

# The current state of AMR research activities including Alternative to antimicrobials (ATA) and collaboration opportunities in Mongolia

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## Background on AMR research in the Mongolia

### Current status of AMR research in Mongolia

- National Action Plan (NAP)-AMR (2022-2025)
  - Endorsed by Ministry of Health, Ministry of Environment and Tourism and Ministry of Food, Agriculture and Light Industries
  - Aligned with the WHO Global Action Plan
  - Strong focus on establishing AMR surveillance system
- AMR Surveillance: FAO Assessment Tool for Laboratories and Surveillance Systems (FAO-ATLASS) conducted in 2022, facilitated by the support of the ACT project
- We are working on establishing an AMR surveillance system in the veterinary sector in collaboration with two projects ACT, implemented by the UN FAO and MPTF-One Health by Tripartite.
- GAVS allocates a budget each year for organizing AMR surveillance and research.
- Active AMR surveillance is being conducted in healthy cattle in 2023 and 2024, targeting E.coli and performing antimicrobial susceptibility testing (AST).

№	Names and abbreviations of antibiotic	Total sample	AMR surveillance in 2023					
			S <sub>n</sub>		I <sub>n</sub>		R <sub>n</sub>	
			number	%	number	%	number	%
1	Ampicillin-AMP-10	100	76	76.00%	22	22.00%	2	2.00%
2	Azithromycin-AZM-15	100	100	100.00%	0	0.00%	0	0.00%
3	Cefotaxime-CTX-30	100	100	100.00%	0	0.00%	0	0.00%
4	Ceftazidime-CAZ-30	100	100	100.00%	0	0.00%	0	0.00%
5	Chloramphenicol-C-30	100	100	100.00%	0	0.00%	0	0.00%
6	Ciprofloxacin-CIP-5	100	100	100.00%	0	0.00%	0	0.00%
7	Gentamicin-CN-10	100	100	100.00%	0	0.00%	0	0.00%
8	Meropenem-MEM-10	100	100	100.00%	0	0.00%	0	0.00%
9	Nalidixic acid-NA-30	100	96	96.00%	4	4.00%	0	0.00%
10	Streptomycin-S-10	100	4	4.00%	92	92.00%	4	4.00%
11	Sulphamethoxazole-SXT-25	100	98	98.00%	1	1.00%	1	1.00%
12	Tetracycline-TE-30	100	97	97.00%	0	0.00%	3	3.00%

№	Names and abbreviations of antibiotic	Total sample	AMR surveillance in 2024					
			S <sub>n</sub>		I <sub>n</sub>		R <sub>n</sub>	
			number	%	number	%	number	%
1	Ampicillin-AMP-10	112	103	91.95%	9	8.05%	0	0.00%
2	Azithromycin-AZM-15	112	112	100.00%	0	0.00%	0	0.00%
3	Cefotaxime-CTX-30	112	112	100.00%	0	0.00%	0	0.00%
4	Ceftazidime-CAZ-30	112	112	100.00%	0	0.00%	0	0.00%
5	Chloramphenicol-C-30	112	112	100.00%	0	0.00%	0	0.00%
6	Ciprofloxacin-CIP-5	112	112	100.00%	0	0.00%	0	0.00%
7	Gentamicin-CN-10	112	112	100.00%	0	0.00%	0	0.00%
8	Meropenem-MEM-10	112	112	100.00%	0	0.00%	0	0.00%
9	Nalidixic acid-NA-30	112	111	99.10%	0	0.00%	1	0.90%
10	Streptomycin-S-10	112	103	91.97%	7	6.25%	2	1.78%
11	Sulphamethoxazole-SXT-25	112	111	99.10%	0	0.00%	1	0.90%
12	Tetracycline-TE-30	112	106	94.65%	1	0.90%	5	4.45%

### The key stakeholders on the AMR research

#### National level:

- Governance: Multi-sectoral AMR Committee organized a Technical Working Group (TWG)
  - Involving multiple institutes (MoFALI, GAVS, MOH, MOE)

#### Sectoral level:

- Research focus: GAVS, SCVL, IVM, State control lab for veterinary drugs, Biocombinat,
- Pharmaceutical trade: GAVS, Drug Supply Organizations, Pharmacies
- Consumers: Herders, Farmers

## ATA Research Focus

### The state of research on ATA in Mongolia

- Mongolia is placing greater emphasis on preventing infectious diseases in animals. By 2024, a total of 50 million livestock, in double numbers, have been vaccinated as part of preventive immunization efforts.
- Mongolia has a state-owned vaccine factory, Biocombinat, which produces vaccines for 21 types of infectious and highly contagious diseases, as well as 4 types of therapeutic sera for infectious diseases.
- Institute of Veterinary Medicine and private pharmaceutical companies produce mineral feed, probiotics, prebiotics, natural alternative medicines, and preparations, which are used in the livestock and agricultural sectors.



### The regulatory or practical barriers to developing ATA-based treatments in Mongolia.

- At the governance level, funding for research on ATA is limited.
- Herders and farmers have limited knowledge and information about the treatment of ATA, and there is widespread irresponsible use of antimicrobial drugs.
- The production of therapeutic sera has been decreasing year by year due to the high cost of production.

## Challenges related to AMR/ATA research

- The widespread inappropriate use of antimicrobial drugs is reducing the use of ATA treatments and preventing the creation of a market environment for research and development of ATA drugs.
- In Mongolia's livestock sector, there is insufficient baseline research on AMR surveillance. The capacity of human resources and laboratory infrastructure is inadequate for conducting this research.

## Solutions

- Regulating the prescription of veterinary medicines, reducing the inappropriate use of antimicrobial drugs, and promoting the use of ATA treatments through policy support are key steps to create a favorable market environment.
- It is necessary to address the financial resources required to strengthen laboratories and human resource capacity for conducting nationwide AMR baseline surveillance.

## Collaboration opportunities

- Exchange experiences on solutions that have successfully reduced the use of antimicrobial drugs in the agriculture sectors of other countries and effectively implemented ATA treatments.
- Collaborate with other countries to strengthen AMR testing laboratories and enhance human resource capacity.