



**World Organisation  
for Animal Health**  
Founded as OIE

## **Report of the Lumpy skin disease (LSD) Update Meeting for South-East Asia (Third Coordination Meeting)**



**Virtual meeting on 16 December 2022**

**WOAH SUB-REGIONAL REPRESENTATION FOR SOUTH-EAST ASIA (SRR-SEA)**  
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## Meeting Recommendations

### Considering

- the 8 out of 10 countries in South-East Asia are affected by Lumpy skin disease (LSD) including Vietnam, Myanmar, Thailand, Cambodia, Laos, Malaysia, Indonesia and Singapore;
- the substantial impacts of LSD on livelihoods and food security, particularly among smallholders, and implication on trade of live bovines and their products;
- the new developments in terms of disease epidemiology globally, regionally and at the country level; including the circulating recombinant LSDV types in South-East Asia;
- the number of interventions made by the Members and Partners including production of inactivated LSD vaccines to prevent and control LSD;
- the importance of the timely sharing of information and good coordination approach among the countries in South-East Asia;
- the challenges faced in the region to effectively prevent and control LSD;
- the importance of regional coordination for the effective control of LSD and other TADs.

**The LSD Update Meeting for South-East Asia (Third Coordination Meeting) held virtually on 16 December 2022 made the following recommendations for better coordination and implementation of the LSD prevention and control activities in South-East Asia:**

- To conduct studies to understand:
  - the local epidemiology of LSD (time, seasonality, place and animal);
  - the circulating virus types in the region;
  - the local risk factors associated with LSD incursion and spread;
  - the role of vectors and wild ruminants in spread of LSD;
  - the management and control strategies applied by farmers, traders, and Veterinary Services in response to LSD outbreaks;
  - the impact of LSD including the economic impact of LSD outbreaks to key stakeholders along the value chains.
- Enhance LSD diagnostic capacity in the region:
  - to assess the existing diagnostic capacity of the Members and identify gaps and needs;
  - to encourage Members to build basic LSD diagnostic capacity to confirm presence of LSD;
  - to submit samples to Reference Laboratories to able to understand the molecular epidemiology of LSD in the region.
- Enhance LSD vaccination coverage in the region:
  - to assess LSD vaccine usage and adopted vaccination strategies by the Members;
  - to encourage Members to buy good quality vaccines that are in compliance with WOH standards;
  - to provide guidance on LSD vaccination approaches

- to investigate means on how countries would have access to an attenuated, good-quality vaccine seed virus for local vaccine production.
- Enhance advocacy and awareness:
  - to prepare policy brief for the decision makers and policy makers
  - to develop Infographics and videos on the use on LSD vaccination and use of quality vaccines
- Enhance preparedness and response:
  - to report new outbreaks of LSD including the vaccination and other control measures implemented; follow-up report and closure of the outbreak once the event is resolved to WOA-H-WAHIS;
  - to improve prevention and preparedness measures to prevent the LSDV entry and its further spread in free areas/zone/country in the region.
  - to identify regionally agreed means to prevent legal or illegal movement of unvaccinated animals and identify ways to get those animals vaccinated prior to transport;
  - to carry out simulation exercises for TADs including LSD.
- Coordination and collaboration:
  - to nominate National Focal Person for LSD by the Members to organize virtual and in-person coordination meetings in 2023.
  - to continue to strengthen collaboration between Members and Partners.
- To develop ASEAN LSD Prevention and Control Strategy based on the recommendations of 30<sup>th</sup> ASWGL meeting.

## Introduction

Following the report of Lumpy skin disease (LSD) in Asia in 2019 (China and India), this Transboundary Animal Disease (TADs) has further spread to South-East Asia: Vietnam and Myanmar in 2020; Thailand, Cambodia, Laos and Malaysia in 2021; and Indonesia and Singapore in 2022. In response to these outbreaks in the Asia and the Pacific region, WOAHA organised series of [webinars](#) to enhance the knowledge and understanding of this emerging disease.

The [first](#) virtual LSD Coordination meeting for South-East Asia was organized in June 2021 to facilitate timely sharing of information and resources; to discuss issues related to LSD prevention and control; and to enhance coordination among the member countries. The [second](#) virtual LSD Coordination Meeting in December 2021 focused LSD Vaccination including the challenges faced during the implementation of LSD vaccination and in accessing quality vaccines. There are new development in terms of disease epidemiology and circulating virus types globally, regionally and at the country level. There are also number of interventions made by the Members and Partners including production of LSD vaccines by some Members to prevent and control LSD in South-East Asia.

The World Organisation for Animal Health (WOAH, founded as OIE) Sub-Regional Representation for South-East Asia (SRRSEA) organized the Virtual [LSD Update Meeting for South-East Asia](#) (Third Coordination Meeting) on 16 December 2022 to review the LSD situation, progress on LSD control, and discuss the challenges faced by Members. The meeting was attended by 82 participants from ASEAN countries (Brunei, Lao PDR, Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam), Timor Leste, Papua New Guinea, donors (China and Australia), Food and Agriculture Organizations of the United Nation (FAO), WOAHA (WOAH-HQ, RR Tokyo and SRR Bangkok) and LSD Experts.

The objectives of the LSD Update Meeting for South-East Asia were to:

- Update Members on the Global LSD situation with focus on the circulating recombinant LSDV strains in South-East Asia;
- Provide update on the current LSD situation in the affected countries;
- Share experiences and lessons learnt in implementation of LSD prevention and control measures by the affected countries;
- Provide platform to member countries to discuss on various challenges faced in LSD prevention and control, in particular LSD diagnosis and vaccination and solution to address some of the challenges;
- Identify priority needs and actions to enhance LSD prevention and control in South-East Asia.

## Session I: Opening session

Dr Ronello Abila, WOAHA Sub-Regional Representative for South-East Asia welcomed all the participants from the Member countries, FAO, WOAHA and LSD Experts to the third LSD Coordination and update meeting. He informed the participants that the first LSD coordination meeting was organized in June 2021 when several countries in the Mekong region were affected by LSD in the first half of 2021. This was critical to facilitate timely sharing of information and available tools; and to enhance coordination among the countries in South-East Asia region in order to effectively prevent and control LSD in the South-East Asia region. He also informed that the second LSD coordination meeting focused on LSD vaccination was organized in December 2022. He highlighted that the third LSD coordination meeting is organized to seek updates on the LSD situation and review LSD control measures implemented by the members and come up with priority actions to enhance LSD prevention and control in South-East Asia.

## Session II: LSD situation updates

### Global LSD situation with focus on the circulating recombinant LSDV strains in South-East Asia

Dr Nick De Regge of EU Reference Laboratory presented the global LSD situation with focus on recombinant LSD virus predominating the LSD epidemic in South-East Asia. He highlighted that one specific badly produced and insufficiently controlled LSDV vaccine was responsible for the release of recombinant LSDV strains in the field. He further emphasized on the importance of vaccine quality control to prevent future emergence of recombinant LSDV strains. He also talked about new DIVA test under development at EURL for the Capripox which will be capable of differentiating recombinant and classical field strains identified as wild type strains ([Presentation available here](#)).

### LSD situation in South-East Asia region

Dr Karma Rinzin of WOAHA SRRSEA made a brief presentation on the LSD situation in South-East Asia where eight out of 10 countries are infected. He informed the participants that Vietnam reported the first outbreak of LSD in South-East Asia in October 2020 followed by Myanmar in November 2020. Following the report of LSD by Thailand in March 2021, the disease rapidly spread to other neighbouring countries including Cambodia, Laos and Malaysia. In 2022, LSD outbreaks were reported in Indonesia (February 2022) and in Singapore (March 2022). There was drastic reduction of number of LSD outbreaks and cases in 2022 from those countries that reported LSD outbreaks in the past years. He also reported the highlights of activities implemented by WOAHA in response to LSD outbreaks in South-East Asia including development of communication materials, webinars, coordination meetings and capacity building programmes to enhance LSD prevention and control in South-East Asia ([Presentation available here](#)).

### LSD situation updates from the Members

#### Indonesia:

Dr Yuni Yupiana presented the update on LSD situation and its control in Indonesia. She reported that the Indonesia had first LSD outbreak in February 2022 in Riau province which further spread to West Sumatera, Jambi, Aceh and North Sumatera in March and April 2022. More outbreaks were reported from Central Java in August 2022 and East Java in December 2022. Main control measures implemented

are vaccination of animals with homologous attenuated Neethling strain virus vaccines. Other control measures implemented are clinical and syndromic surveillance, movement control, vector control using chemical and smoking, and awareness and risk communication to the animal owners. The training of Field Officers on LSD detection and management and laboratory staff on LSD diagnosis was also conducted ([Presentation available here](#)).

#### Malaysia:

Dr. Nik Hamidah binti Nik Husina made short presentation on the LSD situation in Malaysia where she informed that the first outbreak of LSD in Malaysia was reported in May 2021. Only three outbreaks were reported in three districts in the Peninsular Malaysia in 2022 where all the outbreaks were resolved. Vaccination of cattle and buffalo with homologous attenuated vaccines is main control measures implemented in Malaysia. No LSD outbreaks were reported in the vaccinated animals except Neethling response in few animals. Other control measures include clinical surveillance, revision of import protocols from the infected countries, control of illegal animal movement at the international borders, awareness campaign through social media and other platforms etc ([Presentation available here](#)).

#### Thailand:

Dr Tosapol Dejyong made presentation on the Thailand's LSD situation and various interventions to control LSD. Following the report of first LSD outbreak in March 2021, Thailand had many LSD outbreaks with 70 out of 77 provinces affected. The National Institute for Animal Health conducted whole genome sequencing and confirmed that the virus types involved in Thailand outbreak is recombinant vaccine strain identical to Vietnamese strains. DLD imported the first batch of homologous attenuated LSD vaccine in June 2021, following which there was rapid reduction of LSD outbreaks in the second half of 2021 and in 2022. Thailand also started producing in-country inactivated LSD vaccines (50,000 doses monthly). Other control measures include biosecurity improvement, vector control, animal movement control, treatment and disinfection, community and private sector engagement and risk communication ([Presentation available here](#)).

#### Vietnam:

Dr Pham Thanh Long presented the Update on LSD situation and its control in Vietnam. Vietnam is the first country to report LSD in South-East Asia in October 2020 and as of now 55 out of 63 provinces are affected. In 2021, Vietnam imported and used 9 million doses of LSD vaccines which brought drastic reduction in LSD outbreaks and cases. In 2022, a total of 450,000 doses of LSD vaccine are imported. Following this intervention, only few LSD outbreaks were reported in second half of 2022. Other control measures implemented are biosecurity, surveillance, movement control, risk communication and creating disease free compartments and zones ([Presentation available here](#)).

#### Myanmar:

Dr Min Thien Maw made brief verbal presentation on the LSD situation in Myanmar and various prevention and control measures implemented by them. Following the LSD outbreak in Vietnam, LSD outbreak was reported in Myanmar in November 2020 and so far 13 outbreaks were confirmed. LSD vaccination was not carried out in Myanmar to control LSD. The control measures implemented were surveillance, movement control and biosecurity. The laboratory capacity development to diagnose LSD

was initiated where two laboratories are now capable to conduct LSD diagnosis by ELISA and PCR tests. The LSD isolates were shared to IAEA Laboratory in Vienna and found out that the virus types circulating in Myanmar is closely related to LSD virus types in the neighbouring countries.

### Singapore:

Dr Kevin Ho provided a brief update on LSD situation in Singapore where LSD outbreak was confirmed in one dairy farm (only two dairy Farms in Singapore) in March 2022. Non of the affected animals were culled and all the animals have recovered. Control measures were mainly focused on vector control, monthly fogging and clinical surveillance. An effort is made to prevent infection of susceptible captive wild population such as wild buffalo and giraffe.

### Australia:

Dr Mark Schipp, Australian CVO provided a brief verbal update on Australia's LSD Action Plan which focus on their national priorities for actions to strengthen Australia's preparedness for a potential incursion of LSD. The LSD Action Plan encompass eight objectives with several actions that are critically important to protect Australia's cattle and other livestock industries from the growing threat of this disease ([Australia's National LSD Action Plan available here](#)).

## Session III: Assessing current challenges and priority needs

The interactive session was conducted using Mentimeter. The interactive plenary discussion focused on the assessment of the current challenges and priority needs was moderated by Dr Karma Rinzin using the Mentimeter.

The output of the Mentimeter discussion is provided in [Annex 3](#). The participants were invited to provide response to eight questions in the Mentimeter. The first four questions were focused to seek the concurrence/ perceptions of the participants and key stakeholders on the LSD in their countries.

Following are response provided by the participants during the mentimeter session:

- Majority of livestock owners (33 out of 40) perceive LSD as livestock disease having a significant impact on production and animal health.
- Majority of livestock traders (22 out of 38) perceive LSD as livestock disease having a significant impact on livestock trade.
- Majority of participants (36 out of 42) consider LSD to be a priority disease to be included in the notifiable disease list.
- Majority of participants (36 out of 40) agree to include LSD in the ASEAN/ Sub-Regional GFTADs list of priority disease.

The participants were invited to enlist the main knowledge gaps that needs to be addressed to better support prevention and control of LSD. The participants reported that the main knowledge gaps that needs to be addressed to better support prevention and control of LSD are: vaccine safety, quality and effectiveness; vaccination protocol and strategies; genomic information of circulating LSDV; role of vector in LSD transmission and spread; biosecurity and movement control; DIVA tests etc.

The participants were then asked to list the main challenges faced in LSD surveillance and diagnosis; and LSD vaccination and other prevention and control measures. The participants listed number of challenges



in LSD surveillance and diagnosis which include under reporting, insufficient man power, remote locations of farms, sub-clinical cases in vaccinated animal, farmers cooperation, lack of knowledge about the surveillance design, limited awareness of farmers on signs and nature of disease, limited laboratory capacity, diagnosis of recombinant strains, lack of positive control and sample submission, poor quality sample, expensive cost of diagnostic test, mis diagnosis, limited budget, competing priorities, etc.

Main challenges in LSD vaccination and other prevention and control measures include- Good quality LSD vaccines are very expensive, availability poor quality and illegal vaccines, poor compliance for boosters, reluctance of farmers to vaccinate their animals, expensive PVM, no free vaccines from the Govt, sourcing of safe and good quality vaccines, WOAHA rules regarding pre-emptive vaccination and country disease status, difficulty in gathering of animals for vaccination in extensive farming, poor knowledge on vaccination strategy, manpower shortage, remote locations, poor access to farms, particularly those farms in remote locations; illegal animal movement etc.

The key solutions proposed by the participants to address various challenges faced during the prevention and control of LSD are: continuous information dissemination to stakeholders about the disease and available tools; international accreditation of vaccine manufacturers; establish vaccine seed bank; regional coordination and harmonisation of vaccination programmes; advocacy to politicians and policy makers; sharing of success stories by those owners who successfully controlled LSD to other farmers; promote stakeholder engagement through application of WOAHA PPP guidelines; narrow the gap between lab staff and field veterinarians/ paraveterinarians; cross border MOU; permanent marking and identification of vaccinated animals etc.

Following the mentimeter sessions, Experts were invited to make an interventions where Dr Kris De Clercq, Vice President of WOAHA-SCAD and Former Head of EURL for Capripox virus emphasised on increasing vaccination coverage to successfully control LSD in the infected country. Dr Eeva from Friedrich Loeffler Institute, Germany suggested members to produce their own vaccine by acquiring quality seed virus from reliable source. Dr Mark Schipp expressed the need of guidance for LSD vaccination approaches.

## Session IV: Way Forward and Closing

Dr Karma Rinzin presented the Key Recommendations of the Meeting and Priority Actions that will be undertaken in 2023. It was decided that the WOAHA SRRSEA will share the draft recommendations and the member countries and participants will provide their comments after two weeks of receiving the draft recommendations. The final recommendations are presented in the beginning of this report.

On behalf WOAHA SRRSEA, Dr Karma Rinzin thanked all the participants for their active participation and contributions to this meeting. He specifically thanked all the Speakers for taking time to prepare and for the excellent presentations during the meeting. He also thanked the Experts for their excellent interventions during the meeting deliberations. He finally conveyed his greetings and best wishes for the coming new year.

## Annexes

### Annex 1: Meeting Programme

#### Lumpy skin disease (LSD) Update Meeting for South East Asia

Date and time: 16 December 2022 at 2 PM (Bangkok time)

##### PROVISIONAL PROGRAMME

TIME	DESCRIPTION	WHO
<b>SESSION I: OPENING SESSION</b>		
14:00 - 14:10	Welcome and Objective of the Meeting (Opening Remarks)	Dr Ronello Abila, WOAHSRR SEA
<b>SESSION II: LSD SITUATION UPDATES</b>		
14:10 - 14:40	Global LSD situation with focus on the circulating recombinant LSDV strains in South-East Asia	LSD Expert
14.40 – 14.50	LSD situation in South-East Asia	WOAH SRRSEA
14:50 - 15:30	Country Report <ul style="list-style-type: none"><li>LSD situation updates from Members</li></ul>	Members
15:30 – 15:40	Q and A session	All
15:40 – 15:45	Comfort Break	All
<b>SESSION III: ASSESSMENT OF CURRENT CHALLENGES AND PRIORITY NEEDS</b>		
15:45-16:20	Interactive session (Mentimeter) focused on: <ul style="list-style-type: none"><li>Key challenges in LSD prevention and control including diagnosis and vaccination</li><li>Solution to over these challenges</li></ul> Discussion on: <ul style="list-style-type: none"><li>Priority needs and actions to control LSD in South-East Asia</li></ul>	WOAH SRRSEA, FAORAP and LSD Experts
<b>SESSION IV: CLOSING AND WAY FORWARD</b>		
16:20 – 16:30	Conclusion and Recommendations Closing Remarks	WOAH

## Annex 2: List of Meeting Participants

Country	First Name	Second name	Organization	Job Title
Cambodia	Dina	KOEUT	National Animal Health and Production Research Institute	Epidemiological staff
China	Tiangang	XU	CAHEC	Associate researcher
	Li Lin_CAHEC		CAHEC	Associate researcher
Indonesia	Yuni	Yupiana	Ministry of Agriculture Indonesia	veterinary officer
Lao PDR	Leopold	Loth	FAO	Senior Technical Advisor
Malaysia	NUR ATHIRAH	MOHD AZHAR	Department of Veterinary Services	Veterinary Officer
	Sarah	Abdullah	Department of Veterinary Services	Veterinary Officer
	khairul anuar	muhammad	Department of Veterinary Services, State of Pahang	Veterinary Officer
	Nor Azhani	Kamarudin	Department of Veterinary Services states of Penang	Veterinary Officer
	Rohaiza	Yahaya	Department of veterinary services Malaysia	Veterinarian
	Connie	Tann	Department of Veterinary Service, Sabah, Malaysia	Veterinary Officer
	Dr Marni NIK HAMIDAH	Mohamad NIK HUSIN	Malaysia DVS Malaysia	Vet Officer Veterinary Officer
	Khun Hiong	Lim	Department of veterinary services Sabah	Veterinary officer
	Mohd Shafarin	Shamsuddin	DVS Malaysia	Lab Director/Veterinary Officer
	MOHAMAD AZLAN	JAHAYA	DVS MALAYSIA	RESEARCH OFFICER
	Nurain Saidi (DVS Malaysia)		DVS Malaysia	RESEARCH OFFICER
	Syarifah Asiah	Mohd Amin	DVS	Dr
	UMMI SUMILAH	Mohamad johar	DEPARTMENT OF VETERINARY SERVICES	VETERINARY OFFICER
	KHAIRUN ANISA	MAT YAZID	DEPARTMENT OF VETERINARY SERVICES	Veterinary officer
	Muhammad Syazwan bin Fahmi Ridza	Muhammad Sabri	DVS	Veterinarian
		Mohamad Noor	Department of veterinary services	Veterinary officer

	Ong Aida	Jin Seng Muhid	DVS Kelantan Department of Veterinary Services	Veterinary Officer Director
	noor asyikin	abu	department of veterinary services Selangor State	Dr
	Leonora	Tuah	Department of Veterinary Services Malaysia	Veterinary Officer
	Mariani	Hashim	department of veterinary services	veterinary officer
Myanmar	Hlaing	Win	Livestock Breeding and Veterinary Department	Veterinarian
	Aung	Htun	Livestock Breeding and Veterinary Department	Veterinarian
	Aye Myat	Nandar	Livestock Breeding and Veterinary Department	Veterinarian
	LBVD Wai Zin Thein		Livestock Breeding and Veterinary Department	Asistant Director
	Dr. Win Win Myint (Myanmar)		Livestock Breeding and Veterinary Department	Deputy Director
	Win MIN THEIN	Myint MAW	LVBD Livestock Breeding and Veterinary Department	Dy Director Director
Philippines	Gil	Calderon	Department of Agriculture, National Dairy Authority	Division Chief III
	Hazel	Dalaguizado	DA-BAI NSRRDC	Veterinarian II
	Janice	Garcia	Bureau of Animal Industry	Veterinarian III
	Brent Kristian	Molina	Bureau of Animal Industry	Veterinarian
	Daphne	Rhea	Bureau of Animal Industry	Veterinarian
	Olivia	Pungtilan	Bureau of Animal Industry	Veterinarian II
	Ermyrn	Ermitanio	BAI	Veterinarian II
	Jennifer JESSICA	Maravilla LARGADO	Bureau of Animal Industry BUREAU OF ANIMAL INDUSTRY	Veterinarian VETERINARIAN II
Singapore	HP	Lim	NPARKS	VETERINARIAN
	SIN_NPARKS_Eileen Koh		NPARKS	Senior Scientist
	Eugenia	Lam	Singapore Food Agency	Assistant Director
	Ho	Kelvin	National Parks Board	Ag Deputy Director
	Shawn	Chia	Animal and Veterinary Service	Veterinarian
	Stacy	Khaw	Singapore Food Agency	Veterinarian
	Qinghui	Tan	Singapore Food Agency	Veterinarian
Thailand	Paolo	Motta	FAO RAP	Regional Animal Production and Health Specialist
	Khuanraming	Kunshorn	DLD	Division of Veterinary

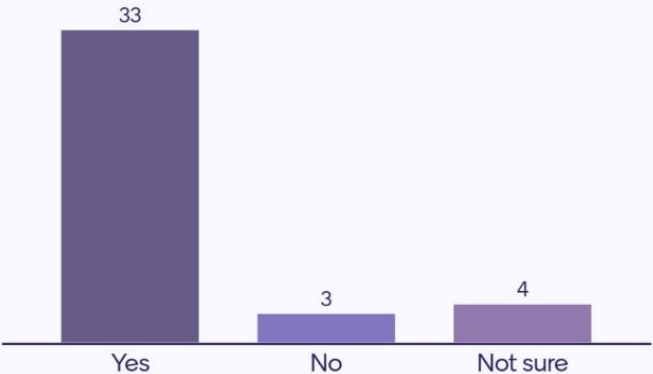
	Intuorn	Teeranuwat	Department of Livestock Development	Inspection and Quarantine Veterinary Officer
	Intuorn	Teeranuwat	Department of Livestock Development	Division of Veterinary Inspection and Quarantine Veterinarian
	Jitnapa	Juengkajornkiat	DLD	
	Tosapol	Dejyong	Department of Livestock Development	Veterinarian (Professional level)
	Kanyatip	Sangarun	DLD	Veterinarian practitioner
	Phurida	Sripipattanakul	National Institute of Animal Health (NIAH) Thailand	Veterinarian, Senior Professional Level
	PIYAPORN	KAEWKAMPA	Department of Livestock Development	Veterinarian
	Nuttavadee	Pamaranon	Department of Livestock Development	Senior Veterinary officer
	Patchrapon	Nituchapanit	Division of Veterinary Inspection and Quarantine	Veterinary officer
Timor-Leste	Joanita	Jong	Ministry of Agriculture and Fisheries	National Director
Vietnam	Pham Phuong	Long Nguyen Thanh	DAH Regional Animal Health Office No.6	Vet officer Manager Laboratory
Australia	Gary	He	Department of Agriculture, Fisheries and Forestry	Senior Veterinary Officer
	susanne Charlotte	fitzpatrick Burgoyne	NTG DITT Department of Agriculture Fisheries and Forestry	CVO Veterinary officer
	Mary	Carr	pirsa	Chief Veterinary Officer
	Andy	Hancock	Agriculture Victoria	Principal Veterinary Officer
	James	Grimson	Department of Agriculture, Fisheries and Forestry	Veterinary officer
	Nigel	Baum	PIRSA	Senior Veterinary Officer
	Jarrad Alex	Sanderson Boughton	DAWE Department of Agriculture, Fisheries and Forestry	Veterinary officer Market Access Officer
	Zi Yi	Lim	Local Land Services	District Veterinary Officer

Jacobus	Van Wijk	PIRSA	Manager Business and Quality Control
Rachel	Granton	Department of Agriculture, Fisheries and Forestry	Director, Biosecurity Animal Division
Allison	Crook	DAF	Chief Veterinary Officer Queensland
Darren	Underwood	Biosecurity Queensland	Principal Scientist
Thuy	Tran	Biosecurity Queensland	Senior laboratory technician
Verna	Hearne	DAF	Scientist
Dan	Edson	Department of Agriculture, Fisheries and Forestry	Manager, Pacific Engagement Program
Barry	Robinson	Agriculture and Fisheries	Senior Veterinary Officer
Shirley	Turner	Biosecurity Queensland	veterinary pathologist
Anita	Gordon	QLD DAF	Principal veterinary pathologist
David	Thomson	Department of Agriculture and Fisheries	Senior Principal Scientist
Phoebe	Readford	CSIRO ACDP	Group Leader - International Program
Gemma	Clark	CSIRO	Project Manager
graeme	cooke	State Gov	CVO
Megan	Scott	Agriculture victoria	Principal officer emergency animal disease
Linda	Dunbar	AJ & LJ Dunbar	Veterinarian
Luke	Driver	Biosecurity Queensland	Senior Science Technician
Kelly	Stanger	ACDP	Group leader - Lumpy Skin Disease Research
Kelly	Widdows	DAFF	Veterinary Officer
Beth	Cookson	Department of Agriculture, Fisheries and Forestry	Deputy CVO
Rebecca	Ambrose	DAF	Senior Veterinarian
Sarah	Britton	DPI Animal Biosecurity	Chief Veterinary Officer / Group Director Animal Biosecurity
Mark	Schipp	DAFF	CVO
Belgium	Kris	De Clercq	WOAH SCAD
			Vice-President SCAD

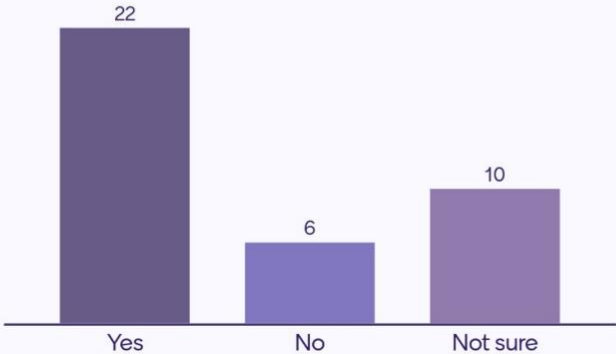
Belgium	Nick	De Regge	Sciensano	Head of the unit Exotic and vector borne diseases - EURL capripox viruses
France	Charmaine	Chng	WOAH	Scientific Coordinator
Germany	Eeva	Tuppurainen	Institute of International Animal Health/One Health, Friedrich-Loeffler Institut	Senior Scientist
Japan	Hnin Thidar	Myint	World Organisation for Animal Health	Regional Project Coordinator
	Jacqueline	Lusat	WOAH	Animal Health Information Officer
United Kingdom	Caroline	Wright	The Pirbright Institute	Senior Postdoc
United Kingdom	Martin	Ashby	The Pirbright Institute	Technical Manager
United Kingdom	Elva	Borja	WOAH	Support Consultant
United States	Lina Sabrina	YAHYA	Singapore Food Agency	Manager
Thailand	Ashish	Sutar	World Organisation for Animal Health	Capacity Building Coordinator
	Bolortuya	Purevsuren	WOAH	Project officer
	Karma	Rinzin	WOAH SRRSEA	RAHC
	Guillaume	Maltaverne	WOAH	Regional Communication Officer
	Paola Peter	Black	FAO ECTAD RAP	International Expert - Animal Health and Disease Control
	Paolo	Motta	FAO RAP	Regional Animal Production and Health Specialist

Annex 3: Outputs of the Mentimeter session - Assessment of current challenges and priority needs

**1. Do livestock owners in your country perceive LSD as livestock disease having a significant impact on production and animal health in your country?**

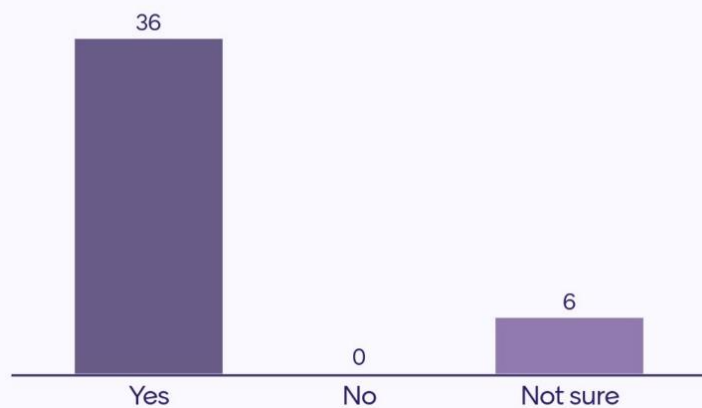


**2. Do livestock traders in your country perceive LSD as livestock disease having a significant impact on livestock trade in your country?**

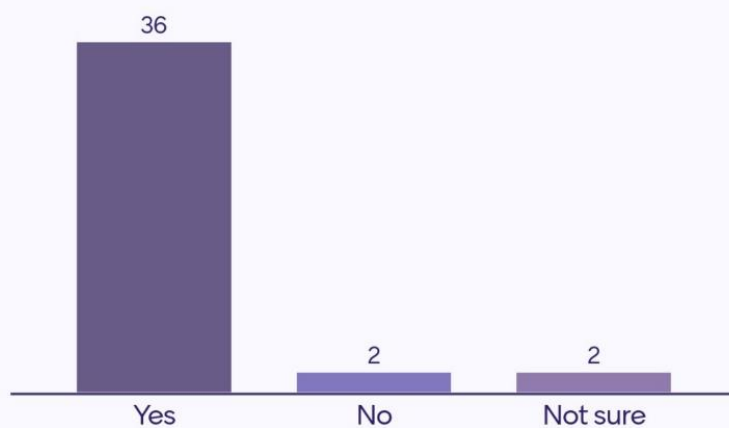




3. Will your country consider LSD to be a priority disease to be included in notifiable disease list?



4. Would you agree to include LSD in the ASEAN/ Sub-Regional GFTADs list of priority disease?



# 5. What are the main knowledge gaps you think needs to be addressed to better support prevention and control of LSD?

Vector competence	Vaccine safety	Vaccine quality
vaccination	VACCINE safety by WOA, vector	Vaccine and vaccination
Soft skill - professional vs farmers	Vaccine effectiveness	vector spread
Movement risks	recombinant strains	Vaccination: duration of maternal immunity, LSD vs sheeppox vs goat vaccine, Live vs inactivated vaccine
Post vaccine reaction	Vaccine effect	The role of vector in LSD transmission
genomic information	How to increase movement control implementation and acceptance	Transparency between all countries - sharing disease situation and approach in their country amongst neighbours.
Infectious titre per vector vs required for infection	Vaccination risk	Age of vaccination in young animal
Adverse reaction	Disease transmission, addressing vectors, vaccination	vector control
Technical knowledge on disease	Vaccination	Vaccination, Vector control
availability of effective vaccines and vaccination strategies	Control planning	Vaccination
Vector population and habitat	Follow up reporting	vaccine risks
Biosecurity, movement control,	Epidemiology of disease spread and occurrence/recurrence	Effective vector control

## 5. What are the main knowledge gaps you think needs to be addressed to better support prevention and control of LSD?

Recombinant strains and accurate full genome sequencing	Public knowledge	Compliance to movement control
Diva test	Movement control	Shortage of budget.
Recombinant strain, the role of vector in transmission, follow up reporting, public knowledge, biosecurity, movement control	Vaccination	Illegal caccine
Vector control	Public knowledge	Impact of LSD at micro level
Farmers awareness of the disease and proper communication among levels of govt	knowledge sharing and movement control	Bureaucracy
Remote locations	Underreporting	Cooperation from farmers
Insufficient manpower	knowledge of transmission route, vaccination	Manpower
Budget constraint for vaccine procurement	vaccination, knowladge of transmission	Lack of man power
Samples not suitable	knowlege of transmission	Transmission
Lack of farmer knowledge	Access to free roaming animals	Illegal imports/smuggling
Lack of manpower	Farmers not keen for vaccination	

## 6. In your country, what are main challenges in LSD surveillance and diagnosis?

under-reporting	Diagnosis recombinant strains	Insufficient man power!
under reporting	No virus available	lab staff capability
Remote locations	Subclinical sign in vaccinated animal	Understanding on disease
Access to farms and animals	the reporting during passive surveillance	Diagnostic tools and man power
Under reporting	Positive control, sample submission poor	Farmer's apathy
Man power Farms acceptance	Limited awareness of farmers on signs and nature of disease	Laboratory Capacity,
Farmers cooperation	Manpower, facilities, financial, interest from decision makers	There is no LSD surveillance and farmers are not required to report
expensive PVM	Budget allocated for both surveillance and diagnosis	FMD is more concerned by farmers
History taking.. ops!	Reporting	Lack of sending samples for diagnosis
positive control for different type of LSD	expensive PVM testing cost	lack of awareness on disease reporting
Limited manpower	Lack of know about types of surveillance design	Sample not suitable
mild LSD resembling other conditions eg. insect bites, hence positive cases of LSD are not reported	Misdiagnosis - initial lesions tend to be similar with common skin disease	clinical sign
Incooperative farmers	Expensive cost on diagnosis test	access to free roaming animals

## 7. In your country, what are main challenges in LSD Vaccination and other prevention and control measures?

Mentimeter

Illegal movement	vaccine is too expensive	Funding to source quality vaccines
Illegal vaccine	Compliance for boosters	Financial aid
Remote locations	LocationCostTradingChange of animal Id	No free of charge for the vaccine and vaccination from the government
illegal animal movement	Sourcing safe vaccine	Low manpower
Woah rules regarding pre-emptive vaccination and country disease status	access to free roaming animals	Financial aid
Vaccination strategy, types of safe vaccine recommendation, budget	Safety/exotic status	Gathering the animals for vaccination in extensive farming
budget	farmers are apprehensive of new vaccine	price of vaccine
access to free roaming animals		

# 8. How can we overcome these challenges?

More public awareness	Vaccine bank	Monetary compensation
Good Cooperation Public awareness Share cost	Information sharing	Vaccine and research funding
harmonised control policies in the region	Establishing vaccine standard with evaluation mission from GFTAD	More donor funding
Continuous information dissemination to stakeholders	International accreditation of vaccine manufacturers at a particular time (safety test by a world reference lab)	Farm-level control Success story as an example to other farmers
WOAH support, advocacy, technical support, VACCINE bank for quality VACCINE recommendation	Sharing of sources among countries	information sharing
Regional coordination and harmonisation of vaccination programmes	Vaccine SEED bank that countries can start their own vaccine production	Political will, top management commitment
New vaccination protocols/methods	continue stakeholder engagement	Permanent marking of vaccinated animals
Disease knowledge and farmer awareness	Communicate with farmers and narrow the gap between lab staff and field vets	continuous education on the importance of disease prevention via vaccination
Survey on farmers on their understanding on vaccination (including their compliance)	Cross border MOU	increase the capacity of the field officers to handle animals
WOAH continuous support to the authority + education to the farmers		