

Towards Zero by 30: Rabies Control in the Asia Pacific Region

33rd Conference of the Regional Commission
for Asia and the Pacific



World Organisation
for Animal Health
Founded as OIE

New Delhi, India, 13-16 November 2023

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Presentation Outline

1. Global Strategic plan for Rabies
2. United Against Rabies Forum
3. WOAHA Support for dog mediated Rabies elimination
4. Activities of WOAHA and WOAHA Reference Laboratories in the Asia Pacific Region
5. Way Forward

Global strategic plan for Rabies



- Global Strategic Plan to end human deaths from dog-mediated rabies by 2030, i.e Zero by 30
- Established global goal and common plan
- Has country-centric, One Health approach
- Integrates rabies prevention with other healthcare interventions strengthen health systems
- Engages stakeholders throughout the world in the fight to end rabies.

Zero human deaths from dog-mediated rabies by 2030

 **59,000**
deaths

Rabies is still responsible for approximately **59,000 human deaths every year**



That is **one person every nine minutes**



Around 99% of human rabies cases are due to bites from **infected dogs**

Yet we have all the tools available, including high-quality vaccines, to eliminate the disease and effectively prevent it.

United Against Rabies Forum

The screenshot shows the homepage of the United Against Rabies Forum. At the top left is the logo, which consists of a series of dots forming a partial circle next to the text 'United Against Rabies'. To the right of the logo is a search bar labeled 'Search Site' and two buttons: 'Contact' and 'Get Involved'. Below the search bar is a navigation menu with five items: 'Rabies – The Global Challenge', 'Rabies Roadmap and Resources', 'Events and Courses', 'News and Case Studies', and 'About'. The main content area features a large image of a young boy running in a dirt courtyard with a dog. To the right of the image is a dark blue box with the text 'We are United Against Rabies.' Below the image and text are three statistics: '1 every 9 minutes' (1 person dies from rabies every 9 minutes and almost half of them are children), '99%' (Up to 99% of human rabies infections are caused by a bite from a rabid dog), and '100% preventable' (We have effective dog vaccines and vaccines to treat people who are bitten). At the bottom left, there is a red banner with the text 'Together, we can end all human deaths from dog-mediated rabies by 2030.' Below this banner is a small paragraph of text: 'Supported by FAO, WOA and WHO (the Tripartite), the United Against Rabies Forum takes a multi-sectoral, One Health approach bringing together governments, vaccine producers, researchers, NGOs and development partners.' At the bottom right is a dark blue button with the text 'Join us'.

United Against Rabies

Search Site

Contact Get Involved

Rabies – The Global Challenge Rabies Roadmap and Resources Events and Courses News and Case Studies About

We are United Against Rabies.

1 every 9 minutes
1 person dies from rabies every 9 minutes and almost half of them are children.

99%
Up to 99% of human rabies infections are caused by a bite from a rabid dog.

100% preventable
We have effective dog vaccines and vaccines to treat people who are bitten.

Together, we can end all human deaths from dog-mediated rabies by 2030.

Supported by FAO, WOA and WHO (the Tripartite), the United Against Rabies Forum takes a multi-sectoral, One Health approach bringing together governments, vaccine producers, researchers, NGOs and development partners.

Join us

- Established September 2020 to implement 'Zero by 30'
- An inclusive network of stakeholders from a range of sectors: 68 organisations
- Communication (website, social media, newsletters, webinars) – www.unitedagainstrabies.org
- Advocacy Tools and resources
- Case studies
- Promoting networking and collaboration between partners
- Facilitating access to technical expertise

WOAH Support for dog-mediated Rabies elimination

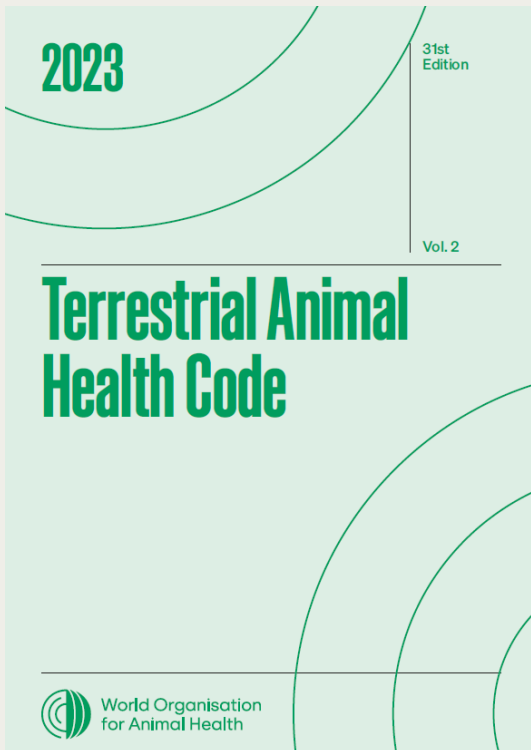


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WOAH International Standards

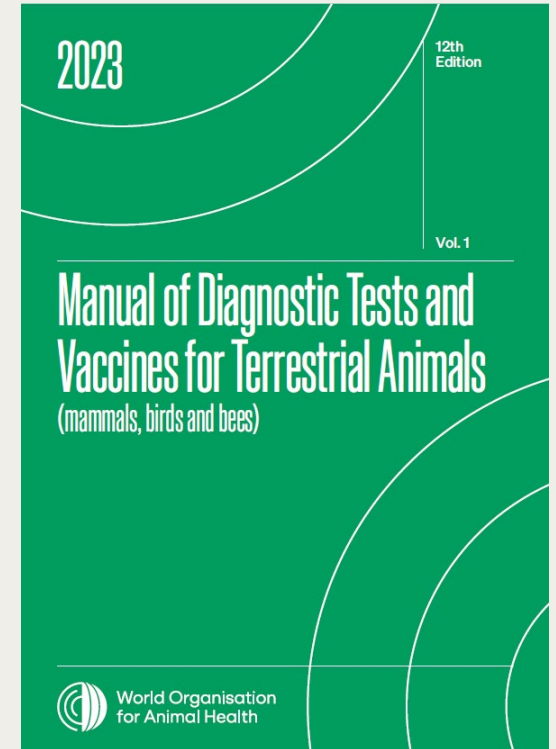


1. Terrestrial Animal Health Code

- Chapter 1.1 provides guidance on notification
- Chapter 5.11 provides model veterinary certificate for international movement of dogs, cats and ferrets originating from rabies free countries
- Chapter 7.7 provides guidance on management of free-roaming dogs and responsible dog ownership
- Chapter 8.15 includes case definitions, guidance on recognition of rabies free countries or zones, surveillance recommendations, endorsement of official control programmes for dog-mediated rabies

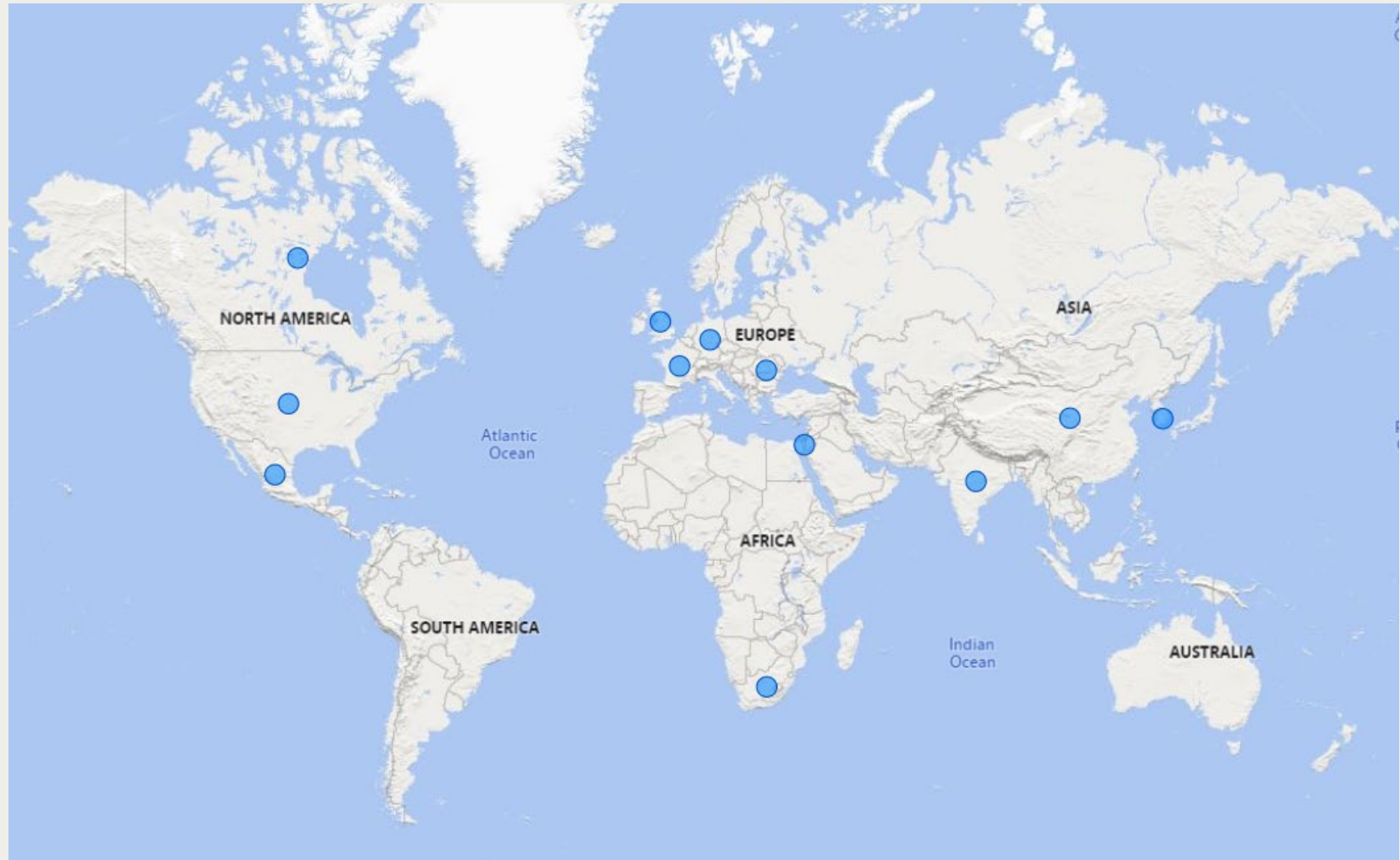
2. Manual of Diagnostic Tests and Vaccines for Terrestrial Animals

- Chapter 3.1.18 outlines diagnostic techniques for identification of rabies, guidance on sample collection and shipping, vaccine production requirements



Reference Laboratory Network for Rabies (RABLAB)

- Composed of **12 WOAAH designated Reference Laboratories** (*only 3 are from Asia*)
- Help Members **improve their diagnostic capacity & surveillance**
- Development and **standardisation of laboratory techniques**
- Coordination of **research and training activities**



World Animal Health Information System (WAHIS)

Reporting to WAHIS for Rabies

- Rabies is priority zoonotic disease,
- It is 'listed' by WOAHA in the Terrestrial Animal Health Code
- **Members are obliged to report** occurrence of rabies in domestic and wild animals to WOAHA through WAHIS
- Notification is done by Focal Points under the responsibility of the Delegate.

Capacity Building

- Training and support in surveillance and diagnosis
- **Laboratory twinning programmes**
- Performance of Veterinary Services (PVS)
Pathway support:
 - PVS Evaluation with Rabies Specific Content (**PVS+Rabies**)
 - National Bridging Workshop with Rabies-specific approach (**NBW+Rabies**)

Rabies Vaccines Bank

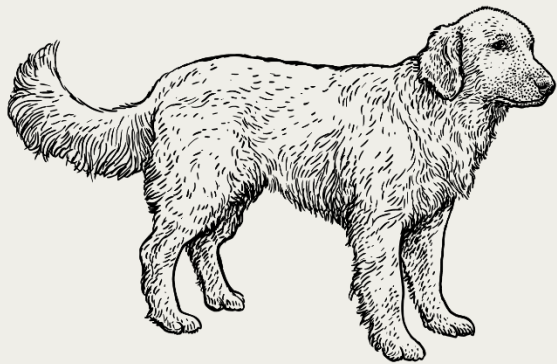
- Provides **high-quality dog vaccines** at **low, fixed price**
- Member can **access vaccine through** - donation by WOAHP, third party or direct purchase.
- Delegate can request officially for vaccines by **discussing with Regional/SR representatives** and writing to the DG
- **More than 45 countries received**

27.5 million



rabies vaccine doses delivered to countries in
Africa and Asia

WOAH Endorsement of official control programmes for dog-mediated rabies



1. Endorsement an important milestone in rabies elimination → paves the way to Zero by 30
2. Improved access to international and national resources and expertise
3. Links to the United Against Rabies Forum Roadmap

For more
information SCAN →
the QR code



WOAH Communication Tools for Rabies

- Engaging communities
- Improve rabies education and awareness
- Global event to highlight rabies
- 28 September World Rabies Day



SCAN HERE

Building a successful control programme for dog-mediated rabies

A national control programme is a long-term plan that is approved, then implemented or supervised, by the Veterinary Authority of a Member with the aim of preventing and potentially eliminating a disease in a given country or territory.

Implementing such a plan involves demonstrating that a country's Veterinary Authority and other competent authorities have effective capacities in line with the International Standards. It includes the following measures:



Human deaths from dog-mediated rabies by 2030

59,000
deaths

Humans are still responsible for approximately 59,000 human deaths every year



That is **one person** every **nine minutes**



Around **99%** of human rabies cases are due to bites from **infected dogs**

...we have all the tools available, including high-quality vaccines, to eliminate the disease and effectively prevent it.

Vaccinating at least 70% of dogs in at-risk areas can reduce human cases of rabies to zero

Dog population management

Integrating dog population management for effective rabies control

Dog population management (DPM) is essential to achieve dog-mediated rabies elimination. This multi-faceted approach aims to enhance the health and welfare of dogs and mitigate the public health and safety issues that they can cause to society.

Over 700 million dogs worldwide
75% are roaming freely



What makes an effective DPM programme?

In the framework of rabies control and elimination, it is a prerequisite to ensure that a sufficient amount of dogs is vaccinated to obtain immunity at population level. To achieve this coverage, key measures include:



Towards the end of rabies

Investing time and resources in dog population management undeniably supports the end of rabies, by helping obtain a high vaccination coverage amongst the root causes of the transmission to humans. Around 59,000 fatalities could be avoided every year, and this approach is a steppingstone towards our common goal of zero human rabies deaths by 2030.



WOAH Activities on Rabies in the Asia Pacific Region

Dr Kinzang Dukpa, Dr Lesa Thompson,
Dr Ronello Abila, Dr Kinley Choden, Mr Stéphane Renaudin

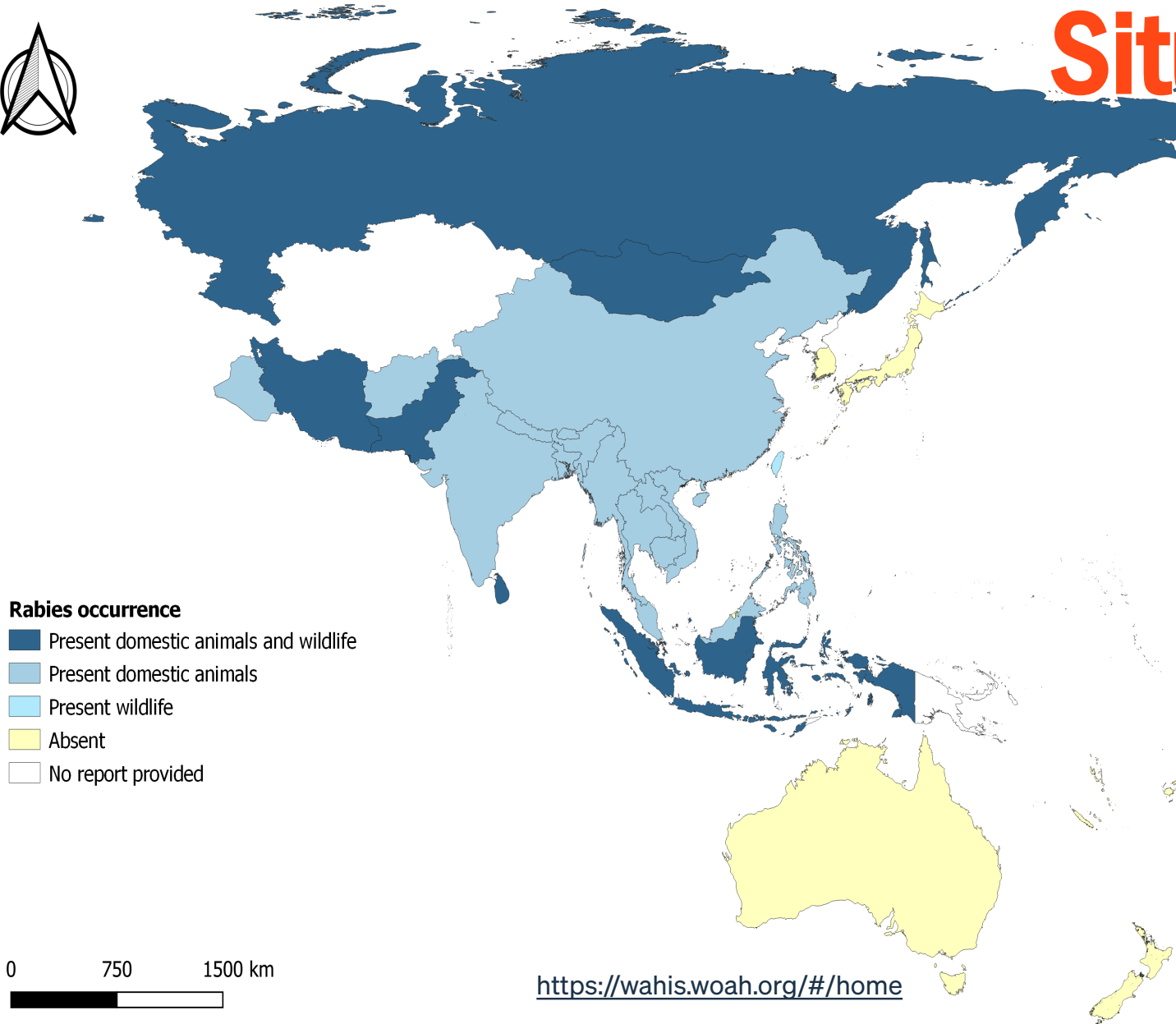


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Reported Animal Rabies Situation and progress in Asia Pacific



- Rabies still endemic
- COVID-19 effect
- Transboundary animal disease emergencies
- No significant progress

World Animal Health Information System
data for 2019-2023

Key progress

Key areas	Updates since 2022
National Strategic Plans on rabies	India – State Action Plan for Rabies Elimination (SAPRE) in many states Sri Lanka – launched in 2023 Cambodia – Endorsement process
Rabies diagnosis	Training for South Asia
Mass dog vaccination (MDV)	Training on MDV for South Asia + few countries in Southeast Asia
Dog population management (DPM)	Bhutan – 100% sterilisation and vaccination of free-roaming dogs nation-wide
Oral rabies vaccination initiatives	Indonesia, Thailand completed pilot studies Thailand using ORV as part of official vaccination program Pilot studies to begin in Cambodia, Myanmar Indonesia – Rabitec [®] oral rabies vaccine now registered and officially approved for use

- Revised ASEAN rabies elimination strategy
- Endorsement process
- WHO Regional Technical Advisory Group for dog-mediated human rabies in the South-East Asia Region established

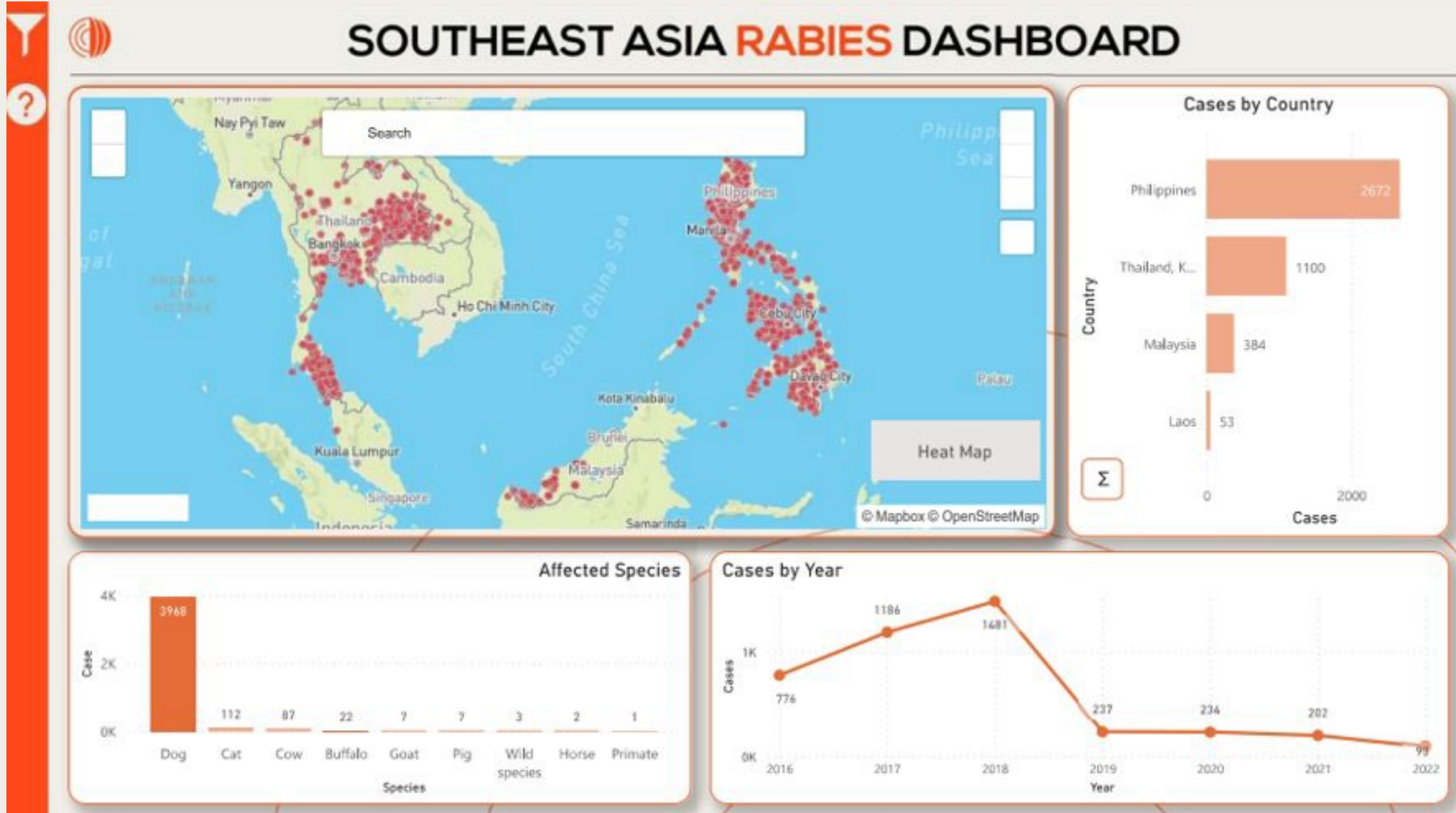
Activities in South-East Asia

At the regional level, WOAHA works with the ASEAN towards the endorsement of a revised **ASEAN Rabies Elimination Strategy (ARES)**

- ARES is currently being revised in line with the Global strategy of 2030.
- Currently undergoing ASEAN endorsement process



Activities in South-East Asia: forth-coming



Please note that the data presented here is based on reported cases from ARAHIS for the period 2016-2022. Data gathering is still ongoing.

Activities in South-East Asia

At the national level, WOAHA implements a set of complementary activities to support its Members:

- Providing guidance and technical support to update the national rabies control and elimination Strategy (**Cambodia**)
- Involving local authorities and city mayors in the fight against rabies (**Indonesia**)
- Dog population estimation/demographics (**Bali, West Timor**)
- PVS evaluation focus rabies in (**Indonesia**)
- National Bridging Workshop Rabies focused (**Bali**)
- Providing access to the WOAHA Rabies Vaccine Bank upon requests from its Members (**Indonesia, Cambodia, Brunei, Timor Leste**)
- Supporting ORV pilot campaigns (**Thailand, Cambodia, Myanmar**)
- Communication materials produced (eg: [Protect Communities: Indonesia's Great Effort to Combat Rabies - YouTube](#) and [Rabies - WOAHA - Asia](#))

PHILIPPINES :

Strategy endorsed by WOAAH



The image shows a poster titled "Key Strategies for Rabies Elimination". The poster features the logo of the Department of Agriculture and the Department of Health, and the text "ANIMAL HEALTH AND WELFARE DIVISION". The main title is "RABIES ELIMINATION PROGRAMME OF THE PHILIPPINES 2021-2025". The poster also features the logos of the Department of Agriculture, the Department of Health, the Department of Environment and Natural Resources, and the Department of Labor and Employment. The strategies are listed as:

- S**OCIO-CULTURAL
- T**ECHNICAL
- O**RGANIZATIONAL / ONE HEALTH
- P**OLICY & LEGISLATIVE
- R**ESOURCES



Hand-over of Vaccines



Advocacy engagement with local leaders



The role of Oral Rabies Vaccines

Key issues with dog vaccination

- Free roaming dogs – major reservoir of rabies virus in Asia Pacific Region
- Difficulty and costly to catch free-roaming dogs
- Inadequate vaccination coverage
- Increasing wildlife rabies cases

ORV in dogs – key points to consider

- Third generation live modified vaccines are largely safe, effective: "First Oral Rabies Vaccine for Dogs - WOAHA Bulletin"
- Pilot studies in Thailand and Indonesia – promising results
- Indonesia – *Rabitec*® oral vaccine registered and officially approved
- WOAHA supporting ORV initiatives in Thailand, Cambodia, Myanmar, Sri Lanka, Singapore
- WOAHA recognize the value of ORV as **complementary** to parenteral vaccination in free roaming dogs, education and access to PEP

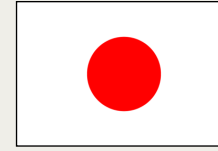
Oral vaccination of dogs against rabies

Recommendations for field application and integration into dog rabies control programmes





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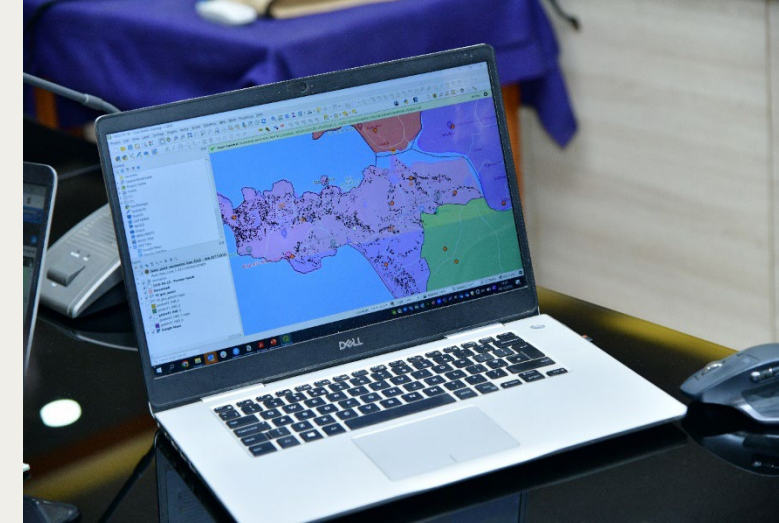


Regional Training of Trainers Workshop on Mass Dog Vaccination

2022, Veterinary College, Bangalore, Karnataka, India

Key topics

- Mass Dog Vaccination concepts, methods, tools (WVS App, Hand catching)
- Dog Population Management (dog population surveys, dog shelters)
- Dog rabies surveillance (sampling and lateral flow assays)
- Oral rabies vaccination concepts and demo on oral bait hand out (only baits used)

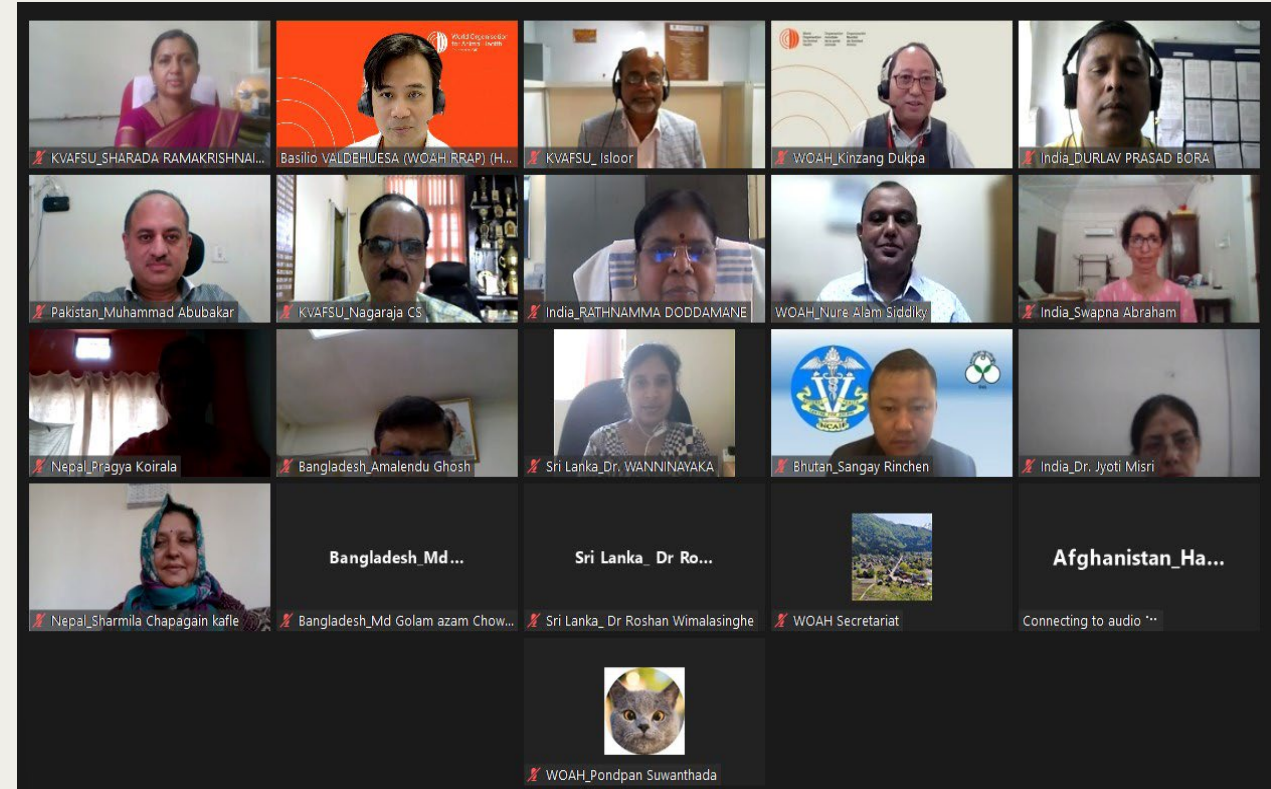


24 government officials working on rabies control from Bangladesh, Bhutan, Cambodia, India, Indonesia, Myanmar, Nepal, Philippines, Thailand, Sri Lanka

South Asia Rabies Laboratory Network (SA-RABNET)

Key objectives of the Network

- To provide a platform for sharing of information and experiences amongst the **National Lead Rabies Laboratories (NLRLs)** of the **SAARC Members** on rabies diagnosis, surveillance and control;
- To facilitate building capacity for rabies diagnosis, surveillance and control and other technical assistance to the Network members.
- **WOAH RR AP & KVAFSU** joint coordination



Second SA-RABNET Meeting
23 November 2023

SA-RABNET launched in April 2023

Bhutan – Chair

Nepal – Co-Chair

Members nominated by WOAHS Delegates

Activities undertaken by WOAAH Reference Laboratories (India, China, Republic of Korea)

Dr Shrikrishna Isloor



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Activities in South Asia – WOAAH Reference Lab. in India

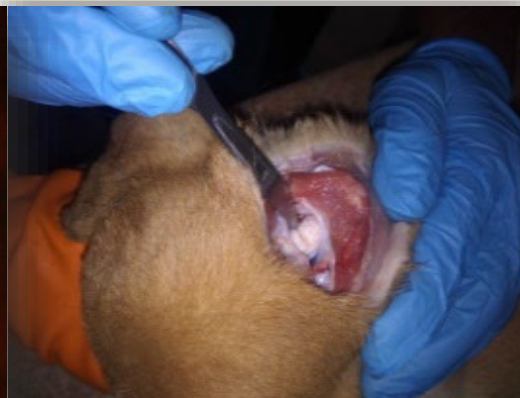
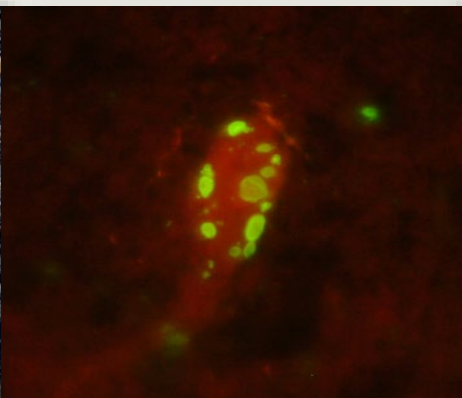
2019: Workshop Kathmandu, Nepal
Enhancing Progress Towards Rabies
Elimination 'Zero by 30' in the SAARC



WOAH Virtual Training Series for SAARC Sub-region

2020: Brain sampling, Diagnosis of rabies

2021: Rabies Serology



WOAH Sub-Regional Training Workshop on Animal Rabies Diagnosis for South Asia

January 2023, WOAH Reference Laboratory, Veterinary College, Bangalore, India)

Key topics

- Occipital foramen approach for brain sampling
- Lateral Flow Immunoassays (LFA)
- Direct Fluorescent Antibody test (DFA)
- Direct rapid immunohistochemistry test (dRIT)



14 government officials working on rabies control from Bangladesh, Bhutan, India, Nepal, Sri Lanka including an observer from Zambia



Brain sampling and rabies rapid test in Nepal

Impact of the Training

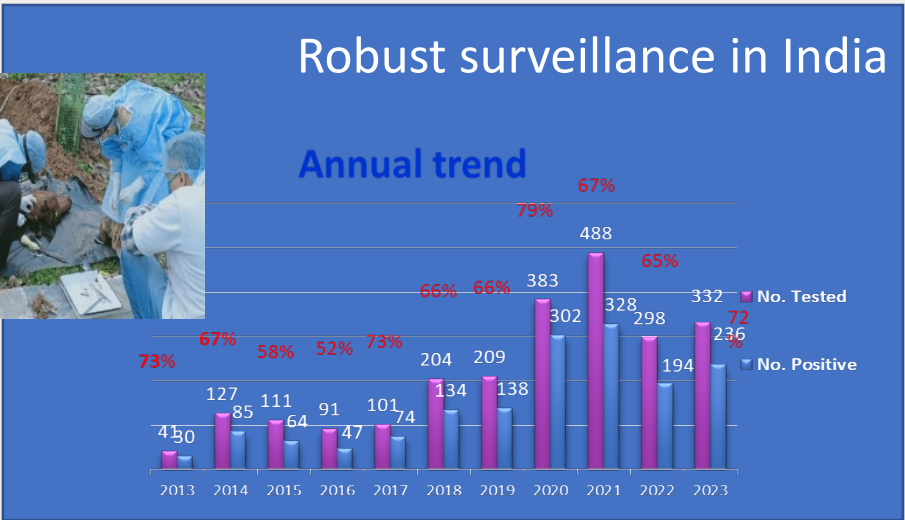
Dog



Cattle



Cat



Cattle brain sampling and rapid testing in Bangladesh

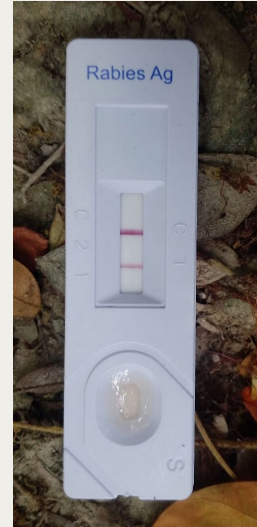


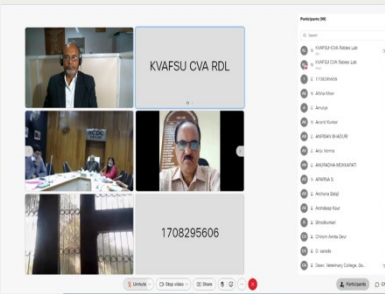
Photo courtesy: Dr Naresh Joshi (Nepal), Dr Sajedul (Bangladesh)

Enhancing Diagnosis of Rabies in Animals in India

National level: Support by: WOAHL, NCDC, Min. of Health & Family Welfare, Govt. of India, CVA

Subnational (State & UT) level : Support by: WOAHL ; CVE ; DAHD, Govt. of India ; WHO-APCRI

2022 - Virtual mode

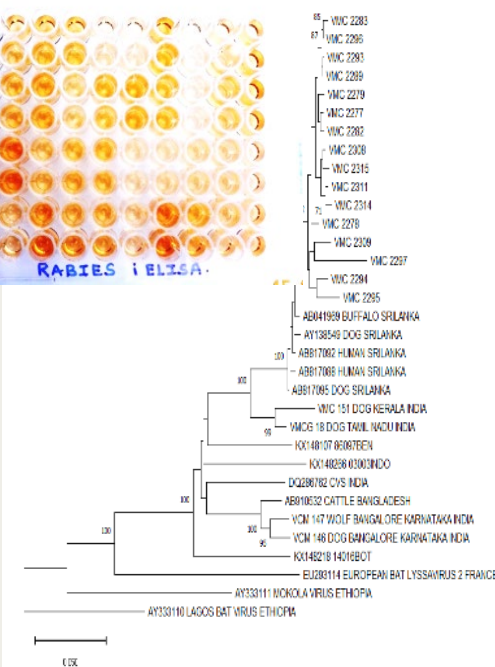
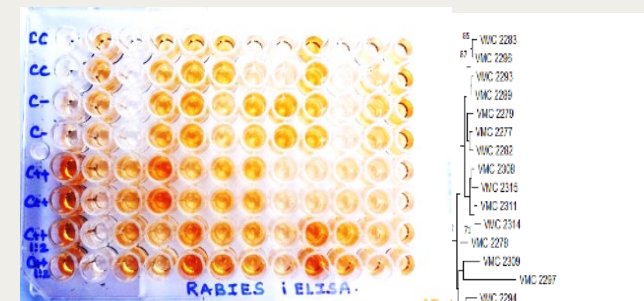
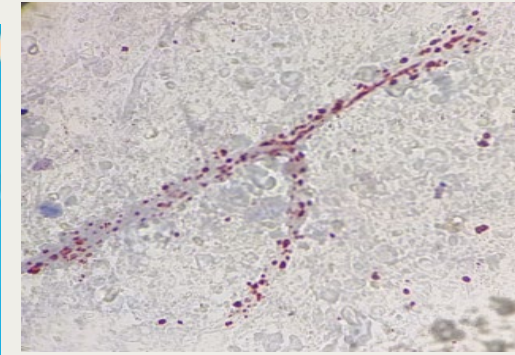


2022, 2023 - Hands on experience / training



Other activities of WOAAH reference laboratory in India

- Support in capacity building in the region
- Support in developing the National Action Plan for Elimination of Dog mediated human Rabies for India
- Development of cost-effective rabies diagnostics - in house dRIT, ELISA as per the WOAAH Standards.
- **Leading the UAR Rabies Country Partnership Programme between India and Nepal**
- Support for rabies elimination efforts in Bengaluru city in collaboration with municipal corporation (BBMP) and Mission Rabies
- Understanding molecular epidemiology: Arctic 1 a (Major) and Indian subcontinent (Minor) lineages



Launch of
NATIONAL ACTION PLAN FOR DOG MEDIATED RABIES ELIMINATION FROM INDIA BY 2030
On
WORLD RABIES DAY
28th September 2021

National Rabies Control Programme

Organized by
Division of Zoonotic Disease Programme
National Centre for Disease Control
Directorate General of Health Services
Ministry of Health and Family Welfare, Government of India

Key officials mentioned include: Shri Manojkumar Mandayya (Union Minister of Health & Family Welfare and Chemicals & Fertilizers), Shri Parashottam Rupala (Union Minister of Fisheries, Animal Husbandry and Dairying), Shri Bhavani Prasad (Union Minister of Health & Family Welfare), and Shri Sankar Kumar Mishra (Union Minister of Health & Family Welfare).

Awareness for general public on World Rabies Day, India

28 September 2023



WOAH Reference Laboratory in China

Key support in improving the molecular surveillance and diagnostic capacity in the Asia Pacific region

WOAH Regional Virtual Training Workshop on Molecular Epidemiology Techniques (MET) for Rabies 2021 (with WOAHO Reference Laboratory at CVRI China P.R.)

WOAH Regional Virtual Training Workshop on Molecular Epidemiology Techniques (MET) for Rabies, 2nd round 2022 (with WOAHO Reference Laboratory at CVRI China P.R.)

Upcoming - WOAHO Regional Information Sharing Meeting on Molecular Epidemiology Techniques (MET) for Rabies 22 November 2023 (with WOAHO Reference Laboratory at CVRI China P.R.)

Key topics

1. Training on molecular epidemiology techniques
2. Sharing phylogenetic analysis information on rabies virus across the region
3. Follow-up experience sharing & joint projects by Members & WOAHO Reference Laboratory at CVRI

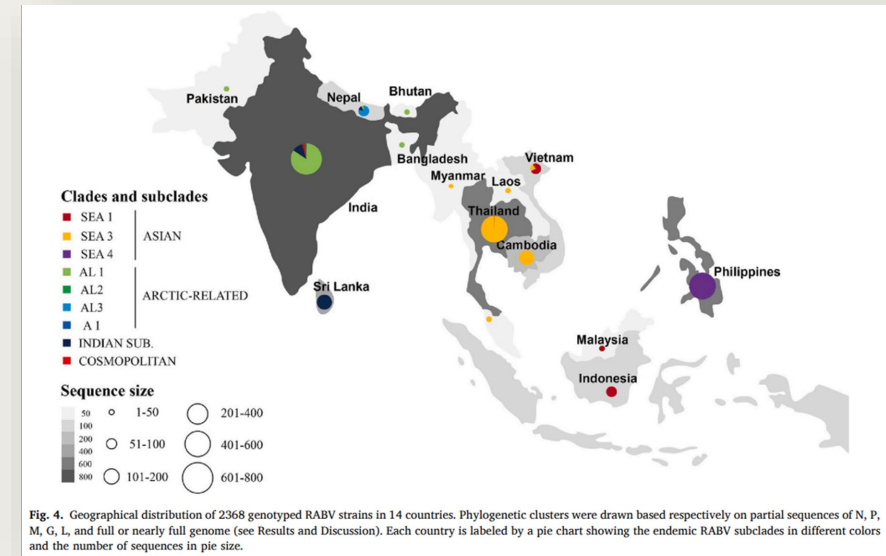
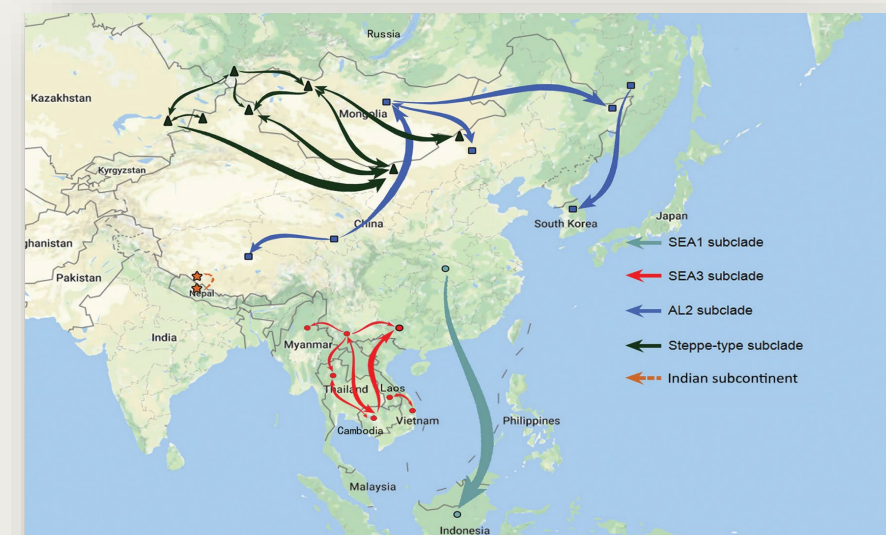


Fig. 4. Geographical distribution of 2368 genotyped RABV strains in 14 countries. Phylogenetic clusters were drawn based respectively on partial sequences of N, P, M, G, L, and full or nearly full genome (see Results and Discussion). Each country is labeled by a pie chart showing the endemic RABV subclades in different colors and the number of sequences in pie size.

Zhang, L., Sun, S., Gong, W., Thompson, L., Cruz, J., Dukpa, K., Gonzales, R.M., Tu, Z., He, B., Liu, Y. and Tu, C., 2023. Large-scale phylogenetic analysis reveals genetic diversity and geographic distribution of rabies virus in South-East and South Asia. *Infection, Genetics and Evolution*, p.105472.



Bayesian Stochastic Search Variable Selection (BSSVS) approach was used to analyze transmission routes of RABV subclades in China and neighboring countries.

Scientific research and control of rabies

[Molecular Epidemiology of Rabies in the Philippines](#), 2023. A research project between CVRI, China P.R. and ADDRL, BAI, Philippines (jointly supported Ministry of Science and Technology of China and Department of Science and Technology of the Philippines)

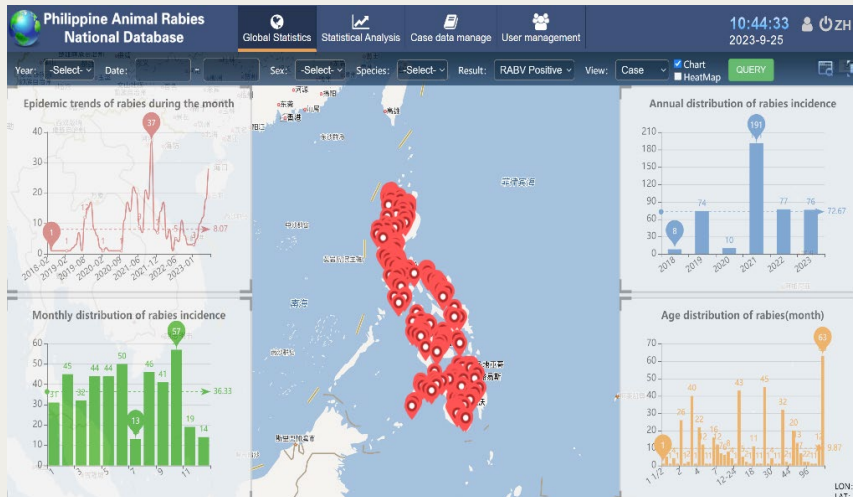
Key activities:

1. Understanding genetic diversity, distribution and transmission dynamics of RABV in the Philippines
2. Establishing an animal rabies information system

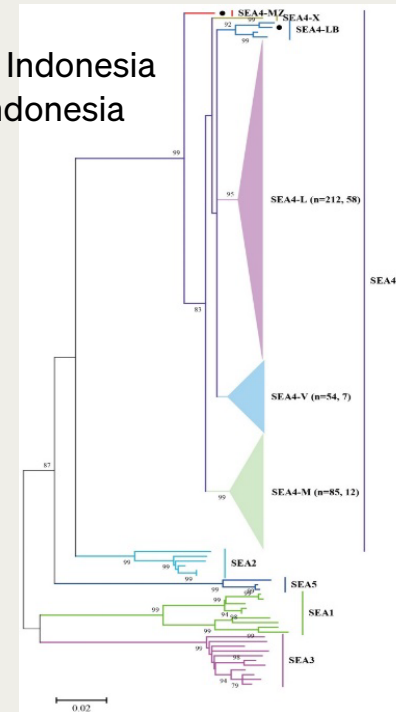
Upcoming program: [UAR Rabies Country Partnership Programme between China and Indonesia](#), 2024 -25 Twinning between WOAHA Reference Laboratory at CVRI, China P.R. and Diseases Investigation Centre (Bukittinggi), Indonesia

Key activities:

1. Enhancing diagnostic capacity of national reference laboratory at Bukittinggi, Indonesia
2. Establishing nationwide epidemiology and surveillance network of rabies in Indonesia
3. Piloting dog rabies elimination in Bengkalis island, Indonesian



Phylogenetic analysis of RABVs in the Philippines



Phylogenetic analysis of RABVs in the Philippines

Activities of WOAHP Reference Laboratory in Republic of Korea

- The training on rabies FAVN testing at APQA of Republic of Korea in October 2023 to 12 veterinarians from 5 Asian countries (Philippines, Malaysia, Viet Nam, Sri Lanka, Kazakhstan)

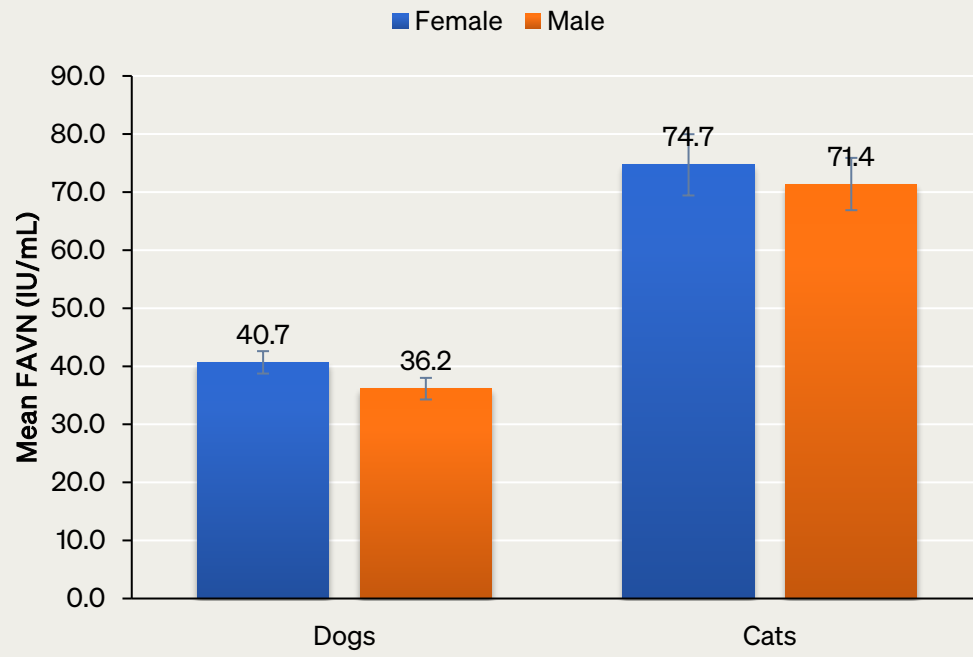
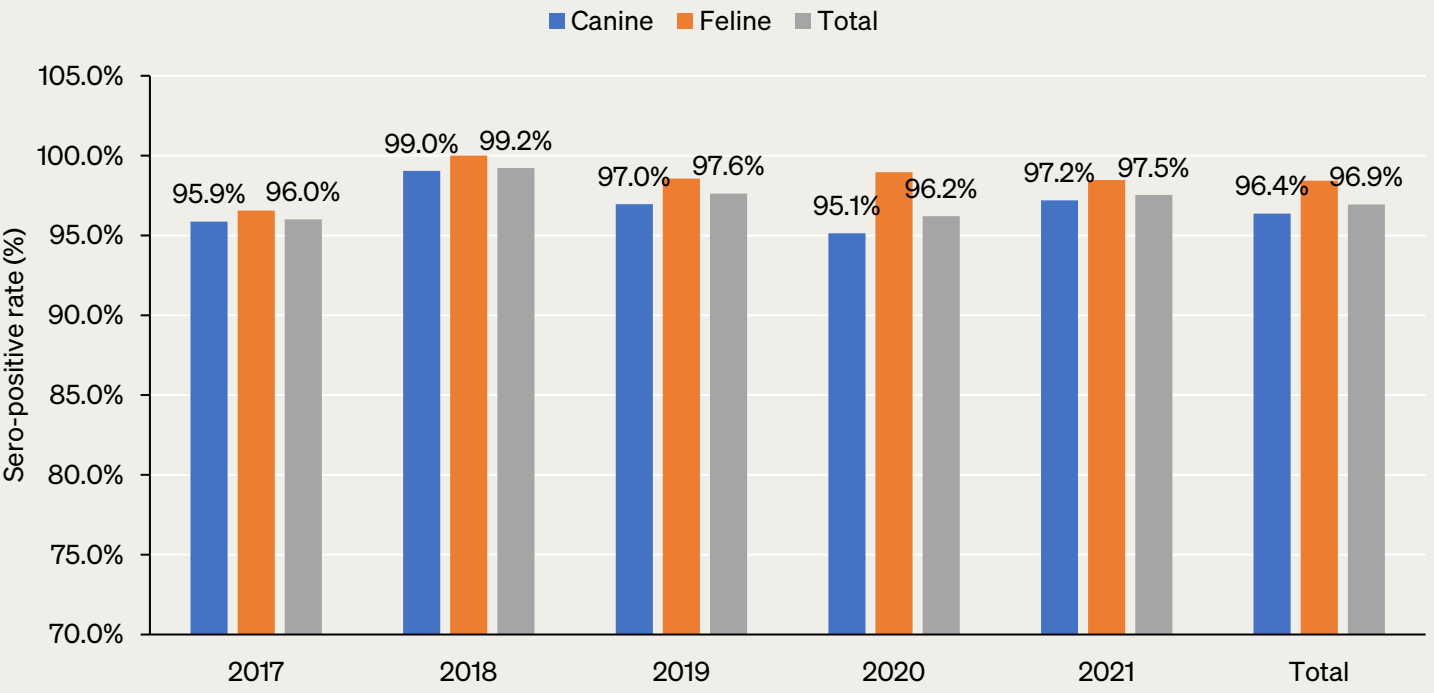


Source:
Dr Dong-Kun Yang , (WOAHP Rabies Expert)
Animal and Plant Quarantine Agency, Republic of Korea

Activities of WOAAH Reference Laboratory in Republic of Korea

Support in Rabies serology for pet travel

Rabies neutralizing antibodies in cats and dogs for travel abroad by using FAVN test



In total, 2367 dog and 894 cat sera, the sero-positive rates against rabies were 96.4% and 98.4% in dogs and cats, indicating that **rabies vaccines induce sufficient protective VNA titers**.

Mean rabies VNA titers were **higher in cats** than dogs, and females in dogs and cats each showed a little higher rabies VNA titers than males.

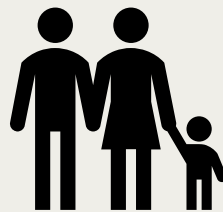
WAY FORWARD: How WOAAH Delegates can support to end rabies



Focus on
“Addressing
disease at
animal
source”



Prevent
disease in
humans



Elimination of dog mediated rabies elimination is possible

1. Nominate a rabies focal point from the country
2. Develop national strategy plan for dog mediated rabies elimination based on One health
3. Coordinate with public health and other stakeholders
4. Designated national lead agency for overall coordination
5. Make rabies a notifiable disease in animal
6. Dedicated resources (funds, human)
7. Use good quality vaccines
8. Strategic & coordinated mass dog vaccination (MDV)
9. Dog population management to complement the MDV
10. Enhance field-level rabies surveillance
11. Cross border surveillance and control

WAY FORWARD: How WOAAH can support to end rabies



WOAH is available for supporting Members

Member can use the :

- WOAAH vaccine bank
- Conduct National bridging workshop & PVS Evaluation with Rabies Specific Content
- UAR forum experts & network
- Discuss with the WOAAH reference laboratory in **India, Republic of Korea and China**
- Discuss with the **WOAH Regional and Sub Regional offices** for how we can support you.

Thank you

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