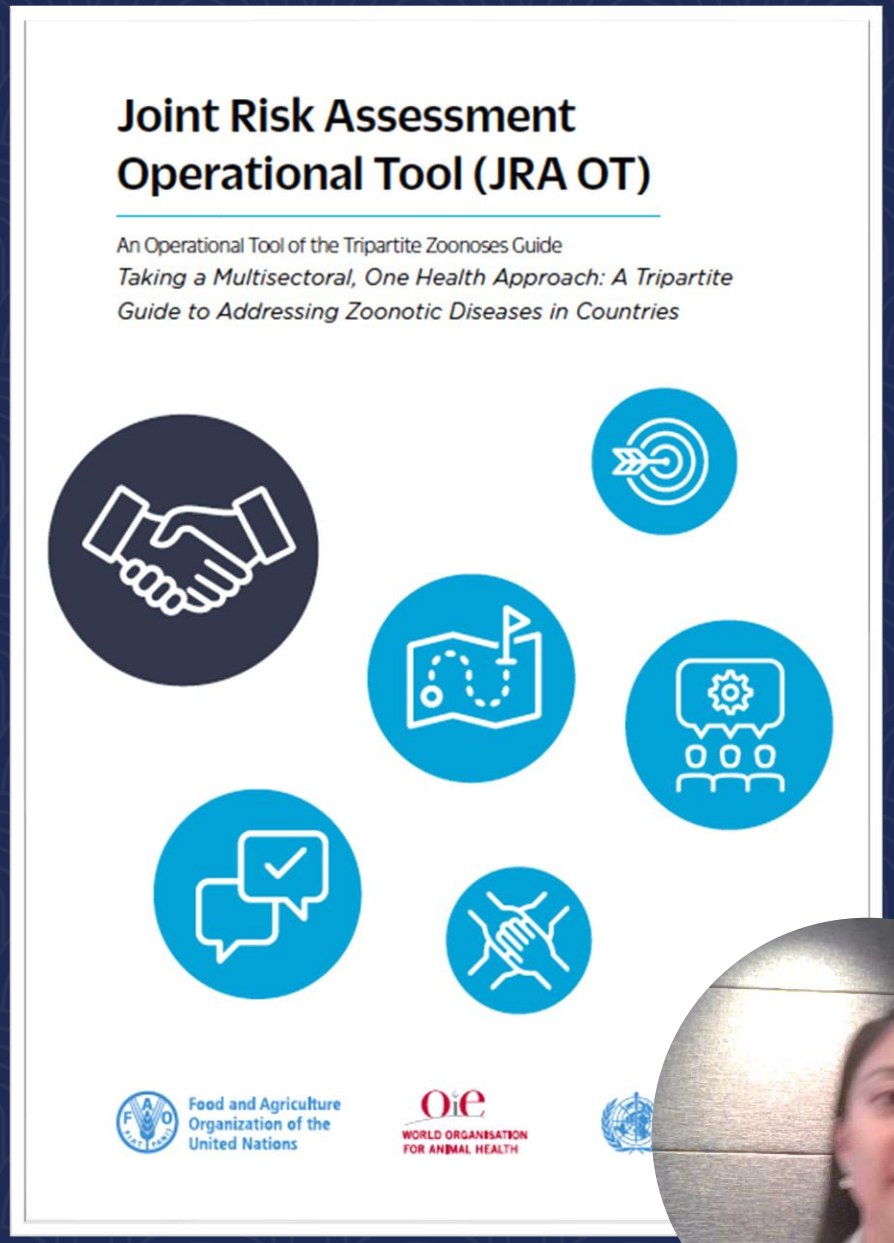
Joint Risk Assessment Operational Tool (JRA OT)

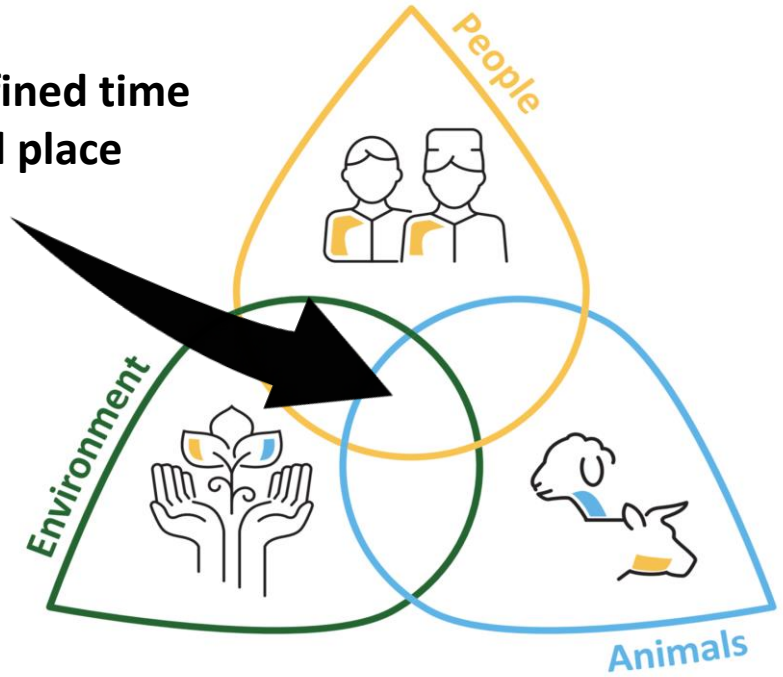
Dr Ong-orn Prasarnphanich

WHO, Geneva



SCOPE OF JOINT RISK ASSESSMENT

Defined time and place



Animal health sector

Sector specific assessment

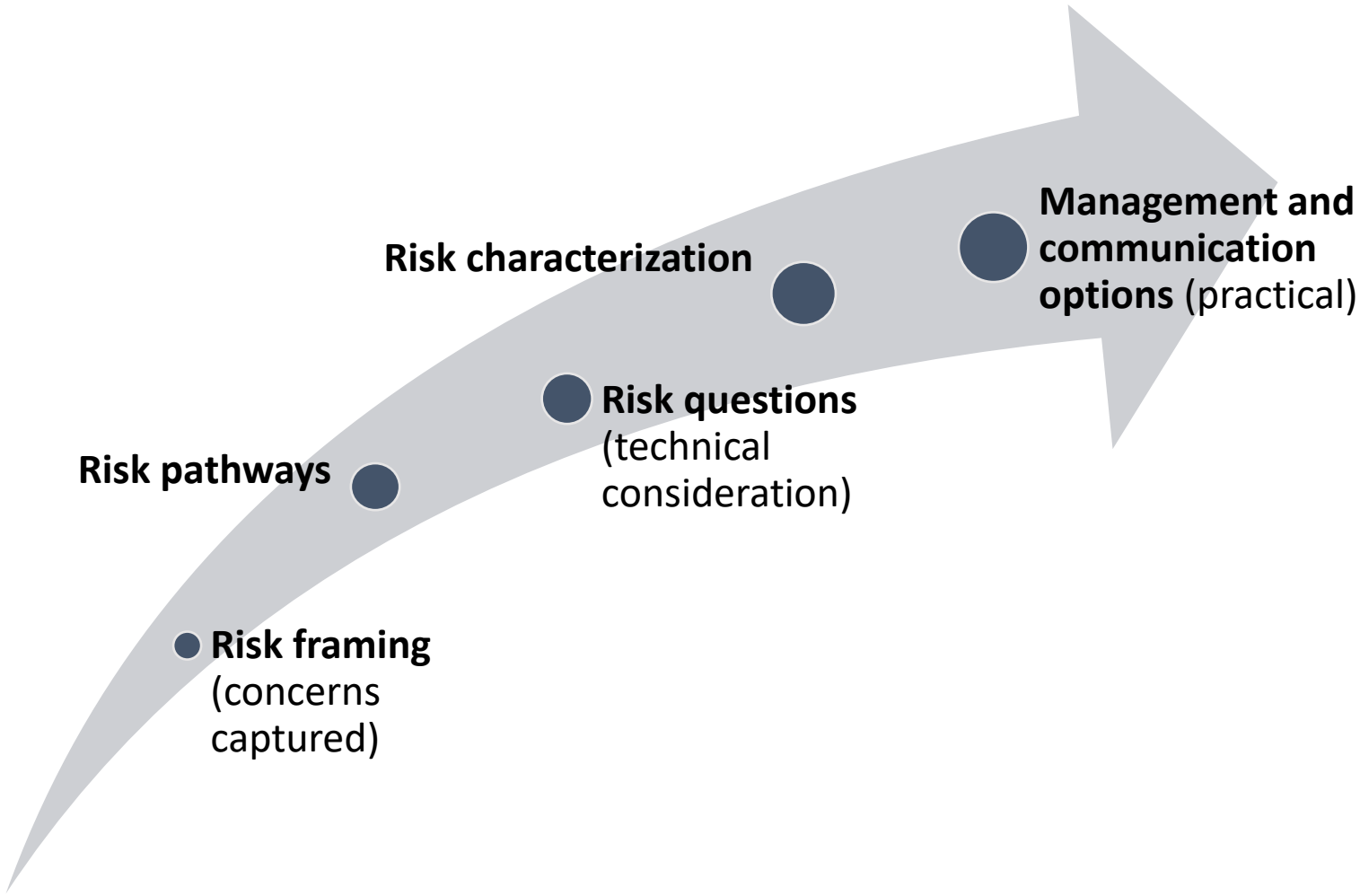
Multiple sectors

Joint risk assessment

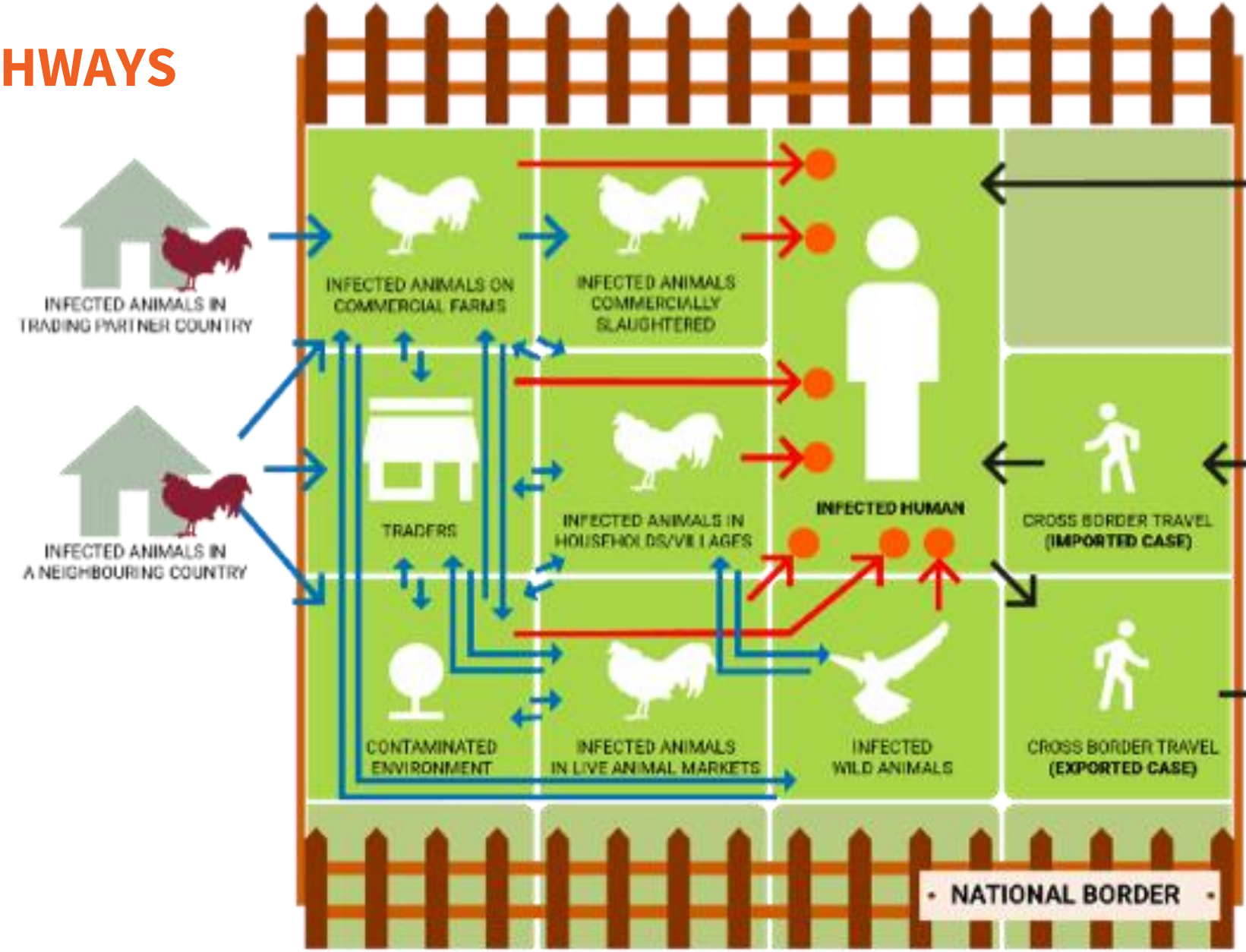
Human health sector

Sector-specific assessment

TECHNICAL STEPS OF THE JOINT RISK ASSESSMENT



RISK PATHWAYS

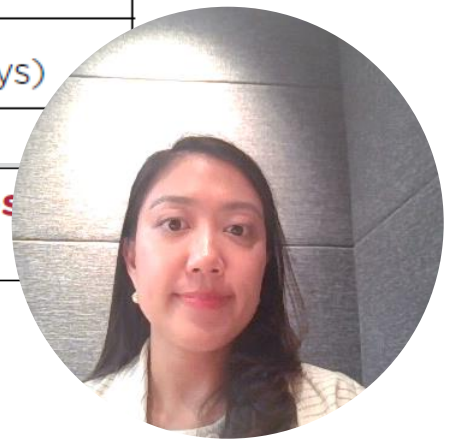


FORMULATE RISK QUESTIONS

- Starting with: **What is the likelihood and impact of…**
- Specific, relevant, time-bound

WHAT	**hazard** and **event** (as agreed during risk framing)
WHERE	**population** and **location**
WHEN	**timeframe**
HOW	**source** (may be refined/decided/finalised later, after discussing the risk pathways)

What is the likehood and impact of at least one consumer in the country being expos
influenza A (H7N9) virus in a live bird market in the next 6 monts?

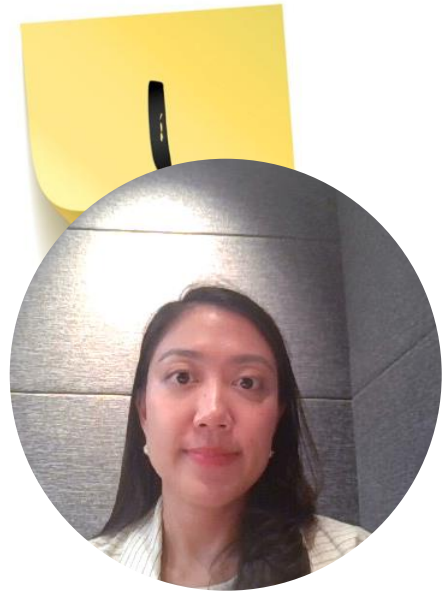


RISK CHARACTERISATION

- For each risk assessment question:
  - Examine associated risk pathway
  - Estimate **likelihood**, **impact** and assign **uncertainty**

- Record rationale and key information in report template (Annex F)

- **Important:** If lacking information, try to estimate likelihood and impact accurately, then assign high uncertainty



PLOT ESTIMATES

- Done **for each** risk assessment question
- Helps link risk to potential risk management options
- Estimates are **NOT** combined

Figure 8: Risk matrix, p. 44

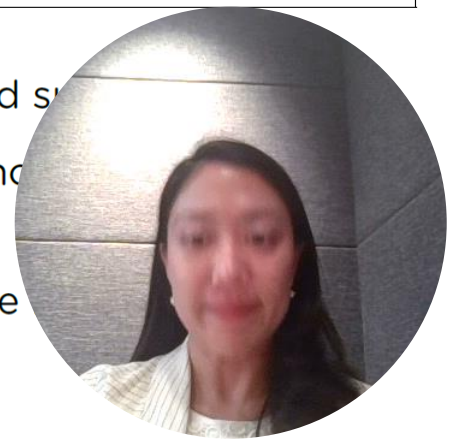
Likelihood					
	High				
	Moderate			X	
	Low				
	Negligible				
		Negligible	Minor	Moderate	Severe
		Impact			

Example

Red: critical to implement mitigation measures (increased s

Yellow: review and adjust mitigation measures (surveillanc
or linked with existing surveillance activities);

Green: maintain current mitigation measures (surveillance

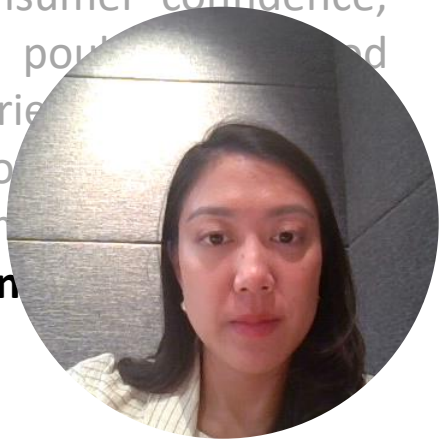


QUALITATIVE TECHNICAL INTERPRETATION

Example: Characterize risk for HPAI (H5N1)

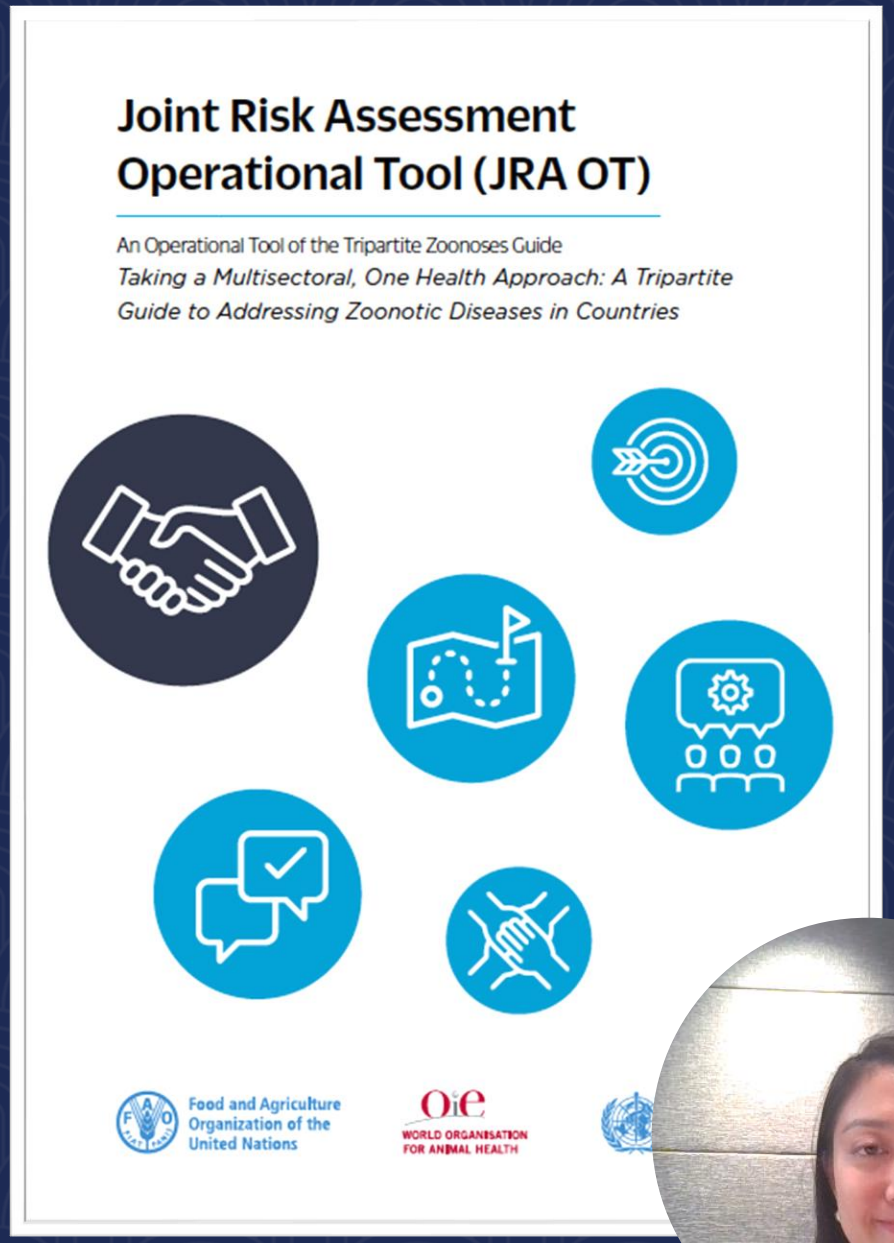
The JRA technical team assessed the ***likelihood and impact of at least one human in the Lake Tonka Region being exposed to HPAI (H5N1) from infected backyard ducks in the next three months***, and concluded that the likelihood and impact are both moderate. This conclusion **assumed** that there is the possibility of importation of infected poultry from affected neighbouring countries because there is no inspection occurring at border points.

The **moderate likelihood estimate** is based on data available concerning birds migrating to the country from affected countries, as well as numerous published studies on research conducted in other countries, which found live bird markets, similar to those present, to be high risk for disease transmission. The **moderate impact estimate** for HPAI (H5N1) incursion is based on estimating economic losses due to loss of poultry stock and consumer confidence, unavailability of human vaccines, high human case fatality rate, and the country's reliance on pou[illegible]d source, conversely weighed against lack of human-human transmission demonstrated in other countrie[illegible] latter point lowered the impact compared to other potential disease events. The **uncertainty** for bo[illegible] due to the availability of reliable information. Although only a limited quantity of information com[illegible] country, there is extensive research on the disease in several neighbouring countries...[**continues in [illegible] management and risk communication options**]



More information on JRA OT

https://www.who.int/initiatives/tripartite-zoonosis-guide



Institutionalizing the Joint Risk Assessment Operational Tool in Canada

Public Health Agency of Canada Perspective

Prepared by: Drs Sharon Calvin & Jan Trumble Waddell

Public Health Agency of Canada | Agence de la santé publique du Canada

Canada

Creating a Framework to Conduct Multi-Sectoral, One Health and Other Risk Assessment Products

Critical Success Factors: Organizational Readiness & Scientific Leadership

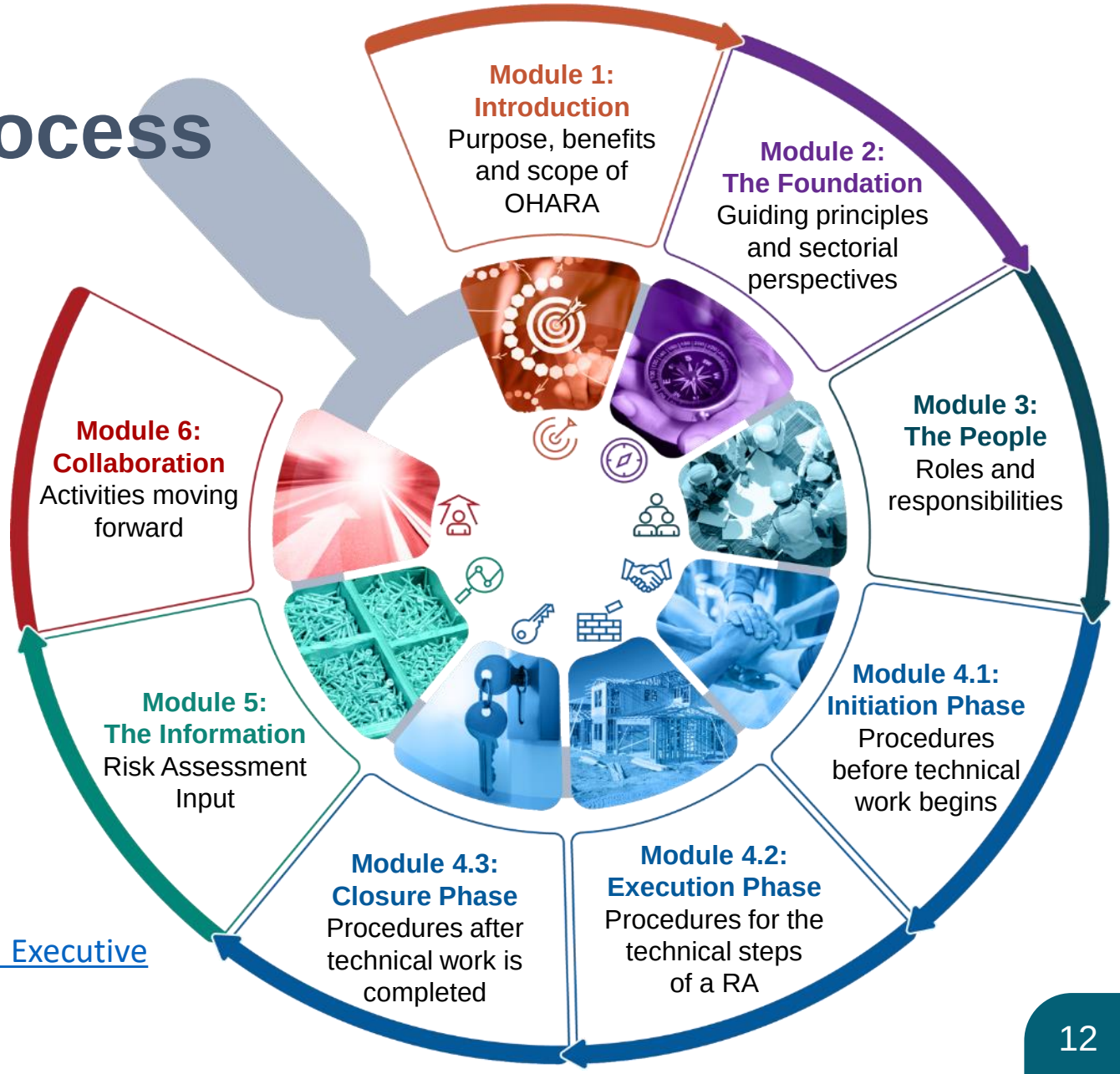
- Governments/sectors need to **understand,** and therefore **prepare for** and **act on**, the many threats that cross sectoral boundaries
  - Leverage an existing international gold standard tool
  - Flexibility in the OT to adapt to fit within the parameters
  - Provides foundation, principles and key activities to ensure a comprehensive quality product that can be leveraged to inform response, planning and preparedness activities
- Scientists, technical experts and risk assessors need to **collaborate** to **integrate** and **interpret** evidence and implement actions in the relevant sectors
  - Provides support and clarity of roles and responsibilities
  - Mechanism to work on areas of concern
  - Strengthen networks, interactions and co-development of scientific products

Transition JRA OT to a Process

OHARA

One Health Approach to Risk Assessment in Canada

A series of modules aimed at risk assessors and those who request risk assessments, within multiple sectors and disciplines in Canada.



[One Health Approach to Risk Assessment: Executive summary - Canada.ca]

Applying the Adapted JRA OT

Key Lessons Learned:

- Establish support across federal multi-sectoral levels prior to conducting a RA
- Establish a clear roadmap for action yet flexible to work around established processes and standards within the scientific and technical community
- Specific details needed to be adapted – e.g. establishment of a workshop format was unlikely going to work in the current context

Challenges:

- Active multi-sectoral participation when the areas of responsibility do not align perfectly to areas of accountability,
  - Competing priorities, lack of resources, differing opinions on whether a risk assessment should be done
- Finding a balance between the level of detail and considerations to support response and planning efforts
- Difficult to adapt the steps (e.g., Steering Cmte and all) to a very rapid risk assessment process
- Dealing with high uncertainty and knowledge gaps.

Examples:

- Multi-Sectoral Risk Assessments: Public Health Considerations Associated with Chronic Wasting Disease, Public Health Considerations associated with *Salmonella* spp. in Canadian poultry products, Avian Influenza A(H5N1) clade 2.3.4.4b
- Other Risk Assessments built off the JRA OT: Measles in Canada, Clades 1a and 1b mpox virus (MPXV) multi-country outbreaks, Oropouche virus,

World Health Organization
Western Pacific Region

World Health Organization
Viet Nam

Institutionalizing Joint Risk Assessments for Zoonotic Diseases in Viet Nam

Dr Hien Do
Epidemiologist
WHO Country Office Viet Nam

Dr Jessica Kayamori Lopes
Technical Officer One Health and Zoonoses
WHO Regional Office for the Western Pacific

The JRA OT journey in Viet Nam

- JRA OT contextualized and translated
- Trainings provided (national and regional levels)

Refinement and adaptation based on experience from actual application

Tripartite JRA Regional Facilitators Training
2018 (Italy)

JRA OT Publication
2020

2019
Tripartite JRA Regional piloting
(Da Nang - Viet Nam)

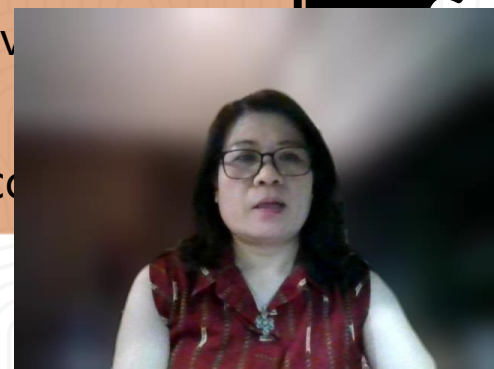
Development National JRA Guideline
2023

Institutionalization process

2024

2025 ...

Application of JRA OT in various zoonotic disease ev
Avian influenza A(H5N1), A(H5N6), A(H5N8), A(H9N2)
Swine influenza A(H1N1)v | Rabies | Anthrax | Streptococ



WHO Information Network for Epidemics (EPI-WIN)

Tripartite Joint Risk Assessment - Regional Facilitators Training
19-21 September 2018 - FAO Headquarters, Rome, Italy

Viet Nam piloted the tripartite Joint Risk Assessment (JRA) tool (2019)

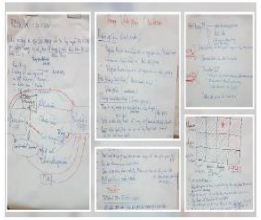
JRA workshop Viet Nam Feb. 2019

Group discussion & reporting back

The tripartite operational tool for conducting multisectoral risk assessments was piloted in Viet Nam during a three-day Coordinated Surveillance Joint Risk Assessment Workshop from the 20-22 February 2019. Over 60 national experts, including technical and policy level representatives of human health, animal health and wildlife conservation from national and provincial level came together for this workshop in Da Nang, Viet Nam. The workshop jointly assessed risk pathways and health risks at the human-animal-environment interface using coordinated surveillance data from the longitudinal influenza surveillance network (LISN) implemented in country from 2016-2018. The workshop was hosted by the Ministry of Health (MOH) in collaboration with the Ministry of Agriculture and Rural Development (MARD), with technical support from the three-levels of the World Health Organization (WHO), Food and Agriculture Organization (FAO) and the World Organization for Animal Health (OIE).

While participants all agreed that validity of JRA outcomes heavily relies on quality of data and information feeding into the JRA process, it was also acknowledged that by working jointly and in a systematic manner, the assessed risk levels become more objective and evidence-based, allowing for prioritized risk mitigation measures and communication messages. This joint approach helps in aligning and coordinating response efforts among relevant stakeholders. The JRA tool had been translated into Vietnamese prior to the workshop and all group discussions were held in the local language, with simultaneous translation for the international experts. The workshop reached a consensus on the value of JRA tool in facilitating further the existing risk assessment platform in Viet Nam and the highlighted need to adapt the tool for a better application in the country for avian influenza and other zoonotic disease events.

Feedback and lessons learned from the pilot workshop in Viet Nam have contributed toward finalization of the operational JRA tool, which supported the newly released Tripartite Guide to Addressing Zoonotic Diseases in Countries in 2019. As multisectoral collaboration and JRA are important national operational capacities under the International Health Regulations – IHR(2005), the JRA can further assist member countries in their efforts to support Global Health Security Agenda (GHSA) and IHR.



JRAs roll-out in Viet Nam

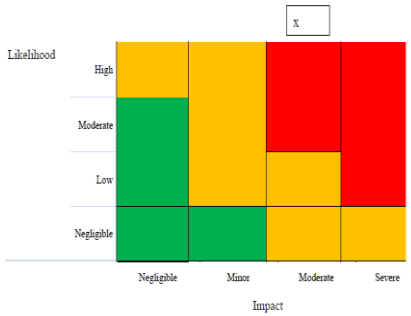
Key Enablers and Remaining Challenges

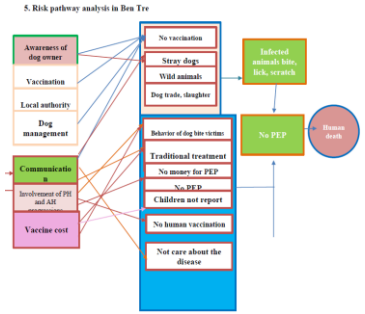
JRA OT - Viet Nam

Enablers

- **Government recognition** of risk assessment as a key tool for **public health decision-making**.
- High value placed on JRA by relevant sectors for enabling informed, coordinated **One Health responses**.
- **Sustained commitment** from human and animal health sectors since pilot implementation
- **Trusted technical expertise** from WHO and FAO, with strong collaboration and coordination between agencies.

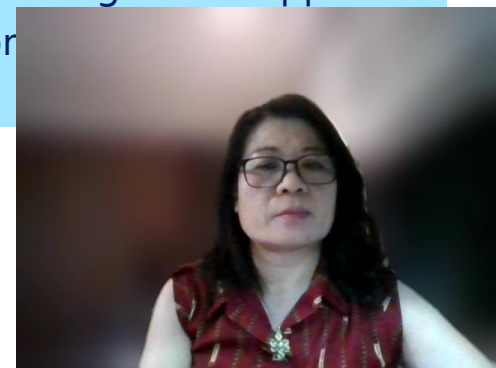
Consultation workshop to finalize National JRA Guideline
Ha Noi, 10-11 Aug 2023





Challenges

- Variations at national and subnational levels: technical capacity, awareness of and commitment to JRA.
- Suboptimal participation from sectors beyond human and animal health (*i.e.* environment, food safety, trade, security…).
- Lack of collaborative follow-up actions after and in-between JRAs.
- Prolonged pending official approval on the Natior



Moving forward

JRA OT - Viet Nam

Ensure RA/JRA is a pivotal component in epidemic intelligence

- *Disease Prevention Law*
- *National One Health Strategic Plan (2026-2030)*

Finalize the institutionalization process of JRA in Viet Nam

- *Official approval of the National Guideline*
- *TOT cascade training to build capacity for OH workforce*

Continue to conduct JRA for zoonotic and climate sensitive events

- *National and subnational levels*
- *Participation from relevant sectors and Quadripartite partners*

Country examples: national to sub-national rolling out

Rolling out of JRA OT: Methodology and Process, from the National to the State levels in Nigeria

Dr Nasir Ahmed

WHO Information Network for Epidemics (EPI-WIN)

World H
Organiza

National Operationalisation Workshop

Methodology:

- Workshop with a combination of presentations, plenary discussions and group work approaches
- Both online and in-person participants across the Human, animal and Environmental Health sectors
- Rabies and Lassa fever scenarios
- One state team was invited

National Operationalisation Workshop 2021

JRA Workshop on Anthrax and Invasive Blue Tick

Methodology:

- Workshop with a combination of presentations, plenary discussions and group work approaches
- In-person participants
- Three (3) participants/state (Kano, Kebbi and Enugu) across the Human, animal, and Environmental Health sectors

JRA on Anthrax and Invasive Blue Tick 2022

Subnational JRA Workshops

Methodology:

- Workshop with a combination of presentations, plenary discussions and group work approaches
- Lassa fever, Avian influenza

Rivers state JRA workshop 2022

Methodology:

- Workshop with a combination of pre-/post-test and evaluation, presentations, plenary discussions and group work approaches
- Completed the online JRA training (Open WHO)
- Yellow fever, Mpox, Rabies

Ebonyi, Kaduna and Jigawa states JRA workshop: 2024

JOINT RISK ASSESSMENT IN ZAMBIA

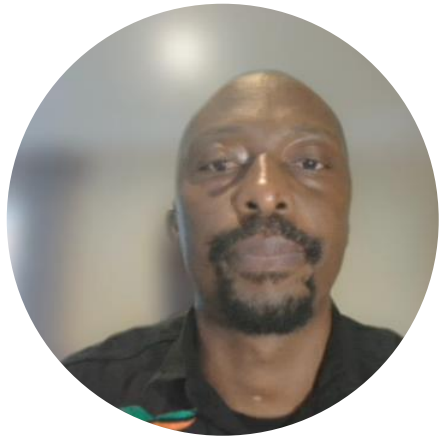
JRA in Zambia following OHZDP Workshop

19th August 2025

Dr Raymond Hamoonga

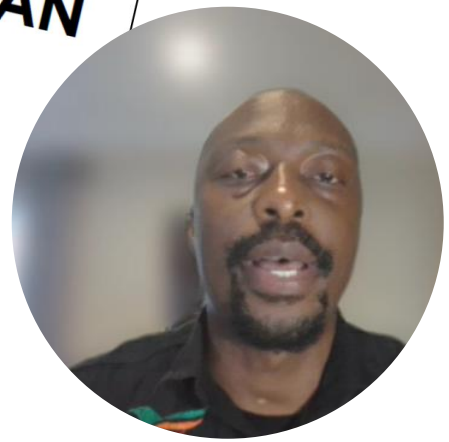
National One Health Coordinator, ZNPHI

raymond.hamoonga@znphi.co.zm



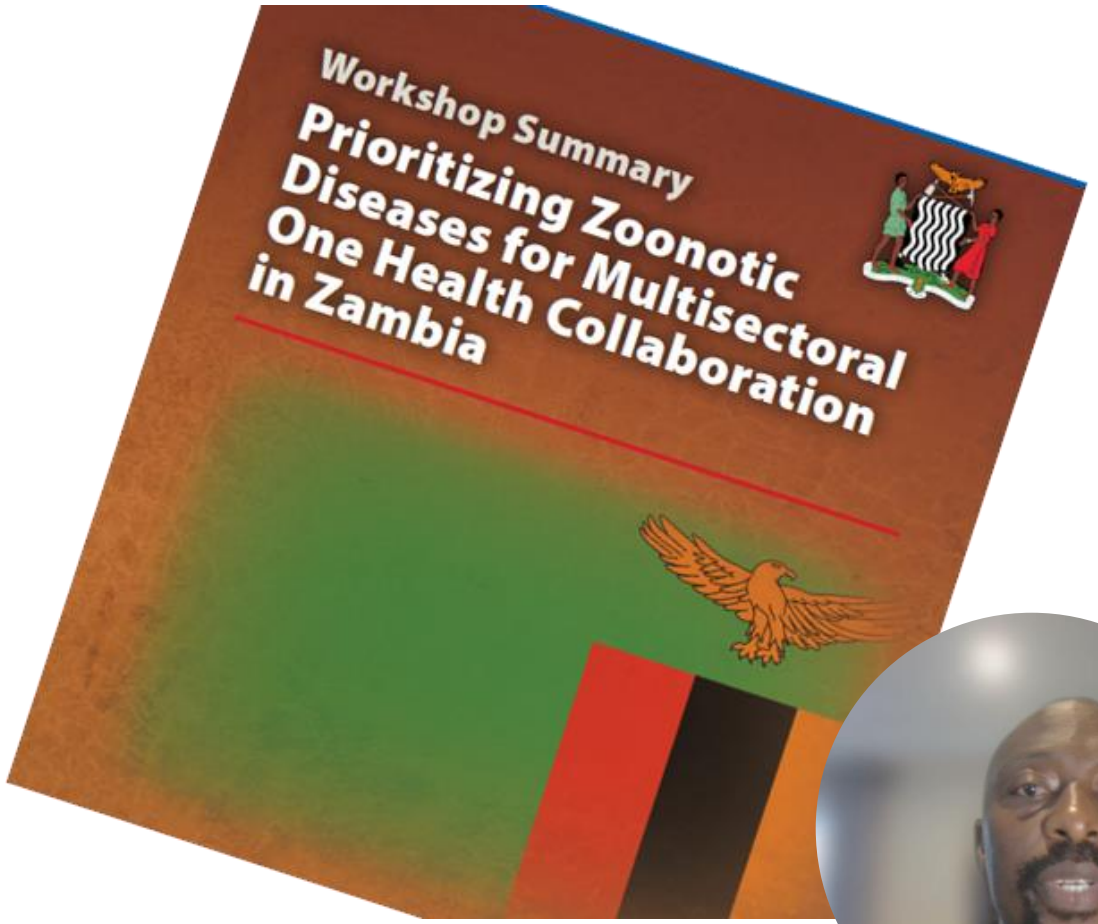
Zambia's Joint Risk Assessment (JRA) Journey

- One Health collaboration: human, animal, environment sectors
- Preceded by IHR-PVS National Bridging Workshop
- 2023: OHZDP workshop with >70 participants
- Identified 10 priority zoonotic diseases for Zambia
- Goal: Apply JRA methodology to assess risks and guide preparedness



Conducting the JRAs

- Total sessions: 3
  - Session 1: 3 diseases
  - Session 2: 3 diseases
  - Session 3: 4 diseases
- Scope: Risk scoring, drivers, likelihood, and potential impacts
- Multi-sector participation led by ZNPHI
- Outcome: Shared risk profiles for priority zoonoses



Impact & Way Forward

- Achievements:
  - Multi-sectoral risk understanding for all 10 priority zoonoses
  - Strengthened inter-sectoral trust
  - Evidence base for coordinated risk reduction
- Ongoing:
  - Drafting manuscripts to document methods & results
  - Refining preparedness and response plans
  - Integrating JRA outputs into One Health emergency risk management

Priority Zoonotic Disease List

- African Trypanosomiasis
- Anthrax
- Enteric Diseases (Salmonellosis)
- Viral Haemorrhagic Fevers (Ebola)
- Rabies
- Plague
- Influenza like Illnesses (Zoonotic Avian Influenza)
- Zoonotic Tuberculosis (ZTB)
- Cysticercosis and
- Brucellosis

Regional and subsequent country implementation

EPI-WIN

Applications of the One Health Joint Risk Assessment Operational Tool (JRA OT)in EMRO

Dr. Heba Mahrous

One Health Technical officer

WHO Regional Office for Eastern Mediterranean

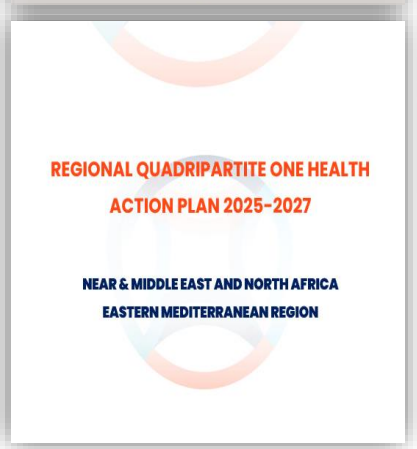
World Health Organization

Mission

- Supporting member states to operationalize One Health to establish coherent coordination across multiple disciplines and collaborative efforts and enhance preparedness and response capacities to reduce the burden of health threats at the human-animal-environment interface on EMR countries, populations' health, livelihood, and economy.

Achievements

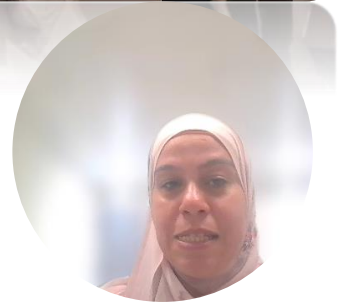
- 2 One Health regional meeting, May 2023 and June 2025
- Regional Quadripartite multisectoral coordination mechanism
- Regional Action Plan 2025-2027
- One Health Bulletin
- OH workforce developments (OHFETP)
- EMRO One Health taskforce
- EMR Youth Council One Health Working group, CBRN, IDS, Regional Health Alliance
- IHR, NAPHS, Simex and After-action reviews



JRA in EMRO

- The purpose of a JRA is to support risk mitigation efforts
- The objective of a JRA is to provide a basis for management or communication decisions

- April 2018- Up to date
- **Diseases** : Rabies, HPAI, CCHF, Brucellosis, RVF and MERS COV
- **Countries:** Afghanistan, Pakistan, Egypt, Libya, Morocco, Iraq, Qatar, UAE, Sudan and Tunisia
- 400 participants from MoH, MoA, and MoE



Conclusion

- An excellent entry point to kick off coordination and collaboration across sectors
- Resource mobilization
- Preparations of global events
- Addressing gaps in the current mitigation measures of zoonotic diseases and update plans, guidelines, protocols and strategies

Thank you

EPI-WIN

Implementation of JRA OT in Jordan

Dr. Lora Alsawalha

Public health officer and One Health FP

WHO Jordan

World Health Organization

- One Health approach has been clearly and highly recognized by health sectors officials, and the road map has been drawn and followed.
- Seven zoonotic diseases were identified as being of great significance including rabies, Middle East respiratory syndrome, avian influenza (AI), brucellosis, leishmaniasis, rickettsiosis, and salmonellosis
- Simulation exercise has been carried out on Avian Influenza involving all relevant sectors

:

https://youtu.be/gx6ld6cnTvo

JRA in Jordan

- To advance the implementation of OH approach in Jordan, JRA training workshop was conducted in Jordan in 2022 and delivered by WHO EMRO, and FAO RNE utilizing the Tripartite JRA OT.

- Representatives of sectors that are involved in zoonotic diseases outbreak investigation, control, surveillance and risk assessment, were trained on JRA operational tool to conduct risk assessment for rabies and H5N1 avian influ

JRA in Jordan :
https://www.emro.who.int/images/stories/ihr/documents/implementation_of_one_health_approach_in_jordan.pd

Conclusion

- JRA enables authorities in Jordan to implement science-based measures and align messages and communication among sectors.
- Jordan has undertaken multiple iteration of JRA on multiple diseases and the results have been used to
    - Develop Pandemic Fund Proposal
    - Update Rabies Surveillance and case management Protocol
    - Implement **WHO integrated global surveillance on ESBL-producing E. coli using a "One Health" approach**

Thank you

World Health Organization

Applying the JRA methodology in the Western Balkans

Peter Sousa Hoejskov
Technical Officer – Food Safety and Zoonotic Diseases
WHO Regional Office for Europe

World Health Organization

Subregional workshop on joint risk assessment for zoonotic diseases in the Western Balkans

The overall objective

To strengthen the capacity of countries/area in the Western Balkans to conduct joint risk assessments for priority zoonotic diseases and define priority follow up action at country/area level

Participants

21 multisectoral representatives from Albania, Bosnia & Herzegovina, Kosovo*, Moldova, Montenegro, North Macedonia and Serbia

Facilitators

WHO, FAO, WOAH and UNEP

Subregional workshop on joint risk assessment for zoonotic diseases in the Western Balkans, 11-13 Sept. Sarajevo, Bosnia and Herzegovina

WHO Information Network for Epidemics (EPI-WIN)

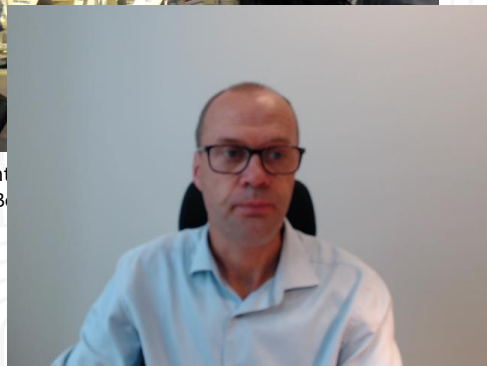
* All references to Kosovo in this document should be understood to be in the context of United Nations Security Council resolution 1244 (199

Workshop process and methodology

- Introduction of the JRA OT and the 10 steps for conducting JRA
- Mixed groups: Applying the JRA tool to zoonotic disease scenarios (Salmonellosis, Avian influenza, Crimean-Congo Haemorrhagic Fever (CCHF) and rabies)
- Country/area groups: Discussing next steps in operationalizing the One Health approach in general and institutionalizing the JRA process in particular

The workshop served as an excellent opportunity to advance the **operationalization of the One Health approach,** foster **collaboration across sectors and borders** and increase capacity to **conduct joint risk assessments** for zoonotic diseases

Subregional workshop on joint risk assessment
11-13 Sept. Sarajevo, B



Applying the JRA methodology in R.N. Macedonia

Prof D-r Golubinka Boshevska

Head of the Laboratory for Virology, Institute of Public Health

Faculty of Medical Sciences, University Goce Delcev Shtip

Dr Abebayehu Assefa Mengistu, WHE Balkan Hub

Dr Arta Kuli, WHO CO Skopje

World Health Organization

Activities in Macedonia with One Health approach

- **One health bridging workshop (2019)**
- **Joint external evaluation of IHR core capacities Republic of North Macedonia (JEE) (2019)**
- **Process od prioritization of zoonoses and vector borne diseases**
- **National Action Plan for Health Security (2023)**
- **Infectious diseases prioritization (2023)**
- **National action plan for surveillance of CCHF and Hantavirus (2024)**
- **Simulation exercise - to test the National action plan for surveillance of CCHF and Hantavirus (2024)**

Conclusions

Sub-regional workshop on Zoonotic Diseases in the Western Balkans 11-13 September 2024, Sarajevo, BIH

- **1.** High-level meeting between sectors
- - Coordination of activities to support One health initiative
- - Formalizing inter-institutional cooperation with the "One Health" memorandum
- - Expand the One Health approach with inclusion of the environmental component
- - Identification of the set of activities
- 2. **Engagement of relevant sector**
- **3. Support national training for JRA**
- 3. **Perform JRA for 3- 5 priority diseases** (*WNV, Leishmania, Salmonellosis*)

WORKSHOP ON JOINT RISK ASSESSMENT FOR PRIORITY ZOONOTIC DISEASES IN MACEDONIA , SKOPJE, 21-23 MAY 2025

Participants: technical staff and managers from the Ministry of Health including the IHR NFP, Institute of Public Health, regional Centers of Public Health in Skopje, Shtip and Bitola; Institute for Epidemiology and Statistics; State Environmental Inspectorate; Agency for Medicines and Medical Devices; Food and Veterinary Agency and the Veterinary Institute; WHE Balkan Hub, WHO CO representatives and FAO CO

Purpose - to train participants in conducting JRA using the One Health approach
Focus - selected priority zoonotic diseases: WNV fever, leishmaniasis and salmonellosis, by the **national technical planning team** for the workshop consisting of a microbiologist, an epidemiologist, a veterinarian and an environmental inspector

WHO Information Network for Epidemics (EPI-WIN)

World Health Organization

Tripartite Joint Risk Assessment Operational Tool (JRA OT)

JRA OT stepwise approach was followed

- short introduction to the JRA concept and tool
- presentations on the situation of hazards / priority diseases in Macedonia
- participants were divided into three groups - one group per disease
- risk pathway of the diseases are discussed, and a diagram was drafted
- formulation of risk assessment questions
- characterization of the risk for the respective diseases,
- estimation of the likelihood and impact and assigned uncertainties for each risk assessment question

each group presented risk assessments and proposed
erent targeted risk management options and risk
munication activities that can be implemented at the
nan- animal –environment interface

WORKSHOP ON JOINT RISK ASSESSMENT FOR PRIORITY ZOONOTIC DISEASES

Identified gaps

- Lack of formal intersectoral and inter-institutional collaboration and cooperation,
- In-depth integrated analytical epidemiological investigations,
- Systematic control of vectors and reservoirs
- Lack of awareness among professionals and general public
- Insufficient familiarity regarding the legal responsibilities of other institutions
- Sustainable financing for JRAs

Recommendations for follow up activities

- Development of a protocol for formal coordination between stakeholder institutions,
- Strengthening human resource capacity
- Revising and amending training curricula in the human and animal health sectors
- Raising awareness of vector-borne and food-borne diseases among the general population and various preventive measures using innovative approaches (social media, etc.)
- Adequate resources to implement One health activities

THANK YOU

World Health Organization

Specific examples of diseases used in JRA

Application of JRA-OT
Bhutan's experience

Dr. N Dahal

Bhutan OH Secretariat

World Health Organization

WHO Information Network for Epidemics (EPI-WIN)

JRA - Workshop

The workshop was conducted from 29th April to 4th May 2024 at Paro

Supported and facilitated by

World Health Organization

Food and Agriculture Organization of the United Nations

World Organisation for Animal Health

- The One Health Office in US CDC headquarters supported in preparation and plann
  including access to the online portal of the OHZDP tool.
- IMCOH chair opened the workshop
- Objectives of the workshop

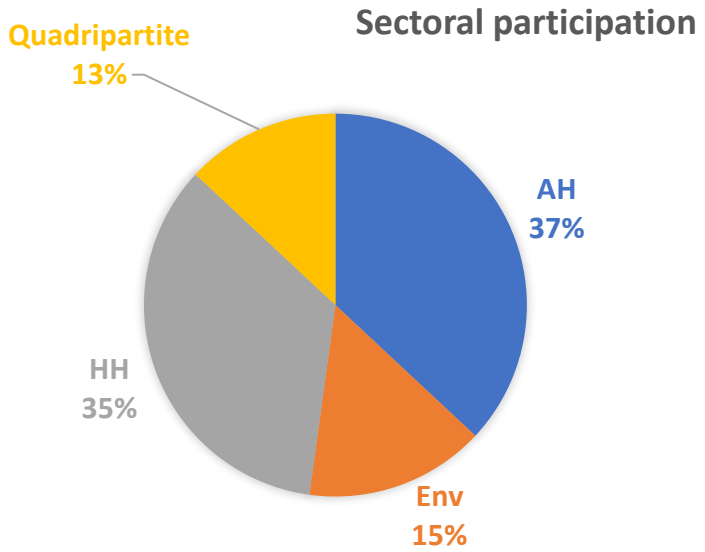
WHO Information Network for Epidemics (EPI-WIN)

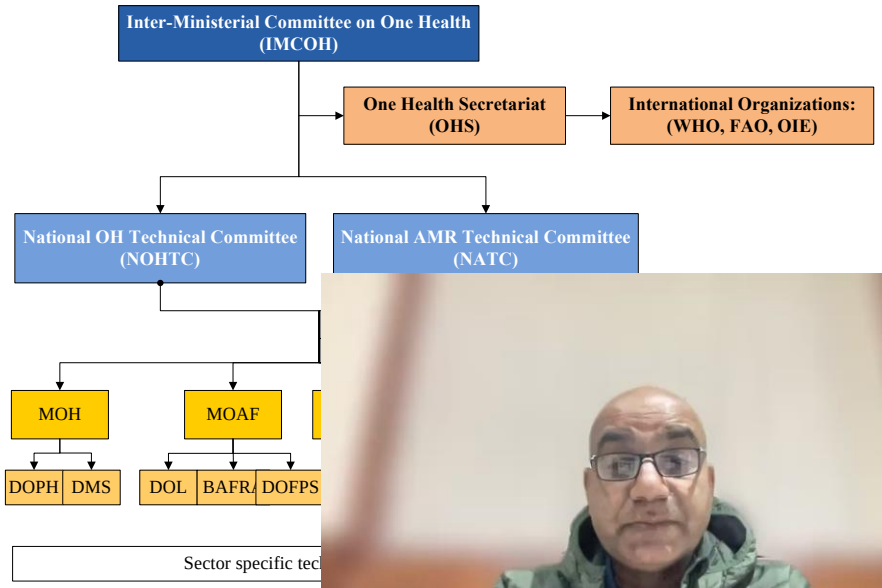
Workshop participants

- Participation during the workshop – HH, AH, Env sectors (food, wildlife, Dept of CC, Uni)

- JRA–OT – enhances multi-sectoral OH approach in addressing zoonosis
- Guides OH set-up to enable JRA for zoonosis

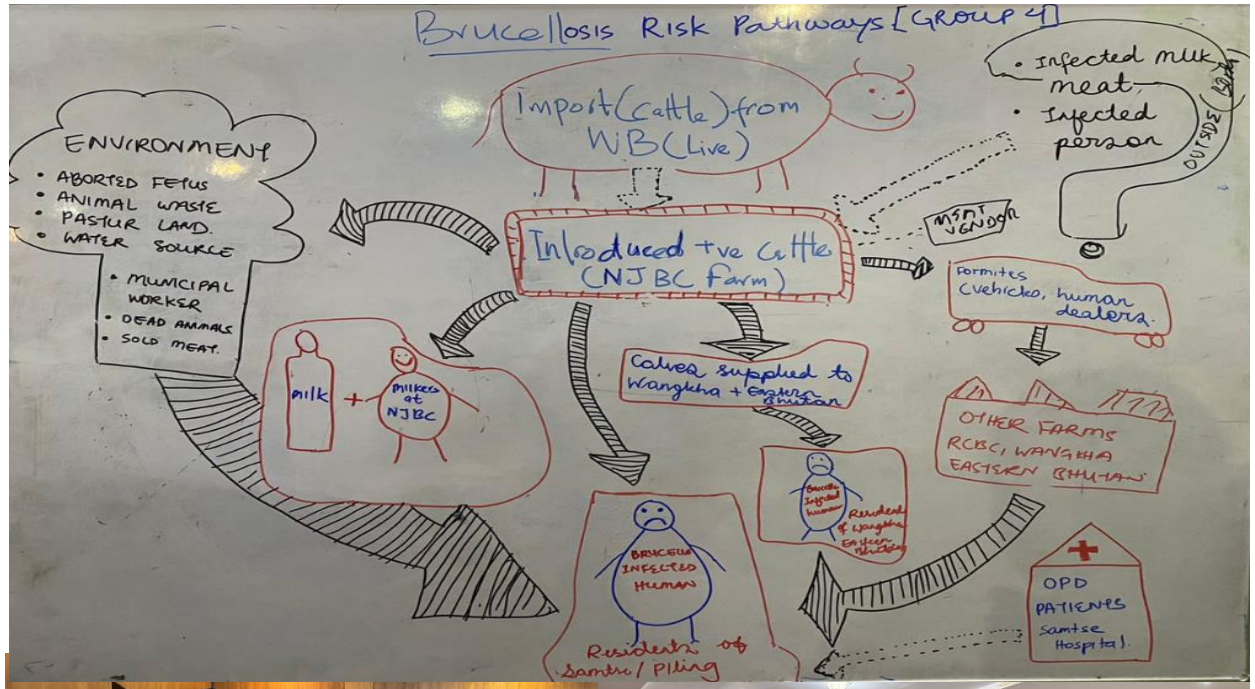
- Bhutan OH set-up allows JRA
- NOHTC is taking up the JRA responsibilities





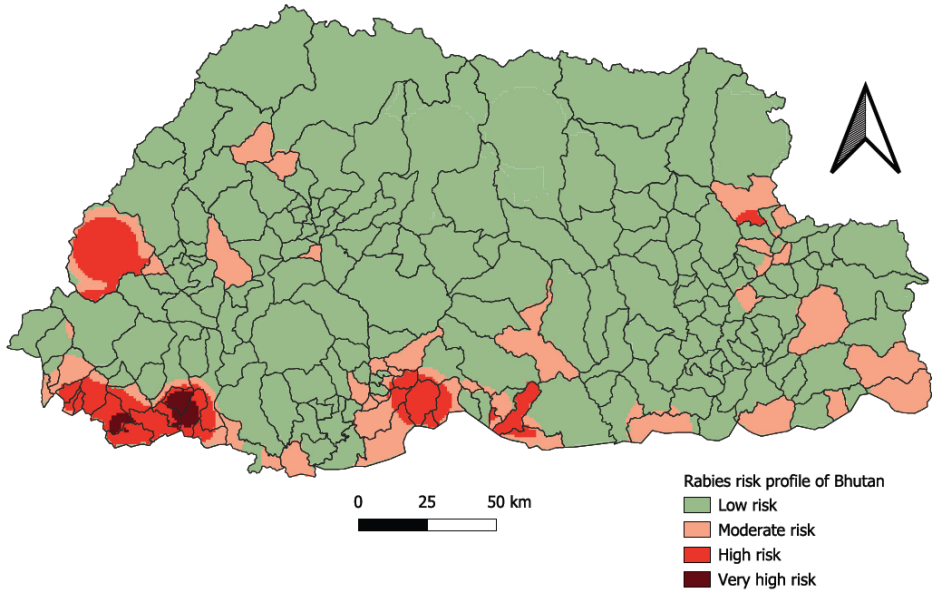
Workshop output

- Ranked 54 zoonotic diseases
- Prioritized top 10 zoonotic diseases over next 5 years
- Gaps in the data and multisectoral coordination mechanism were identified
- Recommended to conduct sub-district level risk profiling for top two diseases – rabies and leptospirosis
- Following this workshop recommendation, risk profile maps were generated for rabies and leptospirosis in May-June 2025



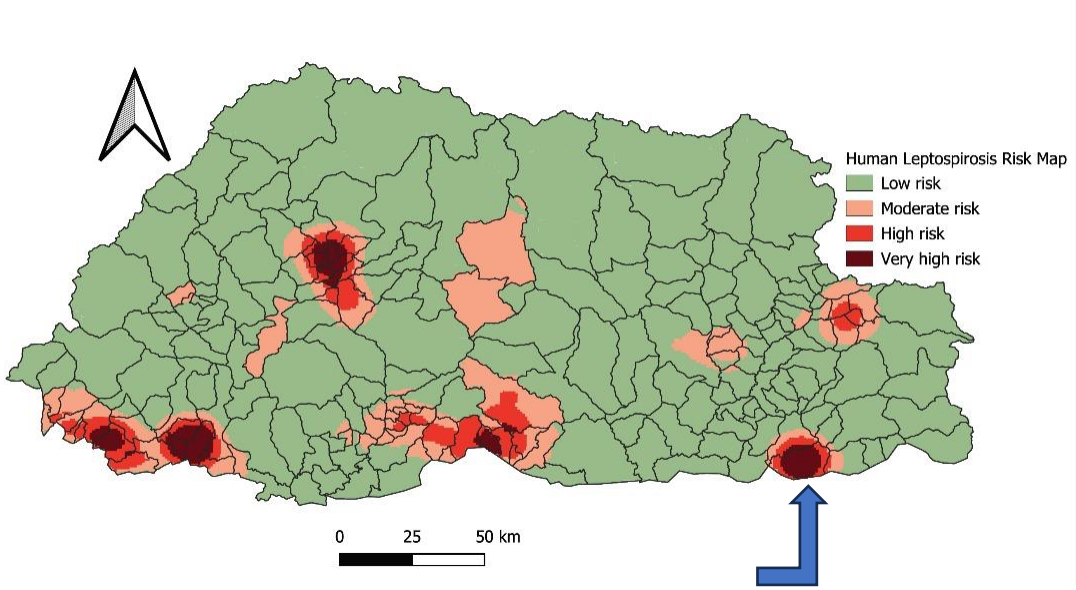
JRA - Rabies

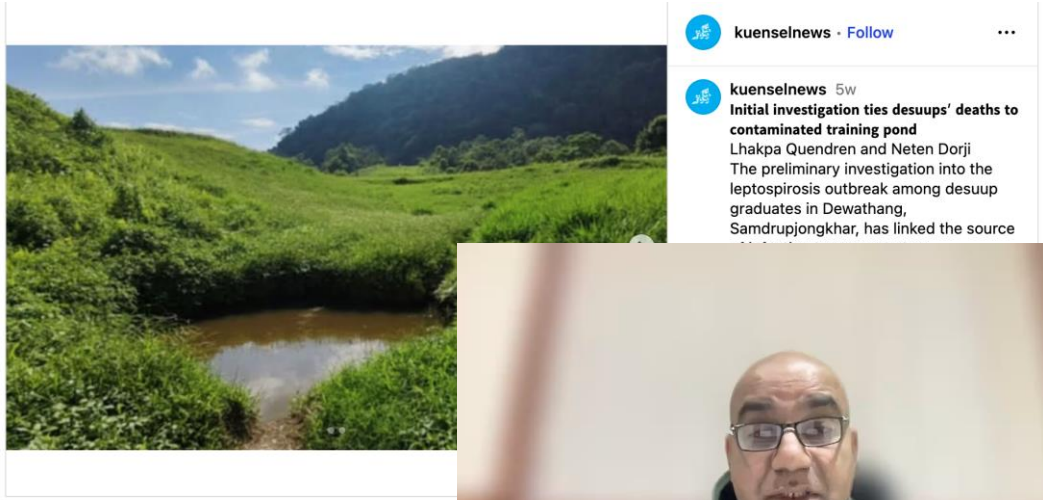
- Rabies risk estimates – generated at sub-district level
- Data
  - Rabies human deaths 2006-2025
  - Rabies outbreak in animals – 2020-2025
  - Proportion of vaccine coverage in dogs
  - Proportion of animal bites
  - Cross border movement of dogs
  - Dog and cat pop density
  - Human pop density



JRA - Leptospirosis

- Leptospirosis risk estimates – generated at sub-district level
- Data
  - Human population density
  - Animal population density
  - Number of cases of leptospirosis in human
  - Proportion of lepto-cases in animal
  - Average annual rainfall
  - Rice cultivation area
  - Presence and absence of fish pond
- Leptospirosis outbreak in Desuup trainees
  - Helped in confirming diagnosis and treatment of human cases - point-source outbreak of leptospirosis at a location considered very high-risk (xxx cases out of xxx cohort group





Thank you!