Introduction to PPR Risk Assessment and the ASEAN Preparedness Strategy

Dr Navneet Dhand
Dr Balbir B Singh
Dr Mana Mahapatra

Image courtesy: FAO

Recap

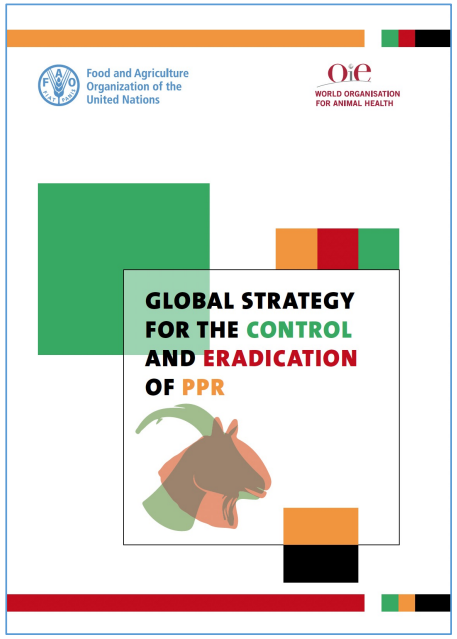
Transboundary animal disease

Affects small ruminants in about 70 countries; another 50 at risk

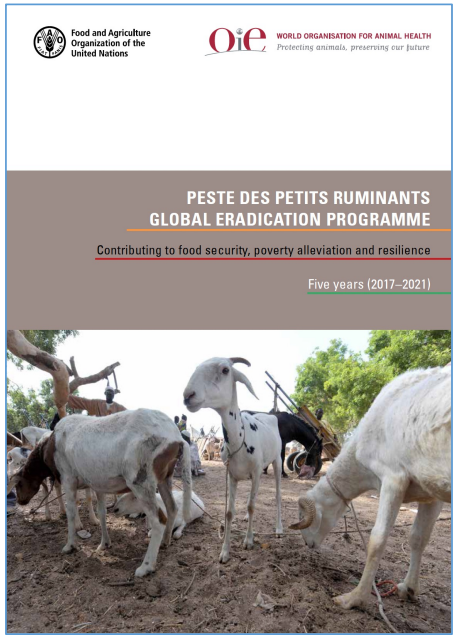
Causes high morbidity and mortality & impacts food security

Classified as a priority disease by the GF-TADs

Eradication of PPR by 2030



2015



2017 - 21

GF-TADs: FAO-OIE Global Framework for the Progressive Control of Transboundary Animal Diseases

PPR in the ASEAN region

Historically free from PPR

Detection of PPR antibodies in Vietnam in 2008

Animal Biodiversity and Emerging Diseases: Ann. N.Y. Acad. Sci. 1149: 259–262 (2008).

ANIMAL BIODIVERSITY AND EMERGING DISEASES

Examples of Probable Host–Pathogen Co-adaptation/Co-evolution in Isolated Farmed Animal Populations in the Mountainous Regions of North Vietnam

Jean-Charles Maillard,[a] Kiem Phan Van,[b] Tung Nguyen,[c] Thu Nhu Van,[b] Cecile Berthouly,[a] Genevieve Libeau,[d] and Olivier Kwiatek[d]

Five positive and ten suspicious cases

Serological evidence of PPRV in Laos in 2019

Received: 3 October 2018 | Revised: 18 November 2018 | Accepted: 30 November 2018
DOI: 10.1111/tbed.13109

ORIGINAL ARTICLE

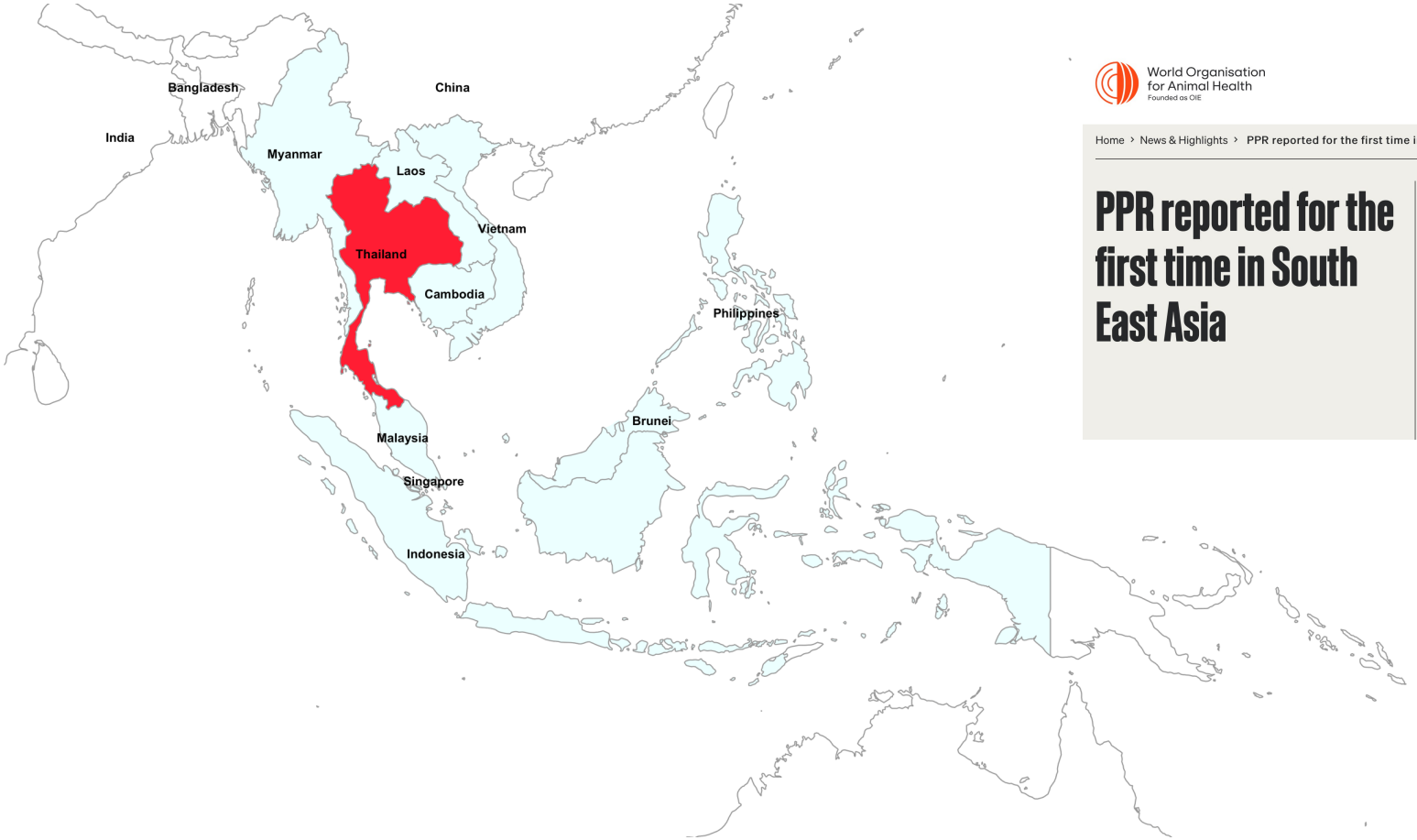
WILEY Transboundary and Emerging Diseases

Peste des Petits Ruminants (PPR) virus serological surveillance in goats in Lao PDR: Issues for disease eradication in a low-resource disease-free setting

Rebekah J. L. Burns[1] | Bounlom Douangngeun[2] | Watthana Theppangna[2] | Mavuto Mukaka[3,4] | Matthew D. Wegner[5] | Peter A. Windsor[1] | Stuart D. Blacksell[3,4,6]

2.2% seroprevalence
2.7% of sera doubtful

Introduced in Thailand in 2021



World Organisation for Animal Health
Founded as OIE

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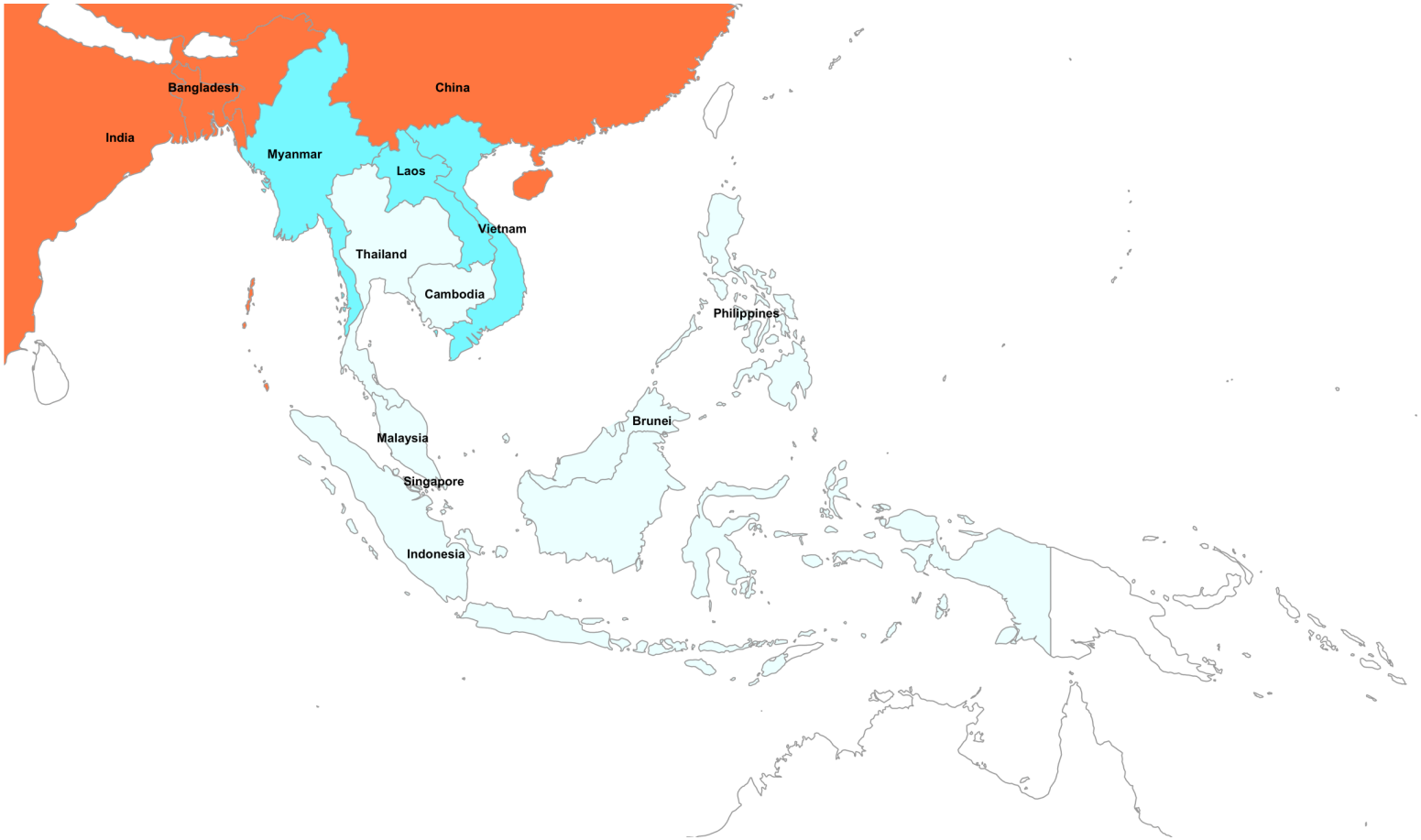
Home › News & Highlights › PPR reported for the first time in South East Asia

PPR reported for the first time in South East Asia

PPR in the ASEAN region



Myanmar, Laos and Vietnam share border with PPR positive countries

Need to be prepared for an introduction of PPR or an incursion of PPRV from endemic countries

Objectives

- Enhance the knowledge and skills of the key staff from national veterinary services on PPR through virtual training.
- Understand the risk of PPR incursion and countries' preparedness through risk assessment
- Enhance early warning and response to PPR incursion in the ASEAN region through the development of ASEAN PPR Preparedness Strategy.

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Risk analysis

Image courtesy: FAO

What is a risk analysis?

"A tool intended to provide decision-makers with an objective, repeatable and documented assessment of the risks posed by a particular course of action."

Rev. sci. tech. Off. int. Epiz., 2003, 22 (2), 397-408

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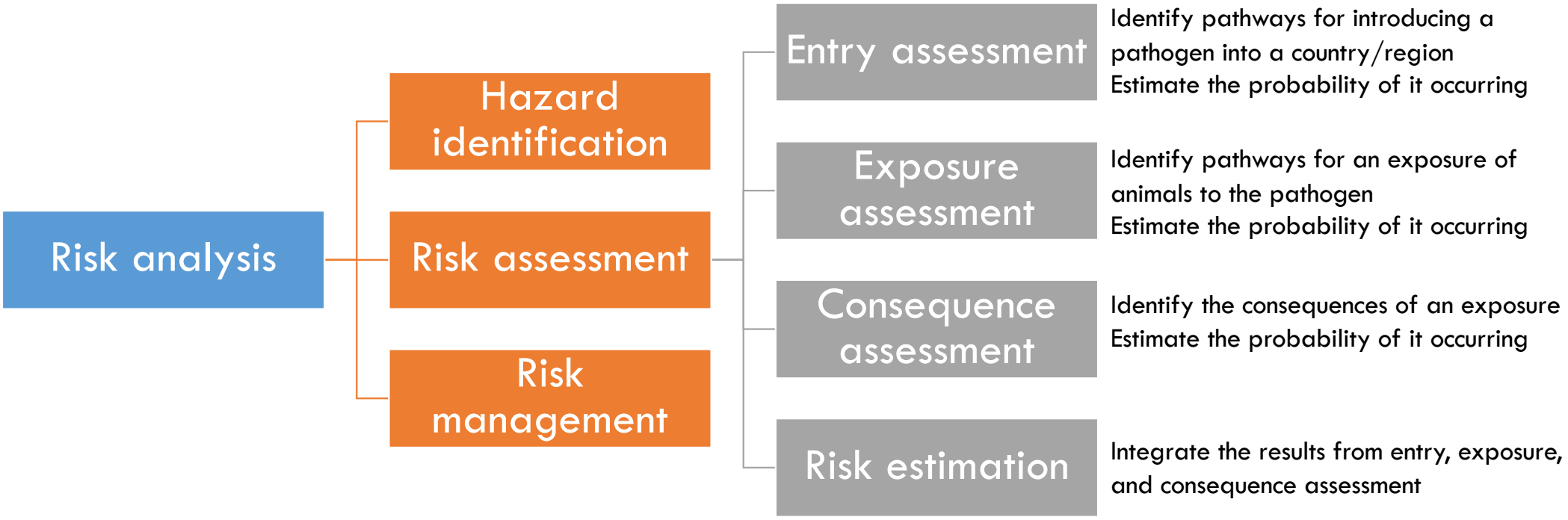

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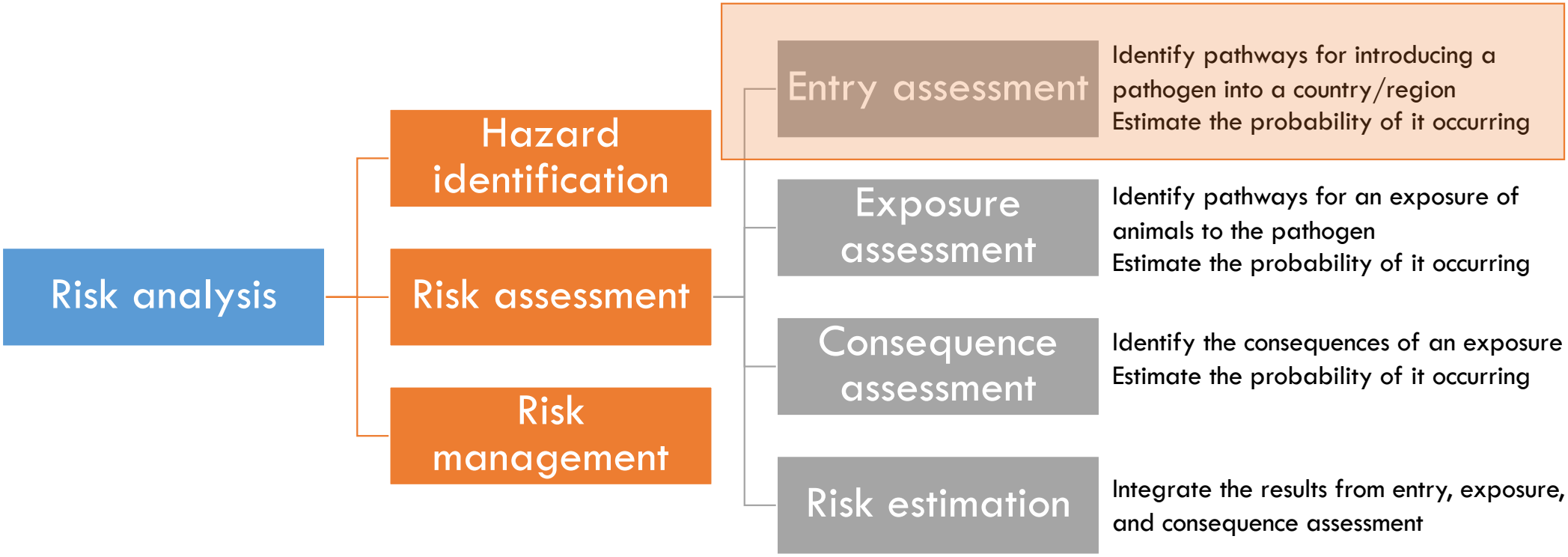


Objectives of PPR risk assessment

Identify the pathways of the introduction of PPRV into the ASEAN region

Collect and analyse data

Estimate the likelihood of the introduction of PPR into the ASEAN region

Risk pathways being considered

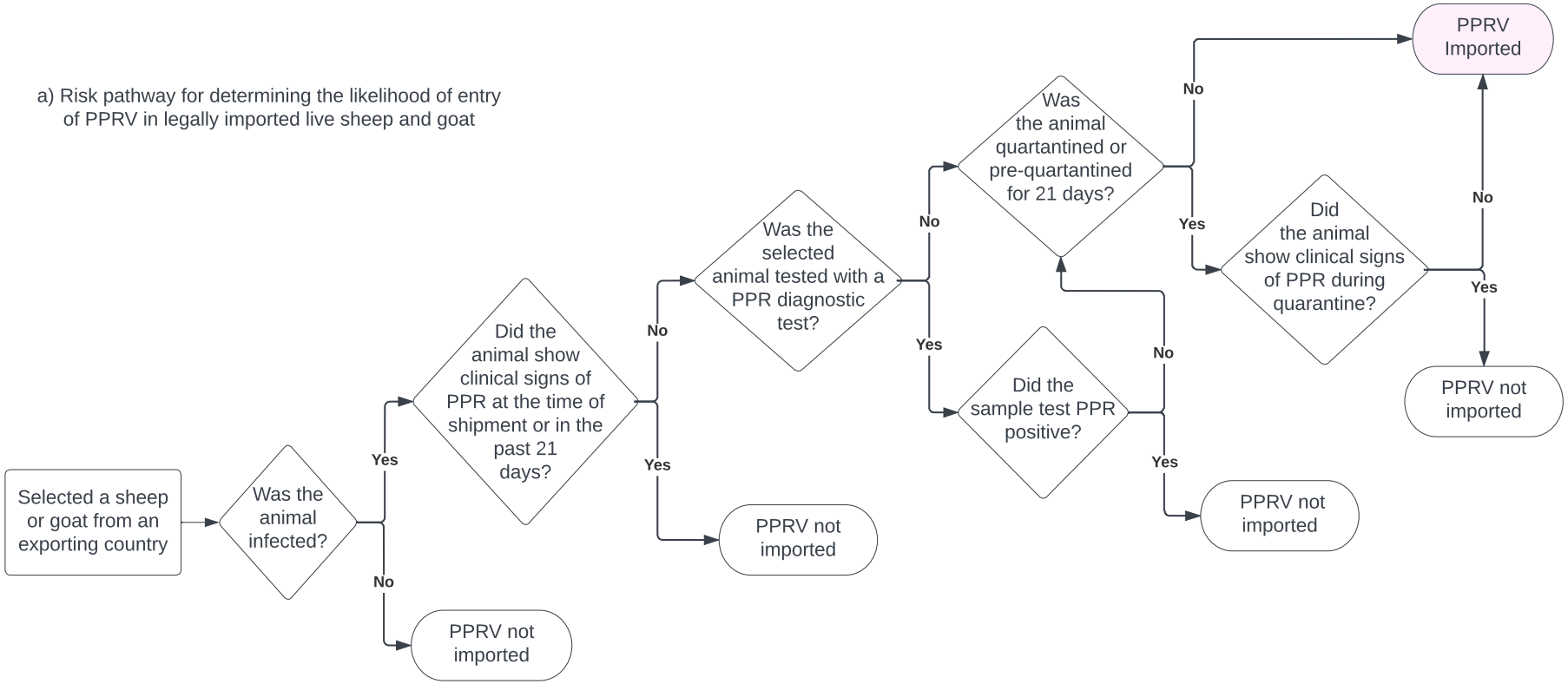
Importation of live domestic sheep and goats through legal or illegal trade

Importation of chilled and frozen sheep/goat meat and tissues through legal or illegal trade

Importation of sheep/goat semen and embryos through legal trade

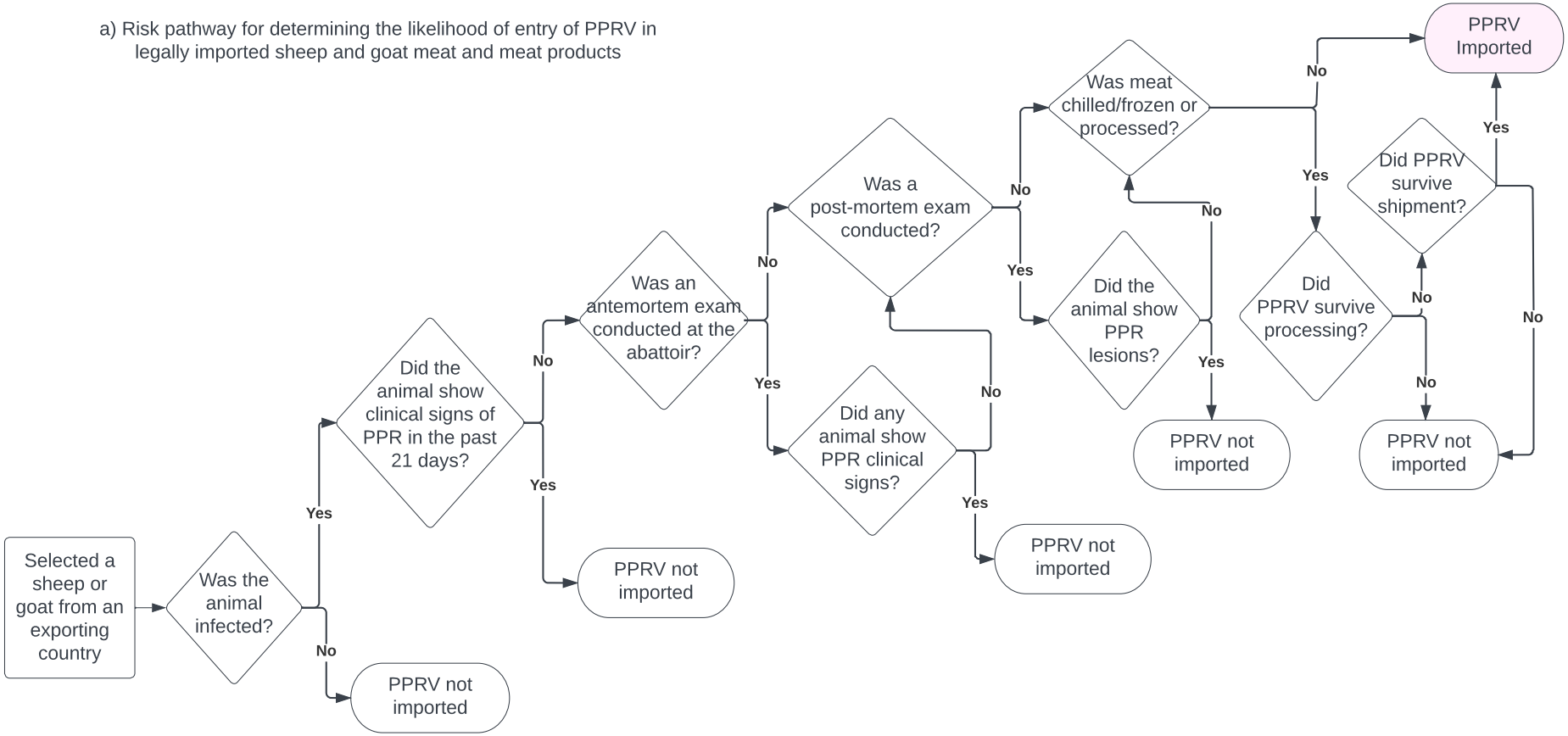
Draft pathway for importing live animals

a) Risk pathway for determining the likelihood of entry of PPRV in legally imported live sheep and goat



Draft pathway for importing meat and meat products

a) Risk pathway for determining the likelihood of entry of PPRV in legally imported sheep and goat meat and meat products



Example: Data analysis for live animal import

The volume of trade and the PPR status of the exporting country

Importing country: Indonesia

Exporting country	2002	2003	2004	2005	2006	2007	2009	2010	2012	2013	2015	2018	2019	2020	PPR status
China		1498													Present
Hong Kong			7												Absent
Japan				0											Absent
Malaysia							1	0							Absent
Thailand		35713		3											Absent*
Australia	3		10	14	151	6093			219	83	467	1400	714	645	Free
Czechia								10							Free
Netherlands		821						13							Free
Singapore													0		Free
South Korea						5								0	Free
UK		2													Free
USA			1												Free

Data courtesy, FAO STAT

Example: Data analysis for live animal import

The volume of trade and the PPR status of the exporting country

Importing country: Malaysia

Exporting country	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	PPR status
Bangladesh						12															Present
China						24000					26										Present
India				532		70															Present
Brunei Darussalam					100												107	15			Absent
Indonesia	348	70	644	6512	5963	25348	32104	26762	8962	3091	5064	1047	872		235		210	3250	800	4295	Absent
Malaysia	1799								2												Absent
Myanmar								1500		2739	250		990								Absent
Namibia	1300			53			395														Absent
Thailand		535																2220			Absent*
Cyprus									496												Free
France											204										Free
Germany										900											Free
Australia	42755	57553	60508	53398	61516	83337	93579	87950	93207	97687	75653	84455	112662	124702	131907	118264	48418	54352	51169	33066	Free
Netherlands				8			39											40			Free
New Zealand	860					268	289		164	40	386										Free
Singapore	155																				Free
South Africa								2256	179				31					426			Free
South Korea																	460				Free
USA				12		300		871													Free

Data courtesy, FAO STAT

Example: Data analysis for live animal import

The volume of trade and the PPR status of the exporting country

Importing country: Thailand

Exporting country	2002	2003	2004	2005	2006	2007	2008	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	PPR status
Bangladesh				2	10										16				Present
Benin																		21	Present
China			936	463	701	260													Present
Ethiopia																		16	Present
Ghana																		65	Present
Saudi Arabia										132									Present
Togo																17	64	91	Present
Tanzania				54															Present
Japan									1										Absent
Laos										20									Absent
Malaysia								60				2	7						Absent
Myanmar		2826	9550	2715					1	400	59	4200	3100	65001	66338	58766	22620	86324	Absent
Australia			783	41	82	420	162	341			72	51				192	5881	90	Free
Brazil										105									Free
Canada			6																Free
Cyprus																1140			Free

Data courtesy, FAO STAT

Criteria to estimate the likelihood

Risk category	Definition
Negligible	The event is almost certain not to occur except in exceptional circumstances.
Very low	The event is very unlikely to occur.
Low	The event is unlikely to occur.
Moderate	The event may occur.
High	The event is highly likely to occur.

Example: Qualitative risk estimate

Based on the volume of trade and the PPR status of the exporting country

Country	Risk estimate
Brunei Darussalam	Very low
Cambodia	Very low
Indonesia	Low
Laos	N/A
Malaysia	Moderate
Myanmar	N/A
Philippines	Negligible
Singapore	Negligible
Thailand	High
Viet Nam	Negligible

Combine probabilities

	Probability 2					
Probability 1	Negligible	Very low	Low	Medium	High	Very high
Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Very low	Negligible	Negligible	Very low	Very low	Very low	Very low
Low	Negligible	Very low	Very low	Very low	Low	Low
Medium	Negligible	Very low	Low	Medium	Medium	Medium
High	Negligible	Very low	Low	Medium	High	High
Very high	Negligible	Very low	Low	Medium	High	Very high

Workshop early November

Express your interest to Dr Karma Rinzin in attending a workshop to create risk pathways and conduct PPR risk assessment

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Preparedness

Image courtesy: FAO

Preparedness

Measures to ensure that a country/region can effectively respond to an emergency

Early Detection

Rapid Response

We cannot always predict an emergency, but we can be prepared for it

Keith Hamilton, Head of the Preparedness and Resilience Department at WOAH

Preparedness elements

An effective surveillance system	Trained veterinary workforce	Relationships with stakeholders	Adequate resources
Adequate laboratory capacity	Legal framework	Coordination	Awareness and engagement

The ASEAN PPR Preparedness strategy is likely to be drafted by early next year…

Summary

PPR training

PPR risk assessment

To be completed by November 2022

ASEAN PPR Preparedness Strategy

Aiming to complete by February 2023

Thank you

Image courtesy: FAO