African Swine Fever Cross Border Risk Assessment
South East Asia

Data collection methods for risk assessment

Dr. Anne Conan

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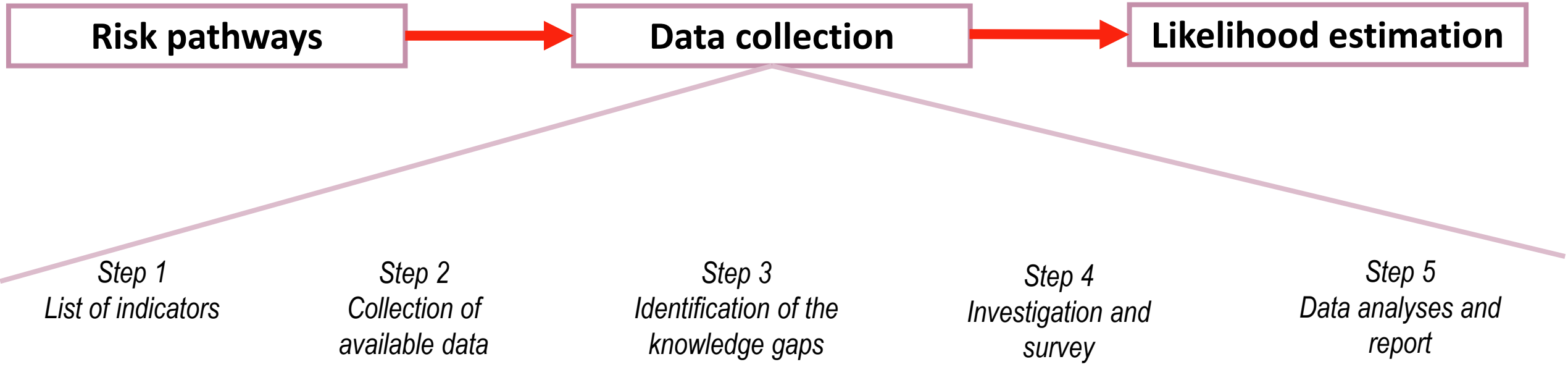
City University of Hong Kong
in collaboration with Cornell University

"Data are the "ingredients" of scientific assessments."

EFSA



Most difficult and time consuming

Step 1
List of indicators

Step 2
Collection of available data

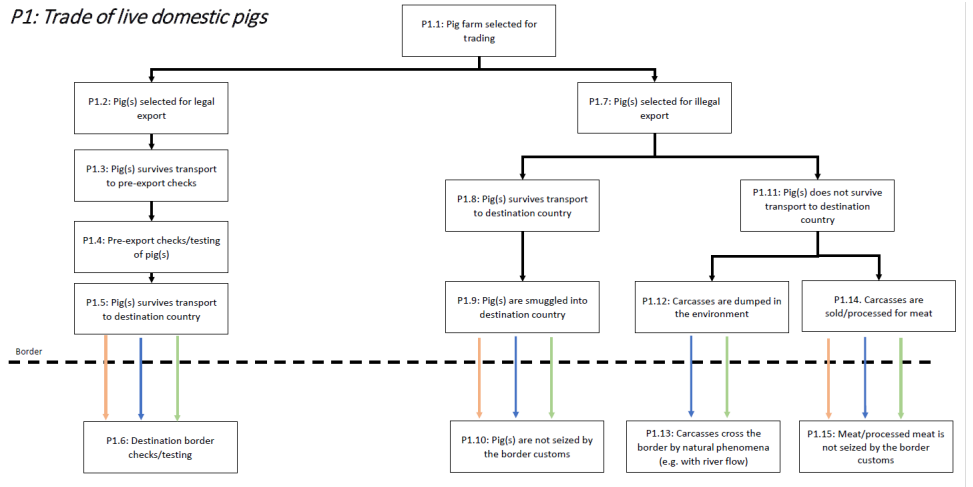
Step 3
Identification of the knowledge gaps

Step 4
Investigation and survey

Step 5
Data analyses and report

Step 1: List of indicators

- Identify the data needed to be collected for likelihood estimation
  - Virological data
  - Clinical data
  - Epidemiological data
  - Trade data
  - Population data
  - …
- Under each pathway and each event



Step on risk pathway (example P1)	Indicators/variables
P1.1: Pig farm selected for trading	• Countries of origin of live pigs • Number of pig farms providing pig for exportation to my country • Farm types and farm biosecurity level of imported pigs (commercial – backyard) • Number of ASF outbreaks/Prevalence of ASF in the exporting country. Is there any difference between farm type? • Surveillance data and protocol from exporting country
P1.2: Pig(s) selected for legal export	• Proportion of pigs selected for exportation in the farm • Prevalence of ASF in farms in case of infection
P1.3: Pig(s) survives transport to pre-export checks	• Way and duration of transport • Incubation period, symptomatic period, morbidity and mortality rate
P1.4: Pre-export checks/testing of pig(s)	• Export data (national data, certificates from the exporting countries) • Are pigs observed/tested before crossing the border? • What are the observations/tests? Clinical signs, laboratory test, … Sensitivity and specificity of this surveillance • Proportions of observed/tested animals
P1.5: Pig(s) survives transport to destination country	• Way and time of transport • Incubation period, symptomatic period, morbidity and mortality rate
P1.6: Destination border checks/testing	• Importation data (national data, certificates from the exporting countries) • Are pigs observed/tested after crossing the border? • What are the observations/tests? Clinical signs, laboratory test, … Sensitivity and specificity of this surveillance • Proportions of observed/tested animals

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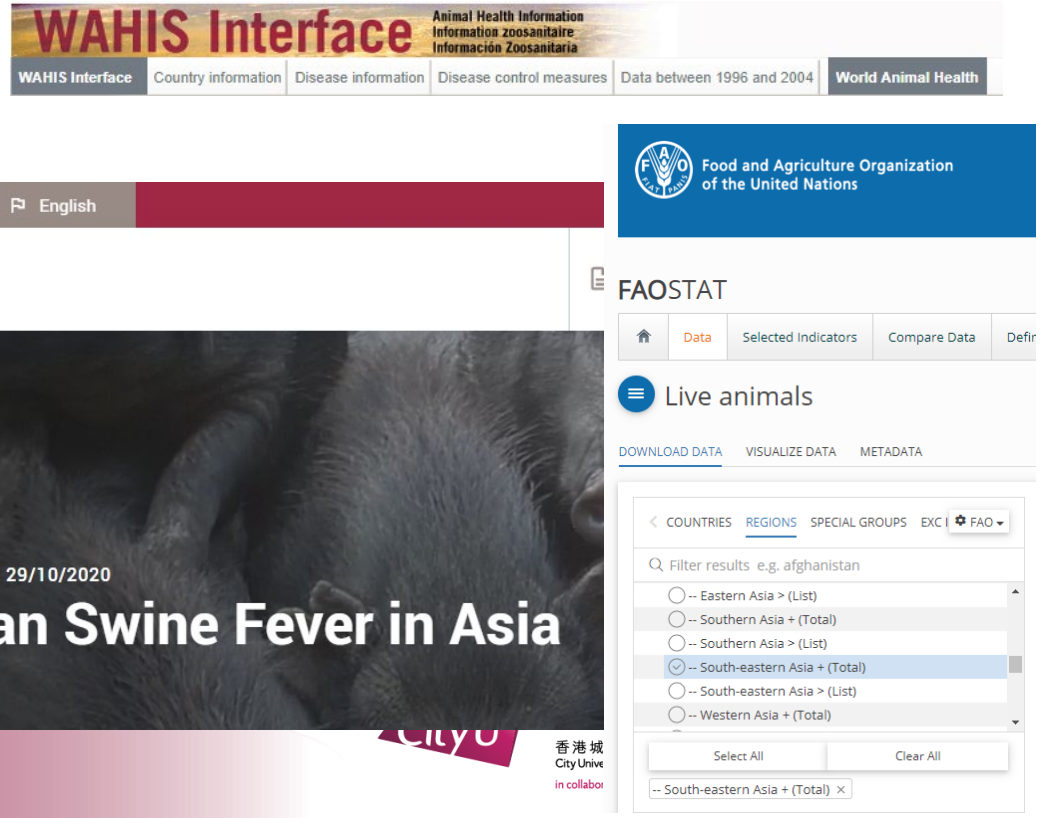
Step 2: Collection of available data

- A large amount of data is already available
- Sources of data
  - Peer-reviewed (pubmed, google scholar)
  - International agencies: OIE, FAO, WTO
  - Regional reports: ASEAN
  - National reports
  - NGOs reports
  - Journal news



Desk Review

30/11/2020

African Swine Fever Cross Border Risk Assessment – South-East Asia

Desk Review (Version 2)

Anne Conan, Younjung Kim, Lisa Kohnle, Veronica Yu, Jeremy Ho, Andrew Bremang, Aaron Yang, Omid Nekouei, Dirk Pfeiffer

Center for One Health Research and Policy Advice, City University of Hong Kong, Hong Kong SAR

Agriculture, Fisheries and Conservation Department, Hong Kong SAR

National reports

- Identification of the agencies who can have the necessary data
  - Customs
  - Department of agriculture
  - Department of trade
  - Associations and groups of workers (Farmer associations)
  - NGOs working in agriculture
  - NGOs working in wildlife
  - …
- Retrieve national reports

International/National/Local news

KHMER TIMES
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National March 12, 2018

Wild boar injures hunter and kills dog

Pav Suy / Khmer Times /

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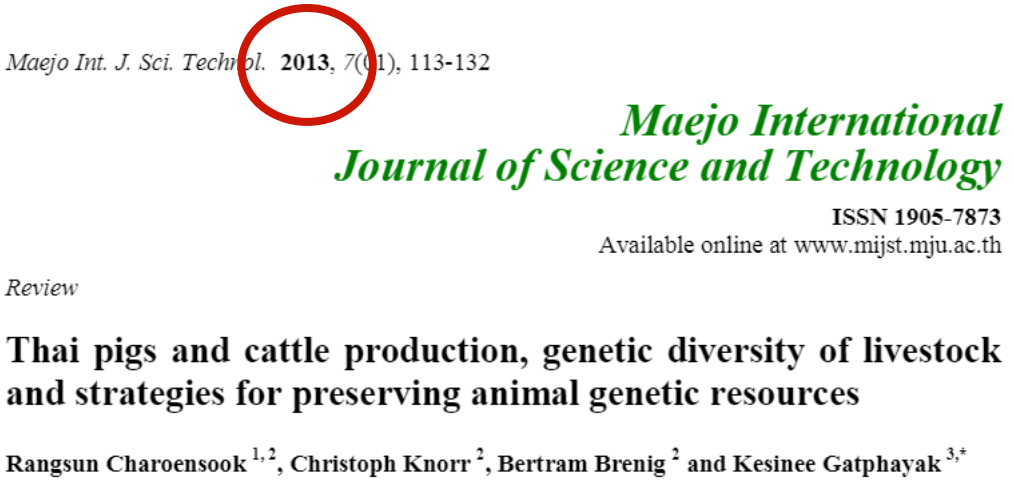
Step 3: Identification of knowledge gaps

- Types of gaps
  - Data unavailable
  - Data not recent/need to be updated
  - Data not accurate
    - Evaluate methodology and source
    - Peer reviewed vs grey litterature
    - Surveillance data vs investigation data



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Review

Thai pigs and cattle production, genetic diversity of livestock and strategies for preserving animal genetic resources

Rangsun Charoensook [1,2], Christoph Knorr [2], Bertram Brenig [2] and Kesinee Gatphayak [3,*]

Example of an imaginary country

	Indicators/variables	Available with litterature review	Year of the information	Complete and Accurate data	Need for more information
P1.1	• Countries of origin of live pigs	Yes	2020	Yes	No
	• Number of pig farms providing pig for exportation to my country	Yes	2020	No	Yes
	• Farm types and farm biosecurity level of imported pigs (commercial – backyard)	Yes	2020	Yes	No
	• Number of ASF outbreaks/Prevalence of ASF in the exporting country. Is there any difference between farm type?	Yes	2020	Yes	No
	• Surveillance data and protocol from exporting country	Yes	2017	No	Yes
P1.2	• Proportion of pigs selected for exportation in the farm	Yes	2019	No	Yes
	• Prevalence of ASF in farms in case of infection	Yes	2020	Yes	No
P1.3	• Way and duration of transport	No	-	No	Yes
	• Incubation period, symptomatic period, morbidity and mortality rate	Yes	2020	Yes	No

Example of an imaginary country

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	• Incubation period, symptomatic period, morbidity and mortality rate	Yes	2020	Yes	No

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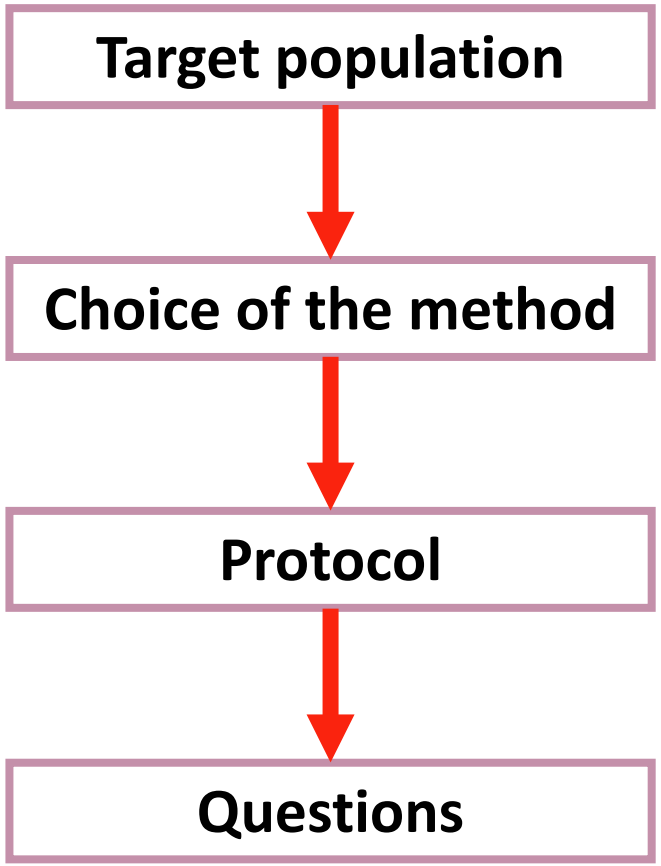
Data analyses and report

Step 4: Investigations and surveys



Several stakeholders

=

Several surveys

=

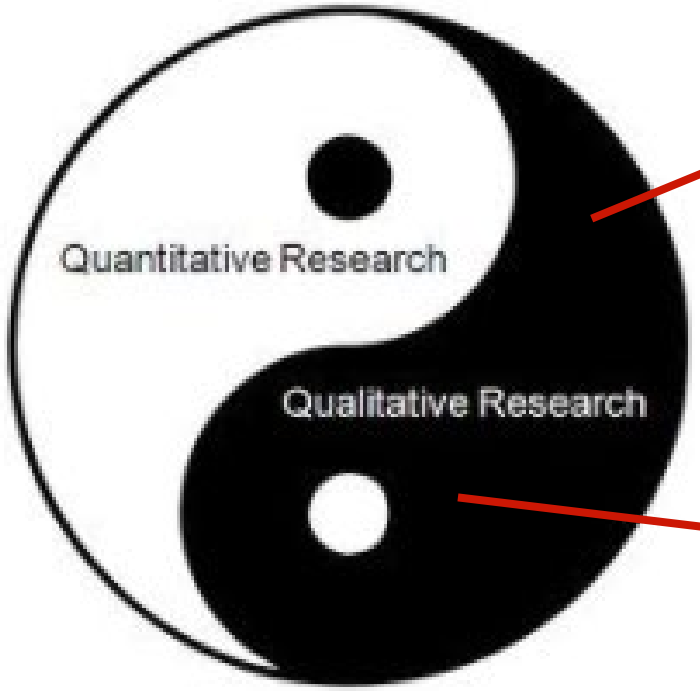
Several methodologies

Target population: Stakeholders and Key Informants

- Farmers
- Hunters
- All value chain stakeholders
- Local authorities
- National authorities
  - Food stakeholders
  - Customs
  - Farmer associations

Related to pathways

Choice of the method



Sociological approach

Webinar #5 and #7

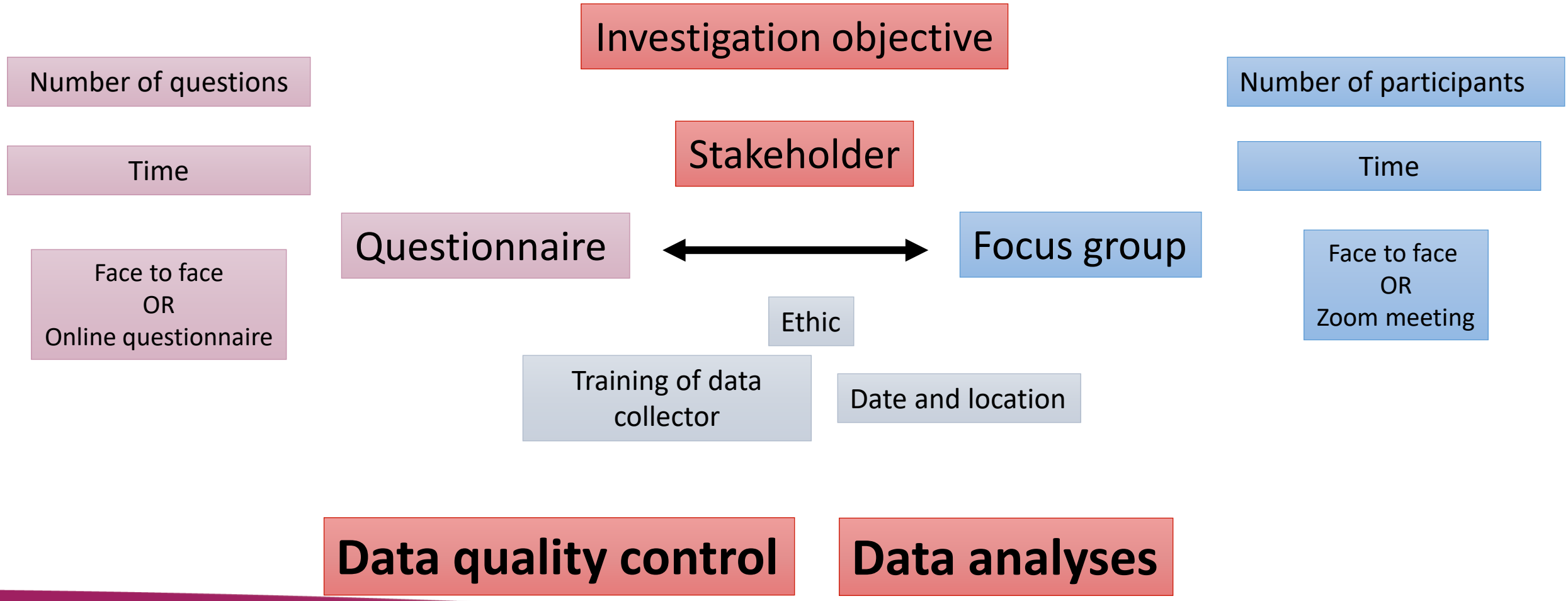
Participatory epidemiology

Methods of collection of qualitative data in order to quickly understand a situation and built an action plan

Choice of the method

Closed ended questionnaire	Participatory tools
Quantitative data	Qualitative data
Individual answer	Focus group
Randomly selected	Key respondent
Statistics	Triangulation
Questionnaires	Visualization/ranking
Recognized as scientific and accurate	Often not recognized as scientific
Long and costly	Fast and cheap
Control of the data	Unexpected answer

Write the protocol



Close-ended questionnaires

- Phrase the questions
- Type of answers
  - Categorical: Yes/no, multiple-choices, ranking
  - Quantitative: precision
- Order the questions
- Keep some opening (other, comments,...)
- What is the point to collect all data possible
  - E.g., number of cats in the house for ASF investigation
- Test the questionnaire

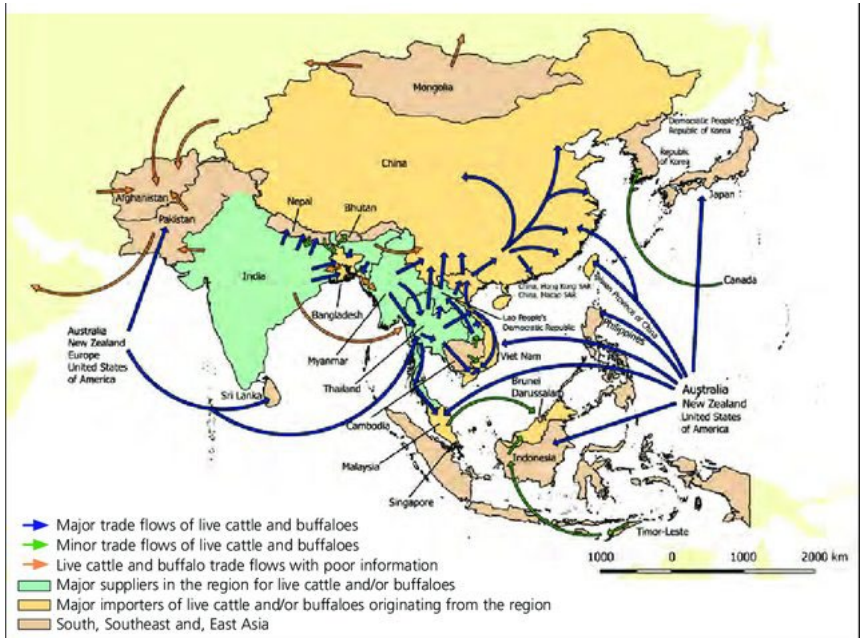
Participatory epidemiology

- Triangulation
- Flexibility: analyses of the data during the data collection
- Tools
  - Semi-structured interview of key stakeholders: discussion with guide
  - Visualisation methods
  - Ranking methods

Bellet et al, 2012

Visualisation

- Maps/Transects
- Proportional piling
- Venn diagrams
- Calendars

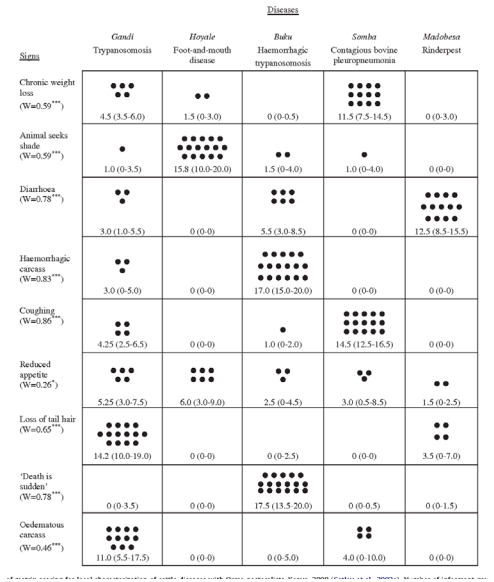


Roche et al, 2020

Exporters \ Importers	Cambodia	China	Indonesia	Lao	Malaysia	Myanmar	PNG	Singapore	The Philippines	Thailand	TL	Vietnam
Cambodia								N				
China								N				
Indonesia								Legal				
Lao								N				
Malaysia								Legal				
Myanmar								N				
PNG								N				
Singapore												
The Philippines												
Thailand						Legal		N				
TL								N				
Vietnam								N				

Ranking

- Identifies the several answers to the question
- Comparison of the answers
- Ranking of the answers from most to least relevant/important



Example: We want to evaluate the sensitivity of the check of live pigs at the border
Focus group: Agents of customs

1) List of clinical signs they check for African Swine Fever
2) Between red spot on the ear and fever, what is the most important/feasible to check (do that for all combinations)
3) Comments about if one clinical sign only: test or not test?
4) Rank: prioritization of the clinical signs

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Step 5: Data analyses and report

- Objective: Present all data available and all data non available to the RA team/Expert group/Scientific experts

- Data entry: Keep a trace of all the sources and information you collected

- Data analyses: interpret individual investigation and several investigations together

Identify the biases of the data collection

- Data collection bias:
  - Appreciation of strengths and limitations of data sources
  - Spatial and time bias: change over time
  - Participant selection
  - Cultural/Gender/Political bias
  - Partial data

All biases have to be in the final report

Data quality control and uncertainty

- Detect discrepancies and missing data
- Document uncertainty and document our assumptions
- Acknowledge the “Don’t Know”

“What we do know and what we do not know”

Dr. Kim

All data including discrepancies and missing data have to be in the final report

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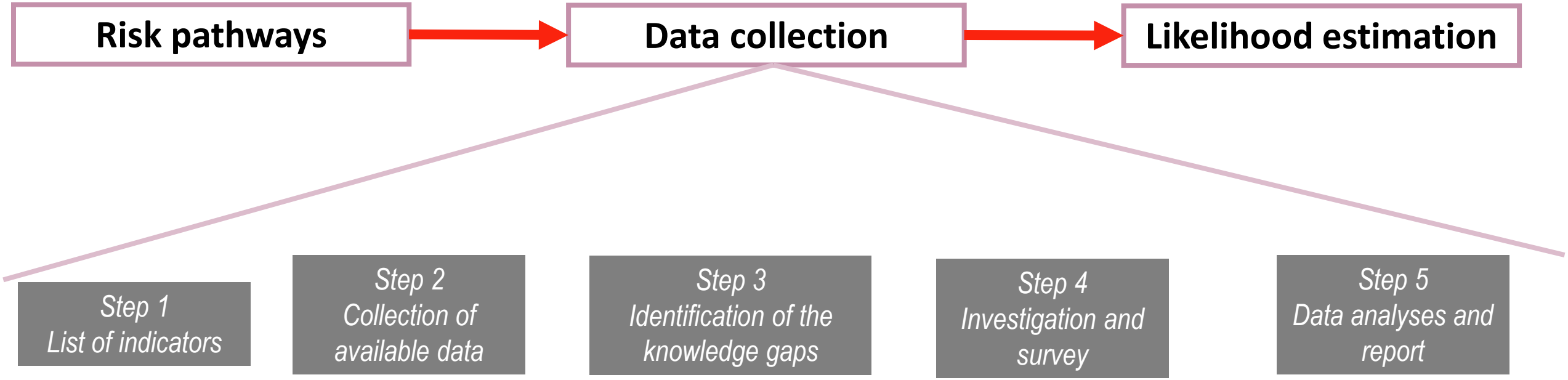
Risk pathways
Data collection
Likelihood estimation
Step 1
List of indicators
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Data analyses and report