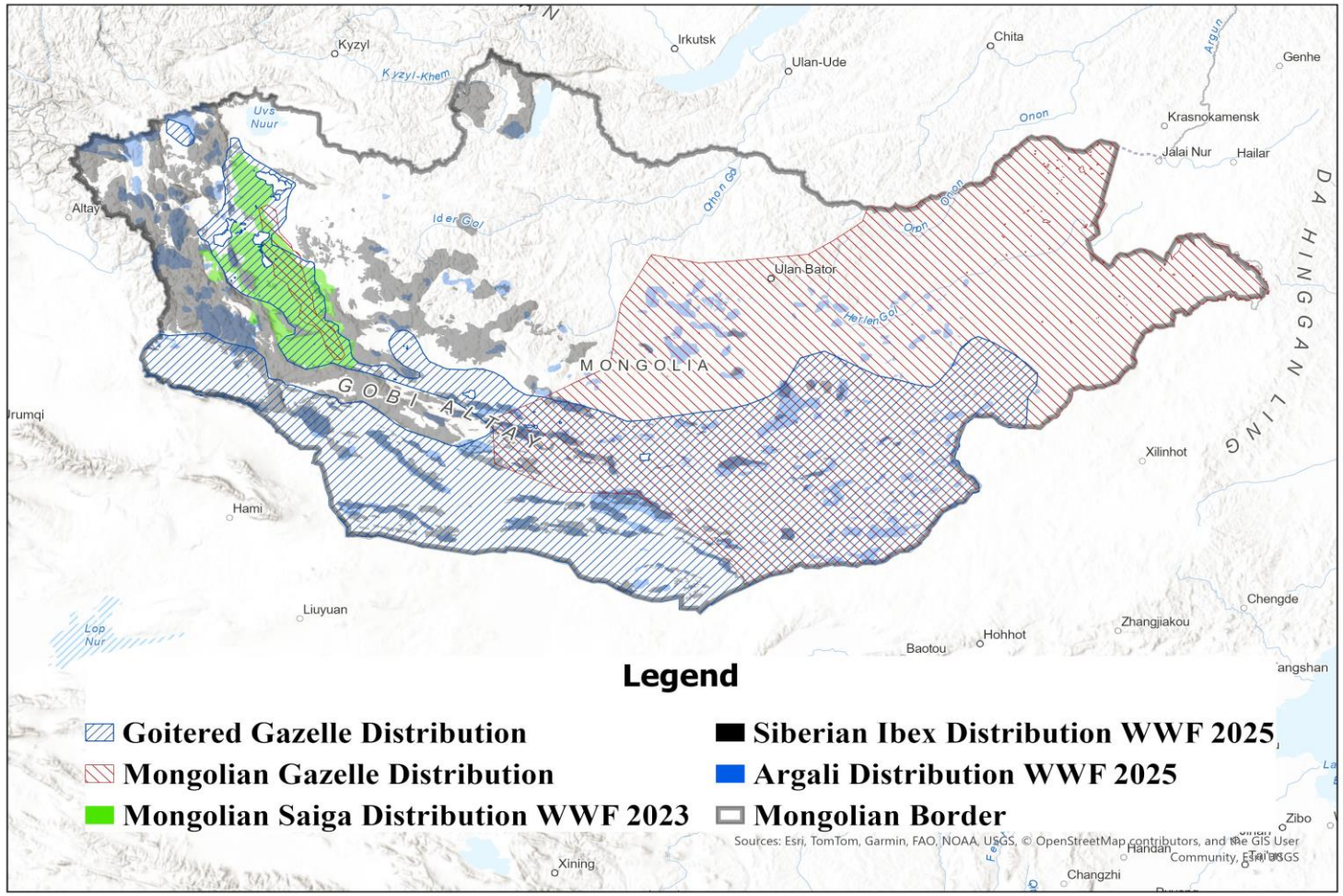


Role of wildlife

- In Mongolia, the sensitive wildlife species susceptible to PPR include wild sheep (argali), Siberian ibex, saiga, black-tailed gazelles, and goitered gazelles.

- These wild animals have the potential to migrate across borders to neighboring countries.

- The occurrence of PPR overlaps with the distribution areas of certain wildlife species, as shown on the map.



WILD UNGULATES APPROXIMATE POPULATION SIZES

1. Mongolian saiga – 22.000
2. Mongolian gazelle – 2.3 m
3. Siberian ibex – 27.000
4. Argali sheep – 32.000
5. Goitered gazelle – 97.350

PLEASE DESCRIBE SURVEILLANCE ACTIVITIES IN WILDLIFE IN YOUR COUNTRY

Wildlife TAD's surveillance has been conducted annually since 2016, and serological surveillance is being conducted to detect FMD and PPR in Mongolian saiga, Mongolian gazelle, argali sheep and and ibex.

- Evenly, FMD (NSP) is detected in white gazelle population.
- However, PPRV antibodies virus are not detected in these ungulates.

We often capture wild animals with net straps, which is a task that requires budget, human source, and cars. We are usually capture in small numbers animals between June and October, blood, swab and genetic samples are collected. Also fitted with a collar to determine how they match up with domestic animals. *(Picture, sampling saiga and collaring, capture team observing the wild mammals in the steppe*)

Conclusion

1. *Cooperation with neighboring countries is crucial in the fight against PPR,*
2. *There is a risk of the spread of PPR through the migration of wild animals,*
3. *Cooperation between neighboring countries is essential for monitoring the migration of wild animals and tracking the spread of the infection,*
4. *Implementing a regional strategy and action plan to combat PPR .*
5. *At the government level, there is a need to increase funding to combat this disease.*