Member experience on prevention and control for Vector Borne Disease [Bhutan]

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Tokyo, Japan

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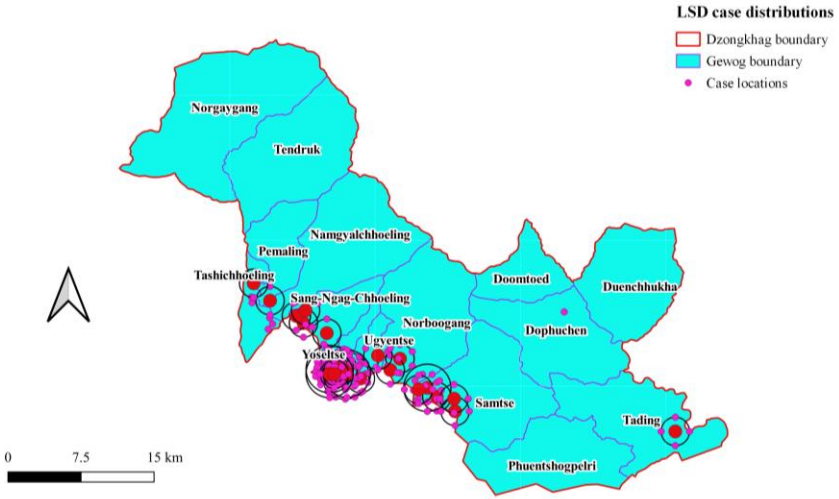
Vector Borne Disease situation

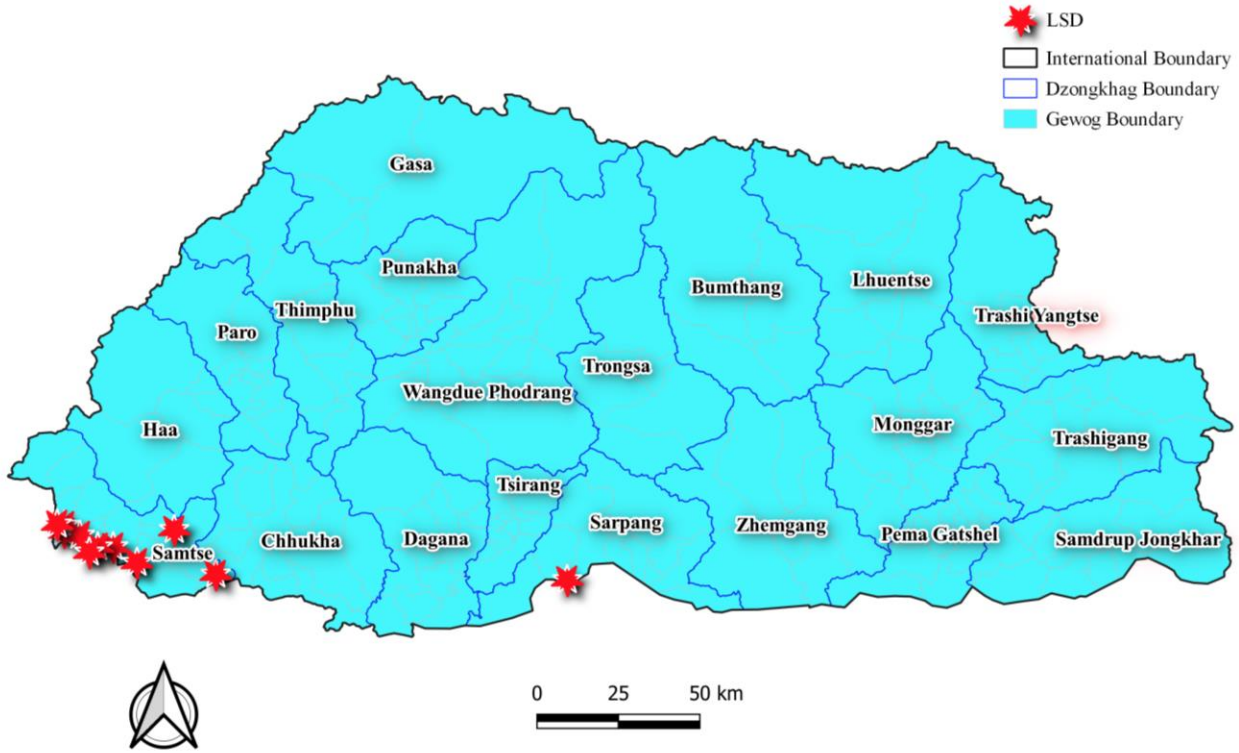
Lumpy Skin Disease

i. Spatial distribution of LSD

First LSD outbreak in 2020 (Affected 1 Dzongkhag; 152 cases, 2 deaths)



LSD outbreaks in 2022 (Affected 2 Dzongkhags; 25 cases, 0 deaths)



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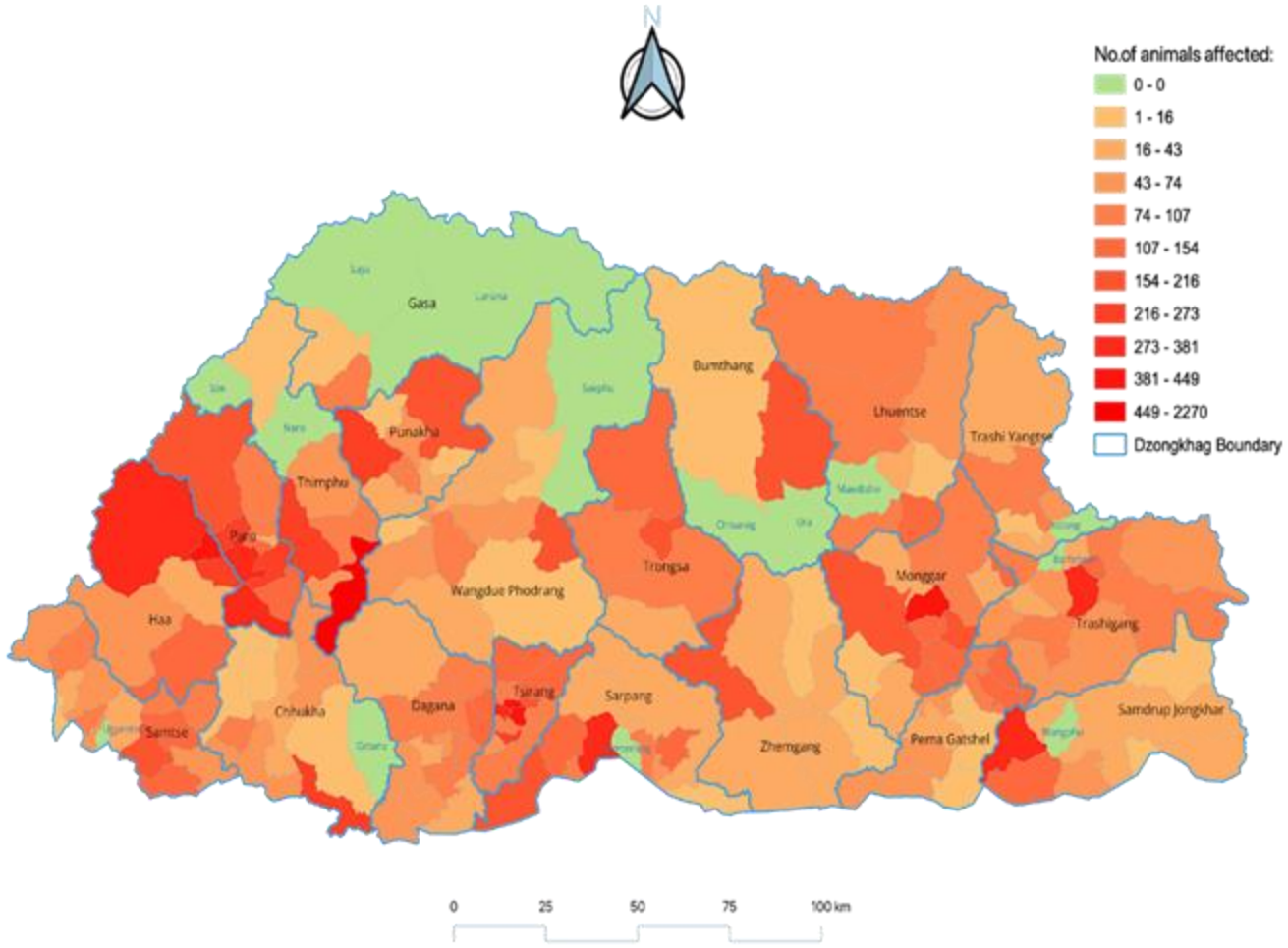
Vector Borne Disease situation

i. Spatial distribution of LSD

LSD outbreaks in 2023

- Started in January (Samtse)
- Last case in September (Thimphu)
- 7815 H/H affected (20 Dzongkhags, 192 geogs)
- 19,907 cases (84% Cattle; 16% Yaks)
- 2,888 deaths (57% Cattle; 43% Yaks)
- CFR: 9.92% in Cattle and 38.66% in Yaks



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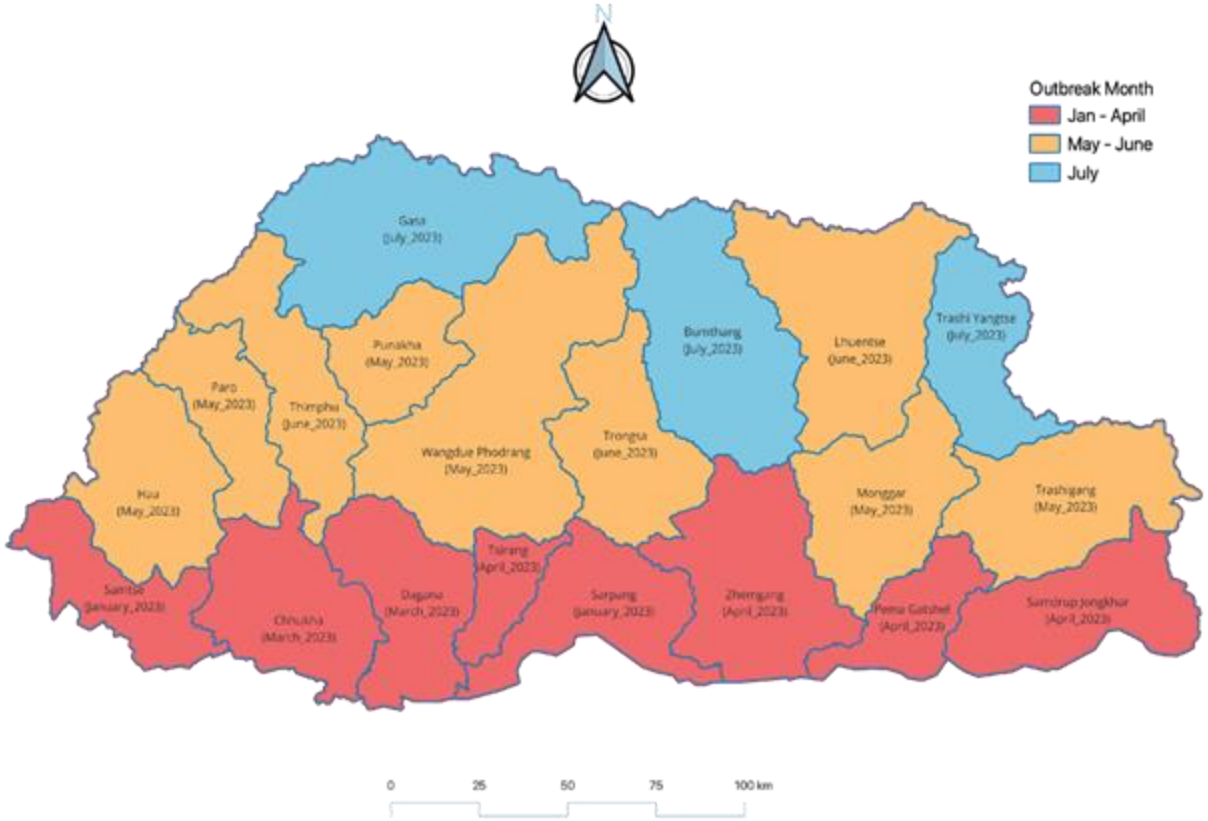
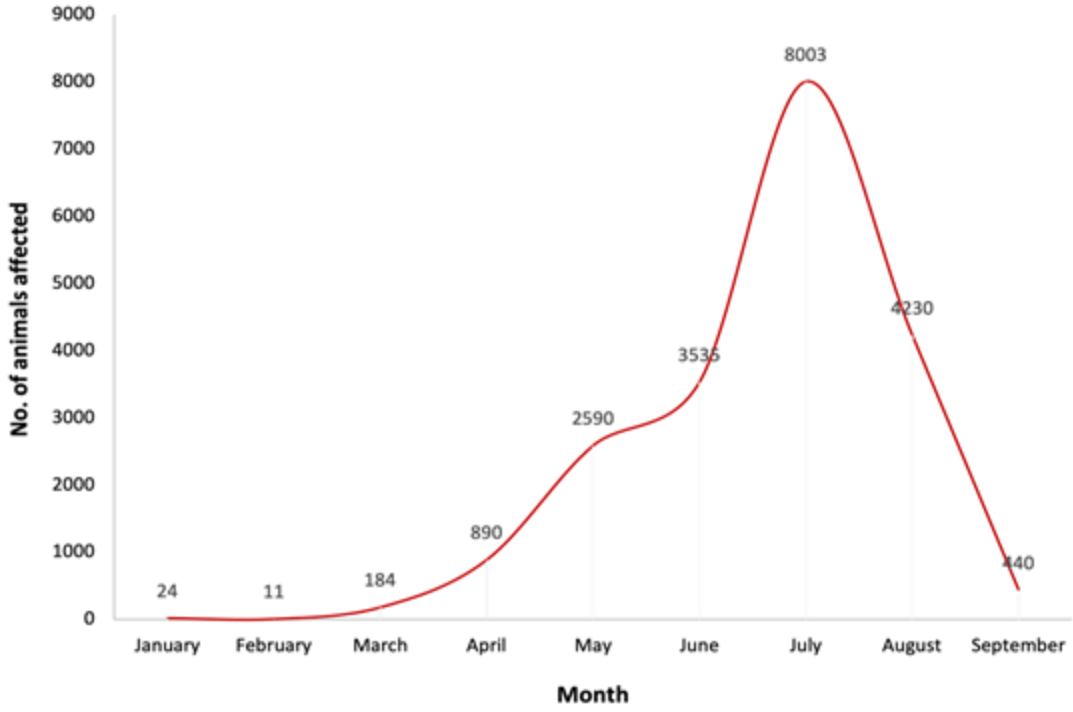
Vector Borne Disease situation

ii. Temporal distribution of LSD

- First outbreak in Sept 2020
- In 2022, outbreak in the month of May
- In 2023, from January till September





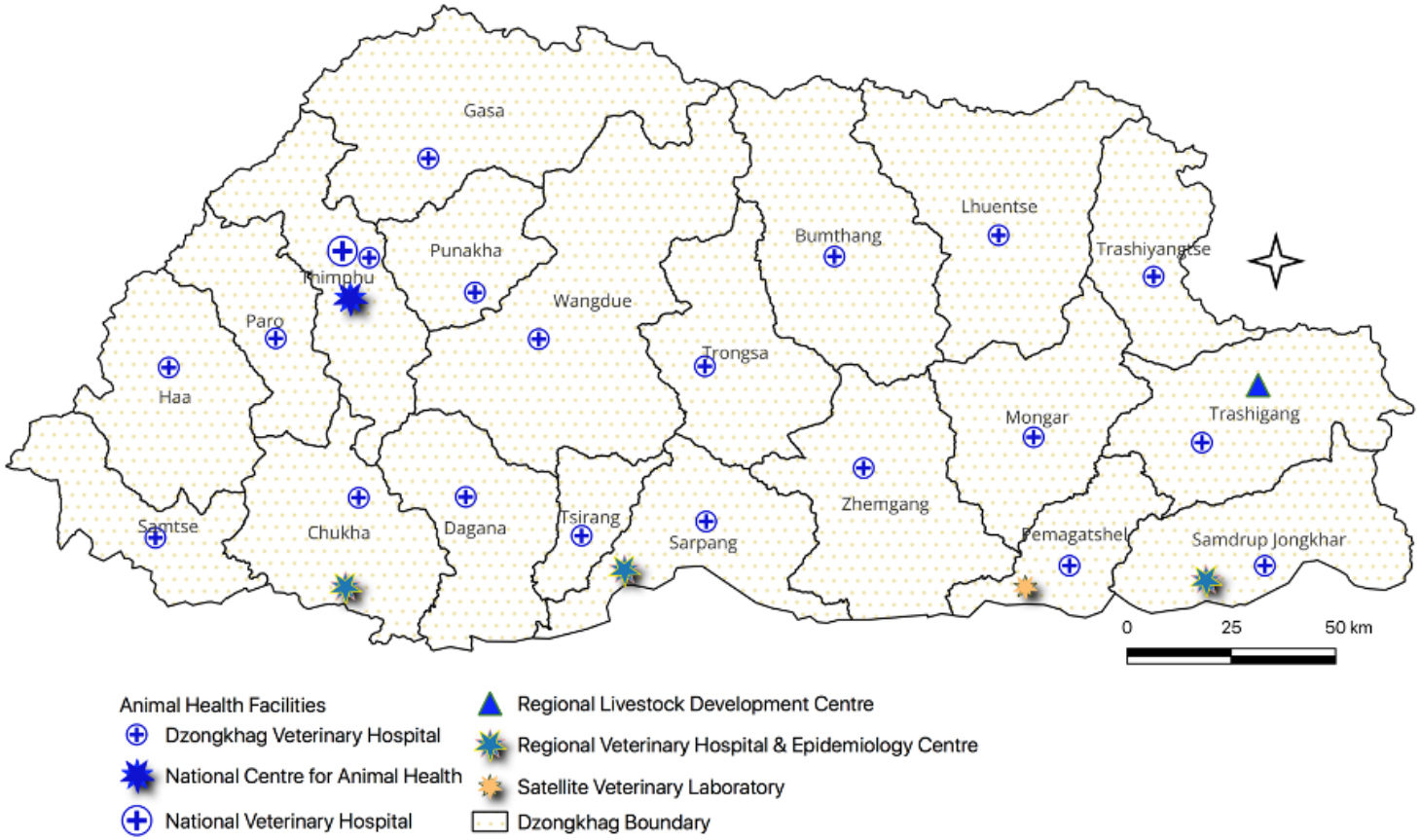
Vector Borne Disease situation

iii. Factors contributing to the change in distribution

- Transboundary nature of LSD; long porous border
- Climate change : increased vector density, habitat, activity and distribution
- Environmental changes
- Inadequate regional collaboration to prevent and control VBDs
- Free-range cattle rearing system
- Poor farm biosecurity: Subsistence farming system
- Traditional practice of seasonal cattle migration

Detection capacity

Network of Animal Health/veterinary facilities in the country



Detection capacity

Laboratory diagnosis capacity for LSD

- Clinical diagnosis in the field
- Real-time PCR for confirmation
- Characterization of virus carried out with support from regional and international laboratories

Response to Vector Borne Diseases

i. **Surveillance** (animal and vector surveillance)

- Passive surveillance (peace time)
  - ✓ Veterinary Information System

- Active surveillance (outbreak)
  - ✓ Syndromic and lab-based surveillance
  - ✓ Veterinary laboratories: National, Regional and Dzongkhag

Response to Vector Borne Diseases

ii. Responses and control

- ✓ Activation of Rapid Response Teams (RRT): Disease outbreak investigation, Quarantine and movement control, Surveillance teams
- ✓ RRTs perform following tasks:
  - Risk assessment and delineation of zones: infection, protection
  - Ban on movement of live animals and their products and strict regulation
  - Isolation and symptomatic treatment of sick animals and proper disposal of carcasses
  - Active syndromic and laboratory surveillance
  - Heightening farm biosecurity and sanitary measures for vector control
  - Awareness and education for farmers and relevant stakeholders
  - Reporting and information sharing

Response to Vector Borne Diseases

iii. Preventive measures to avoid introduction

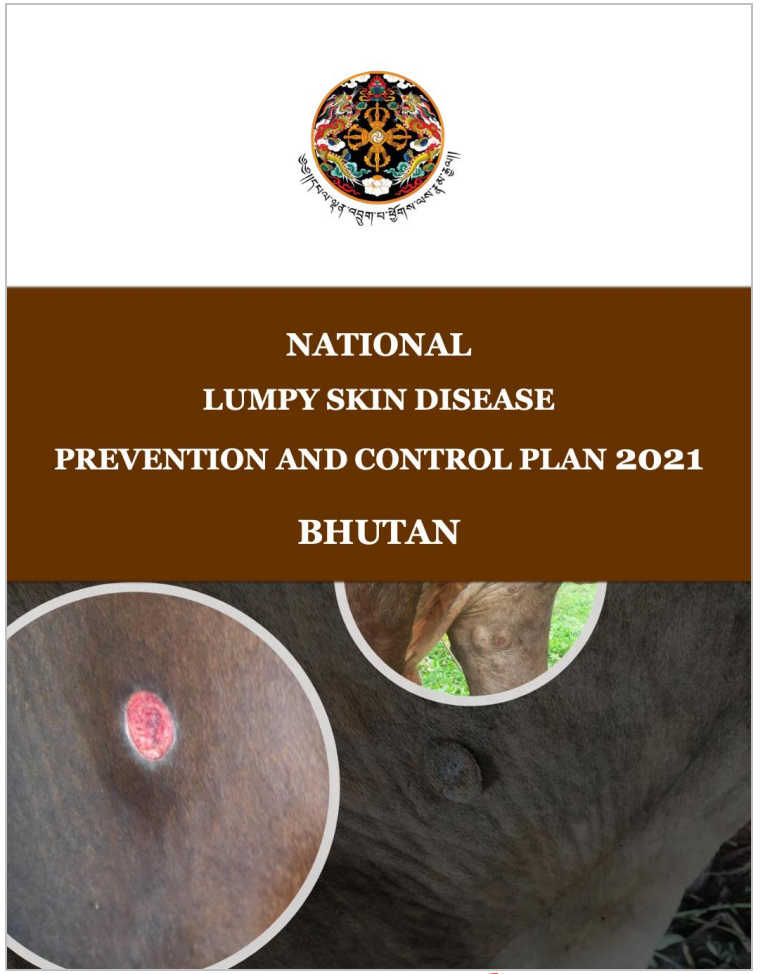
- ✓ Passive surveillance and reporting
- ✓ Heightened vigilance during outbreaks in the neighbouring countries
- ✓ Sending out alerts/notifications
- ✓ Enhanced farm biosecurity
- ✓ Regulatory actions: strict import checks, quarantine measures
- ✓ Awareness and education with specific focus on vector control and good on-farm biosecurity practices

Response to Vector Borne Diseases

iv. Vaccination

- Key strategy against LSD
- Mass vaccination using homologous vaccine (Neethling strain)
- Targeted Coverage: 100% in high risk areas and at least 70% in other areas

v. Contingency plan



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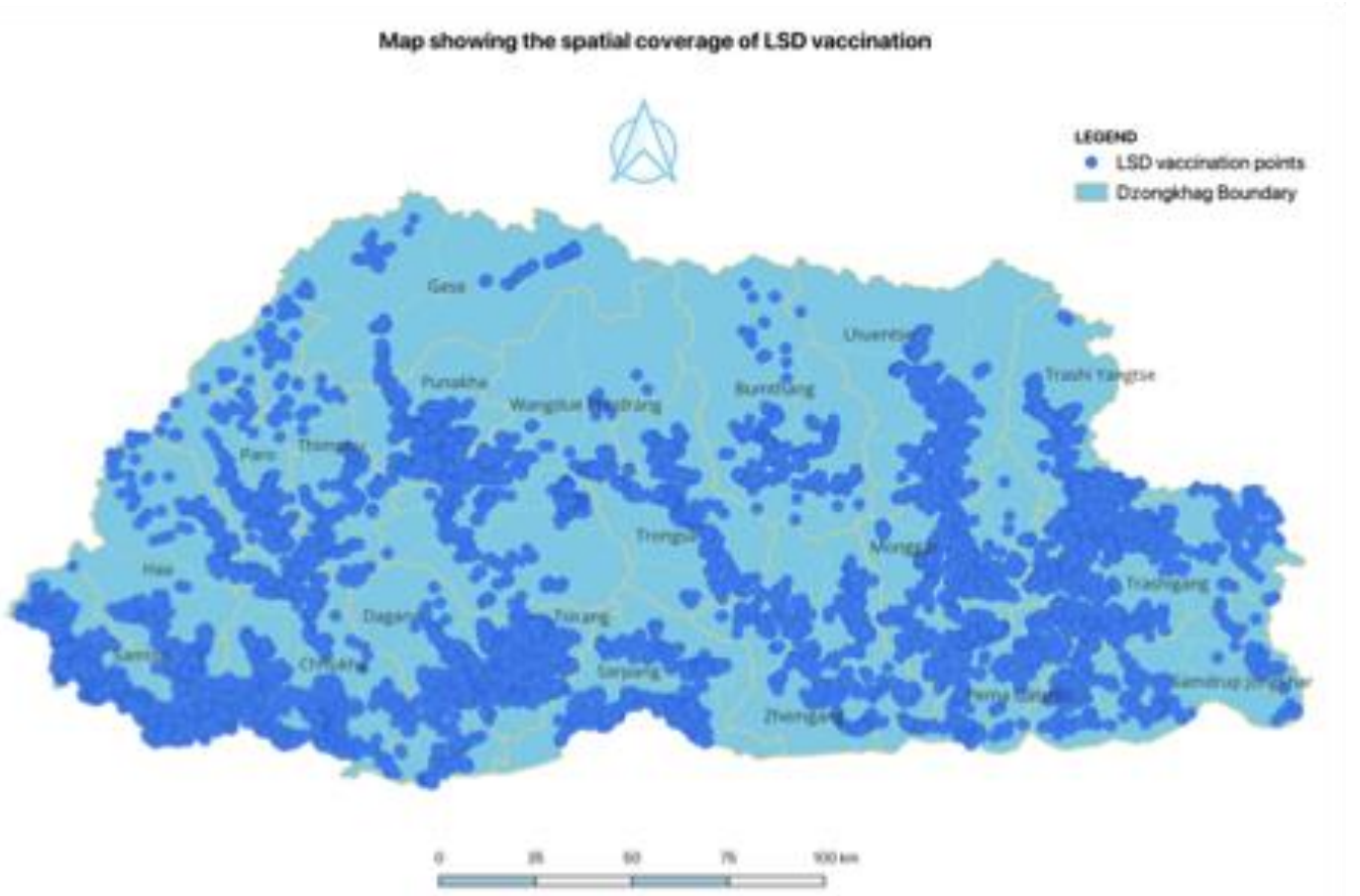
Impact of the actions

- Improved surveillance and diagnostic capacity
- Decrease in incidence of LSD
- Decreased economic losses for livestock farmers as well as the government
- Increased awareness and knowledge
- Improved livelihoods of the farmers



Challenge and possible solutions

Challenge	Possible solutions
Cross-Border Disease Transmission	Strengthen Regional cooperation: Establish cross-border surveillance networks and joint disease surveillance and control initiatives to ensure coordinated efforts
Economic constraints	Advocate for increased funding from government. Promote cost-sharing mechanisms. Explore public-private partnerships.
Unavailablity of vaccines for LSD in the region	Support from Regional/International organizations in facilitating availability of cost-effective vaccines
Lack of compliance on good farming practices, biosecurity measures and non-reporting of cases	Community engagement through awareness campaigns and advocacy programs

Other VBDs of concern

1. Crimean-Congo Hemorrhagic Fever

- CCHF Sero-surveillance in goat population in Southern Bhutan: Antibodies have been found in goat population; further investigation planned to understand the domestic infection cycle and the potential risk of human outbreaks.

2. Japanese Encephalitis

- JEV vectors prevalent in many southern Dzongkhags; Sporadic cases of JE in humans; No surveillance conducted for JE in pig population; No capacity for JE detection in the veterinary labs.

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Indicator	Japanese encephalitis - number of reported cases																
Location	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Bhutan	0	0	0	0	0	1	3	5	5	2	0	27	3	0	0		
Bosnia and Herzegovina			0			0	0	0					0			0	0
Botswana	0	0		0			0	0	0								0

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Collaboration with other sectors under One Health approach

- Good collaboration with other sectors under One Health approach for zoonotic diseases and AMR.
- Ongoing collaboration with Royal Centre for Disease Control for CCHF surveillance
- Vision of Bhutan One Health Strategy *"The health and wellbeing of humans and animals including ecosystem are protected and improved through One Health approach"*
- In May 2024, Human Health sector, Animal Health Sector (including wildlife) and Environment Sector collectively prioritized zoonotic diseases of greatest concern at the human-animal-environment interface for One Health collaboration.

Thank you

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Expectations for the VBDs workshop (Not Included in the Presentation)

- Please share your expectations for the VBDs workshop
  - Better understand epidemiology, transmission dynamics and best practices in VBDs prevention, surveillance and control. And certainly collaborate and network with experts and representatives from member countries.
- What specific information about VBDs you expect to obtain from experts
  - Information on VBDs incidence in light of climate change, globalization, and practical solutions to reduce the impact of VBDs; developments in VBDs diagnostic techniques, best practices in prevention, surveillance and treatment of VBDs.
- What disease experience you expect to gain from member countries/territories
  - Learn contextual adaptive approaches undertaken for VBDs prevention and control; seek success stories of regional cooperation/cross-border cooperation forged to prevent VBDs.