Using value chain analysis for disease control measures along risk pathways &
Exercise on value chain risk analysis for entry of FMD.

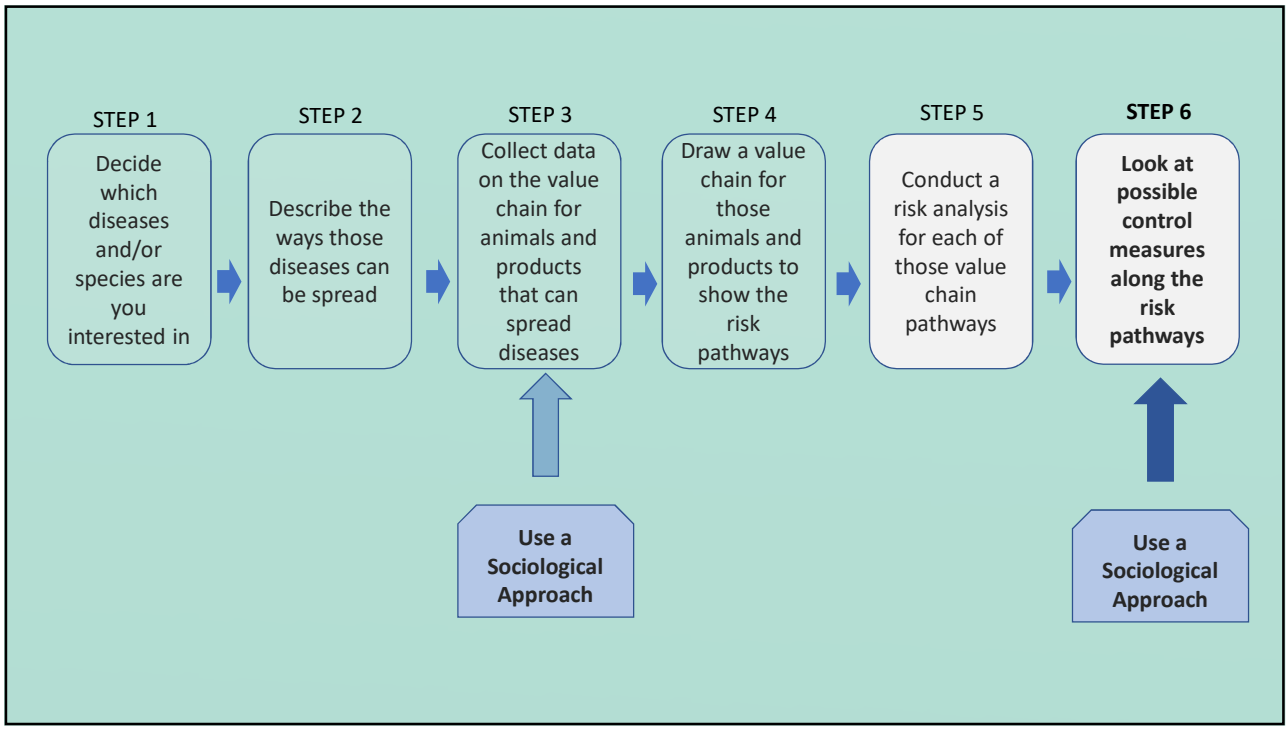
MODULE 5

Little Kingfisher Group

Homan Anderson

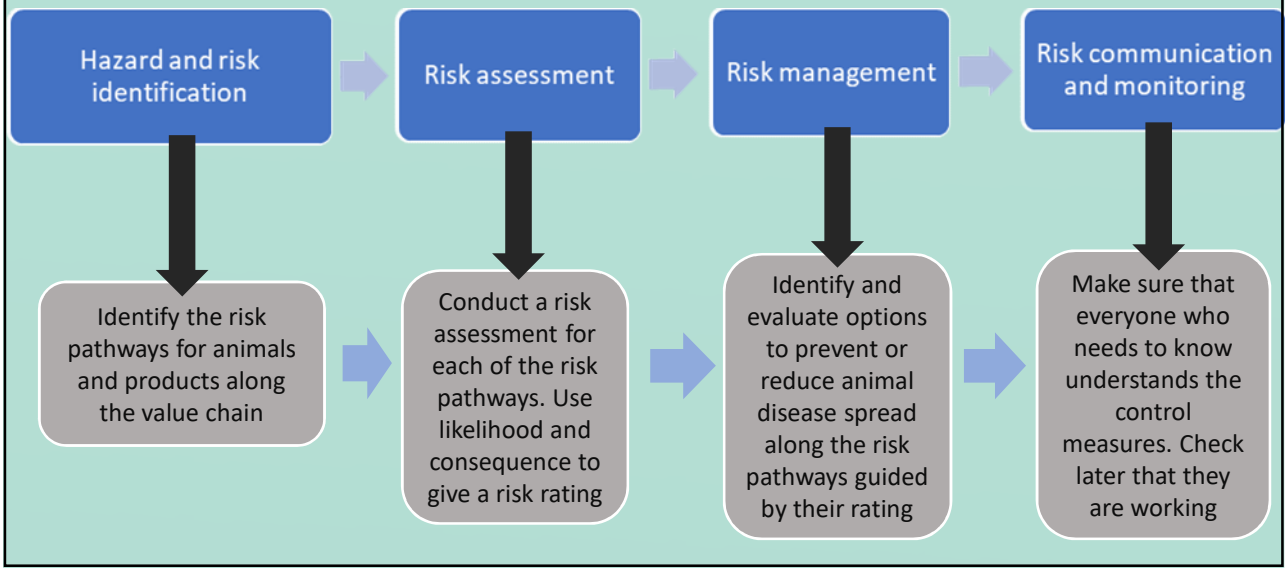
Today's agenda:

1. **Recap of Module 4 Risk Analysis – 10 minutes**
2. **Disease control measures based on value chain risk analysis – 10 minutes**
3. **Exercise using the risk of Foot and Mouth Disease introduction – 1 ½ hours**
4. **Introduction to the sociological tools workshop.**

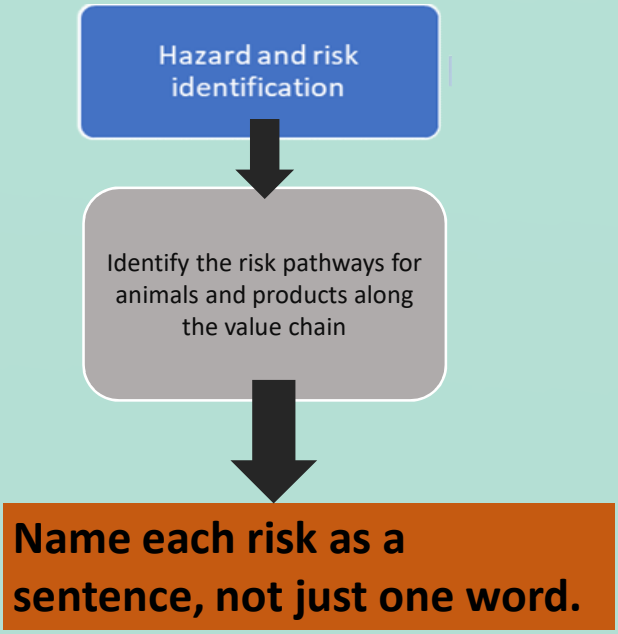


Recap of MODULE 4 – Risk Analysis

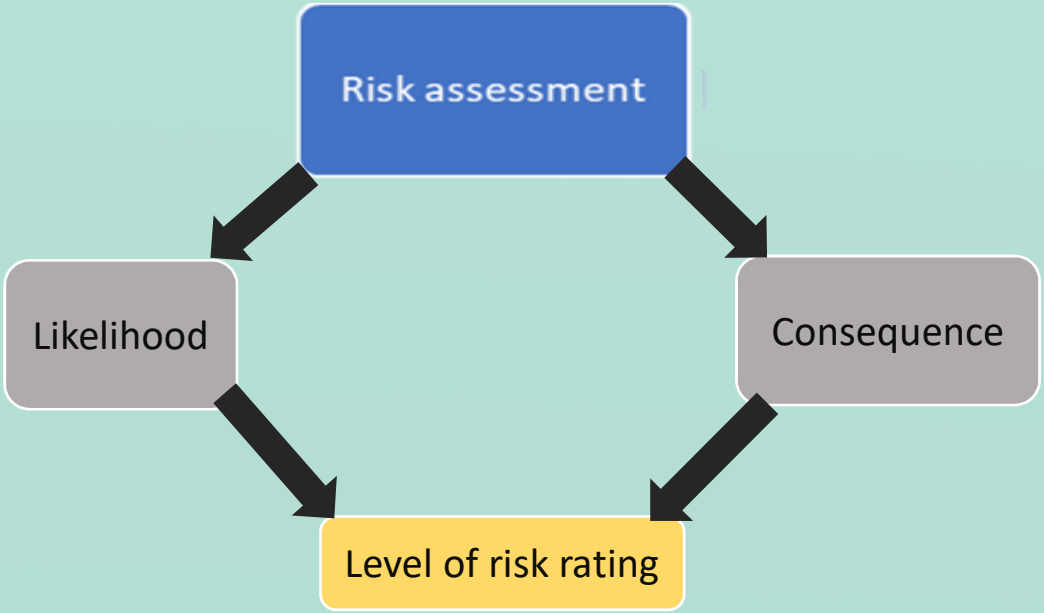
Components of risk analysis for value chain animal disease spread



Stage 1 - Risk identification



Stage 2 - Risk assessment



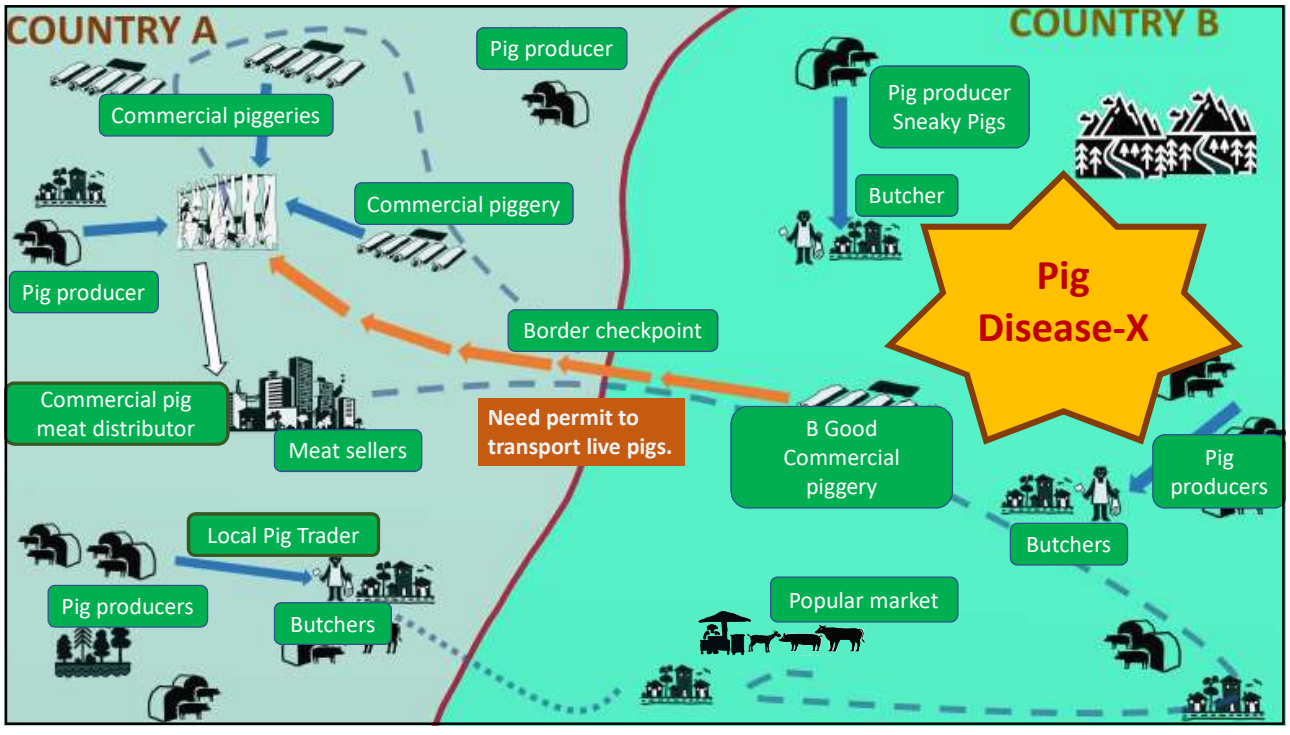
Risk assessment tool

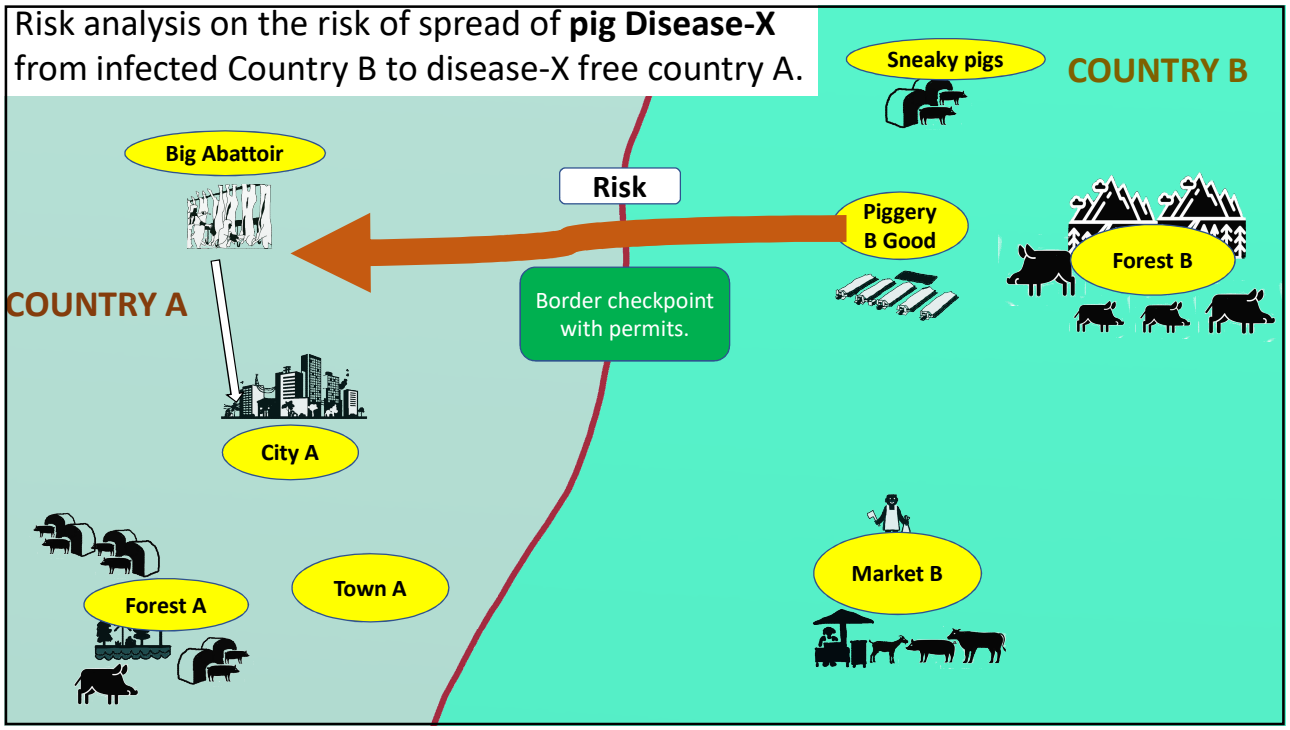
	Consequence rating	Consequence description
1	Negligible	Virtually no commercial impact, 1 property or less
2	Minor	Disease on a few properties, easily controlled
3	Moderate	Effects on community; financial/ public health
4	Major	High economic effect on region/ public health
5	Catastrophic	National effects; major economic/ public health

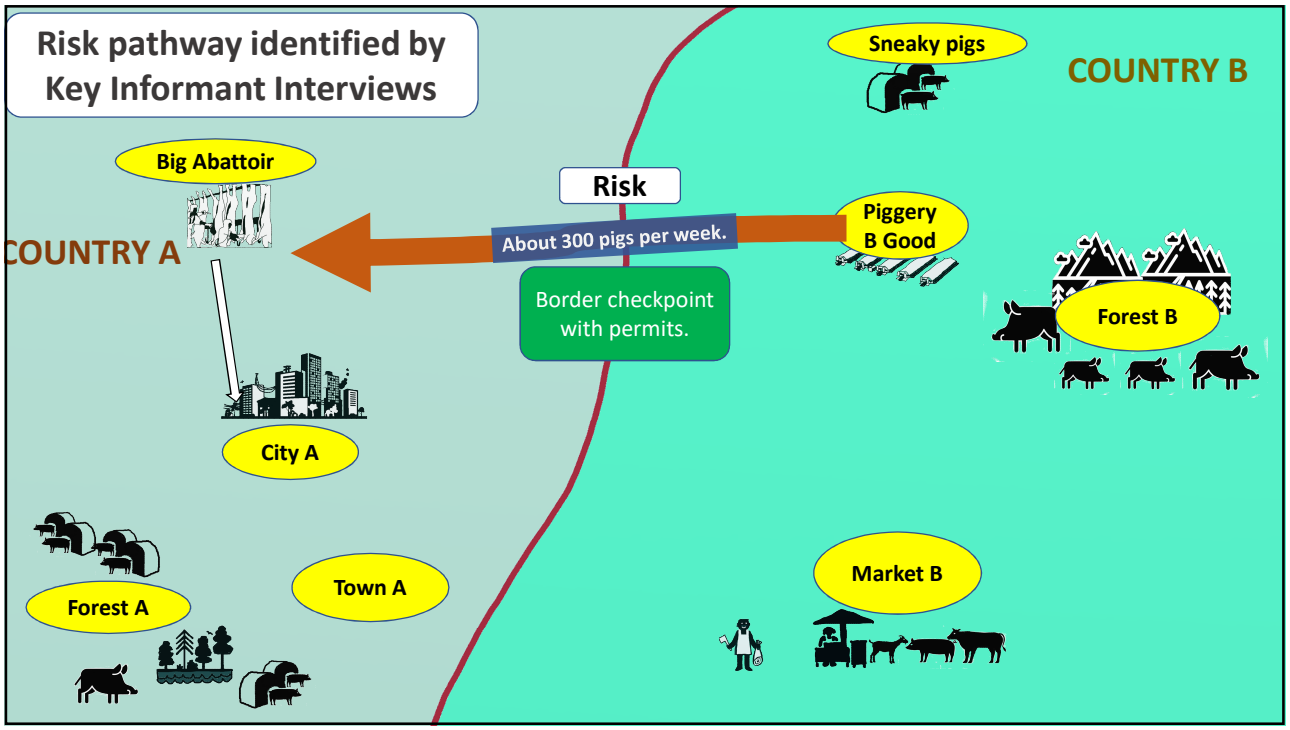
	Likelihood rating
A	Almost certain
B	Likely
C	Possible
D	Unlikely
E	Rarely if ever would occur

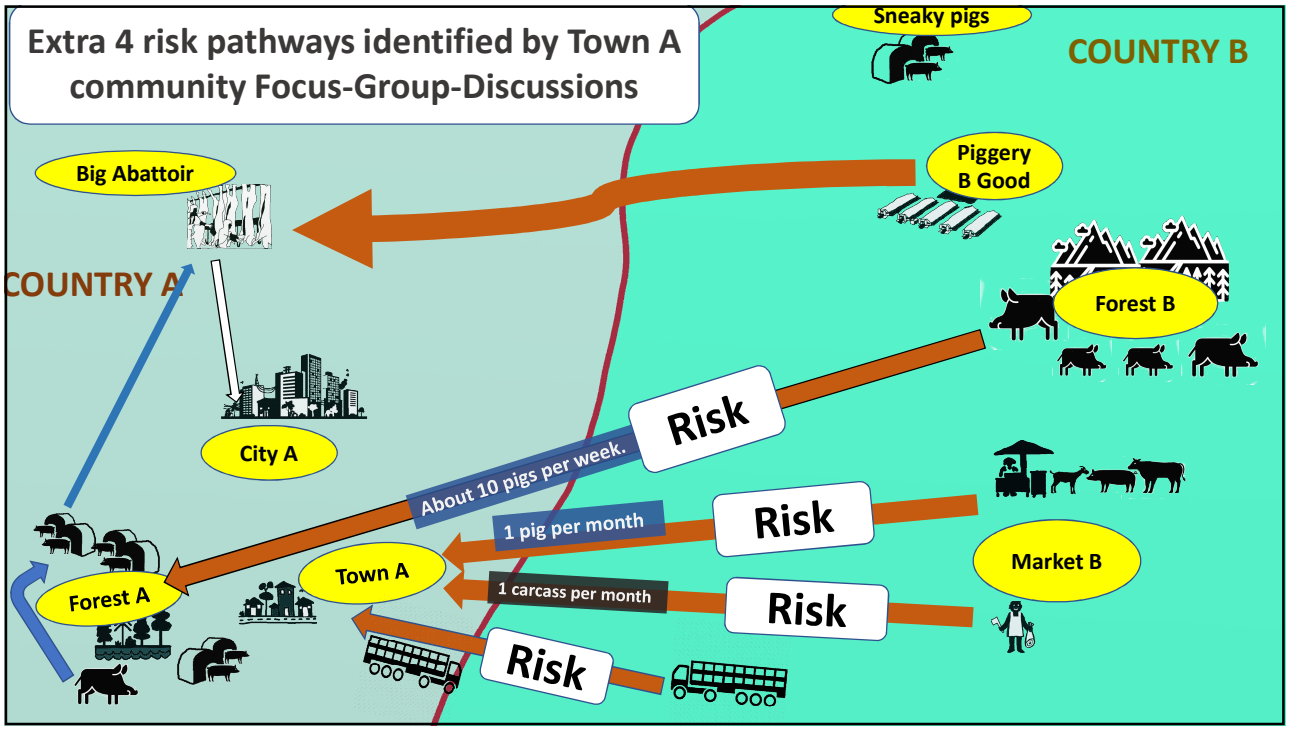
L-Likelihood Rating	C – Consequence Rating 1	2	3	4	5
A	M	M	H	X	X
B	L	M	M	H	X
C	L	L	M	H	H
D	N	L	M	M	H
E	N	N	L	M	H

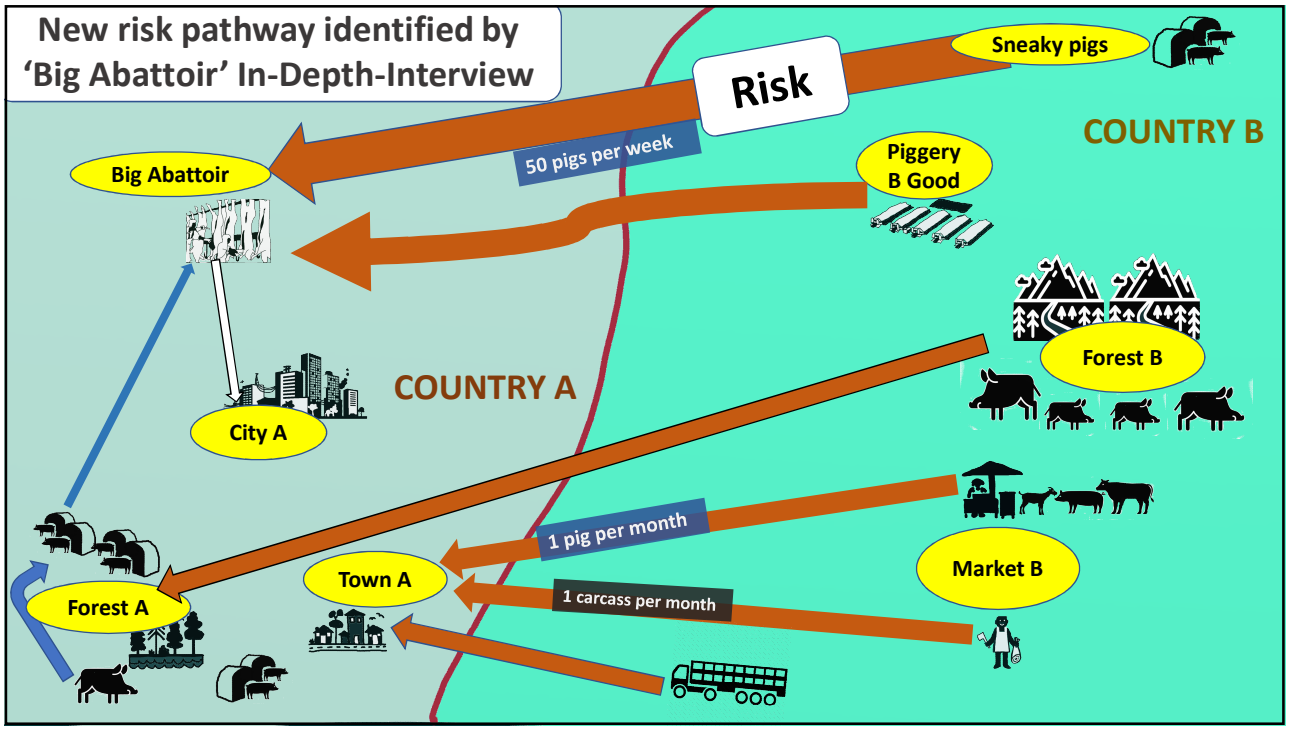
Level of Risk Rating	Response
X - Extreme	Urgent attention
H - High	Intervention required
M - Medium	Active management
L - Low	Ongoing monitoring
N - Negligible	Acceptable risk




Risk analysis on the risk of spread of **pig Disease-X** from infected Country B to disease-X free country A.
Sneaky pigs
COUNTRY B
Big Abattoir
Risk
Piggery B Good
Forest B
COUNTRY A
Border checkpoint with permits.
City A
Forest A
Town A
Market B


Risk pathway identified by Key Informant Interviews
Sneaky pigs
COUNTRY B
Big Abattoir
Risk
About 300 pigs per week.
Piggery B Good
Forest B
COUNTRY A
Border checkpoint with permits.
City A
Forest A
Town A
Market B

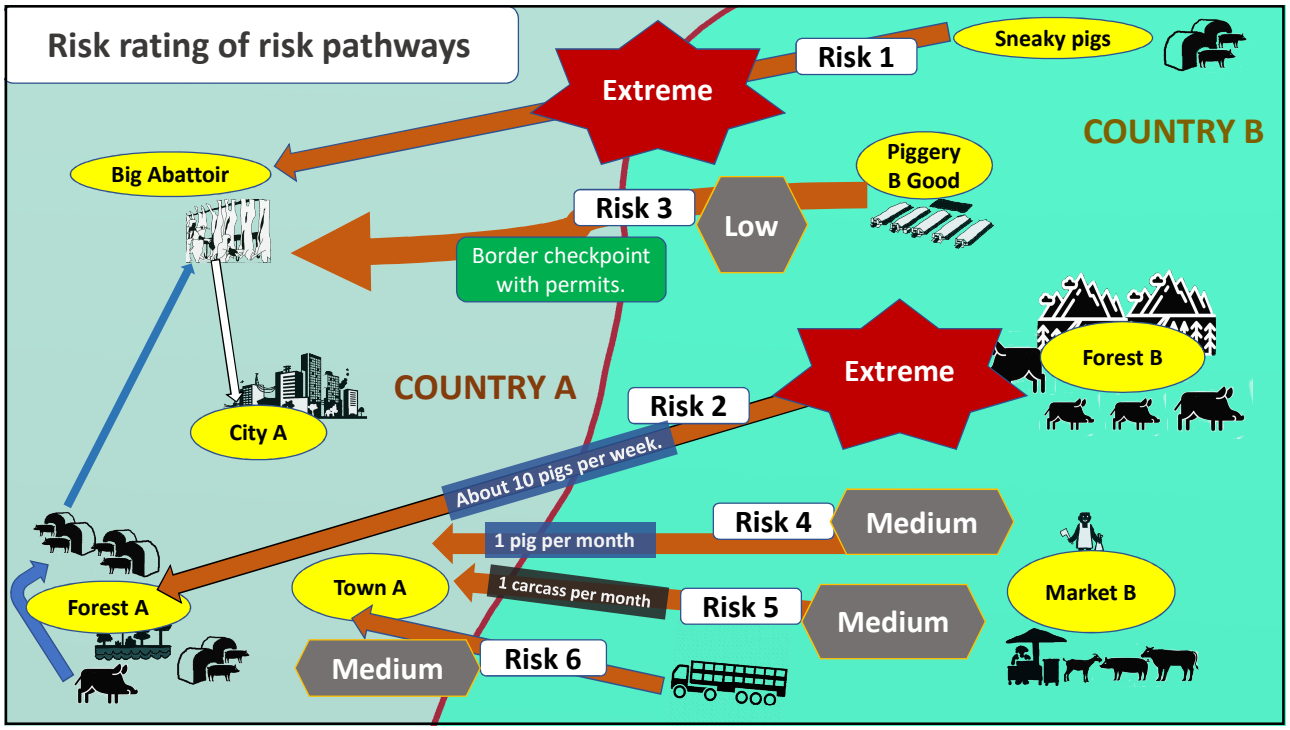

Extra 4 risk pathways identified by Town A community Focus-Group-Discussions
Sneaky pigs
COUNTRY B
Big Abattoir
Piggery B Good
COUNTRY A
Forest B
City A
Risk
About 10 pigs per week.
1 pig per month
Risk
Market B
Town A
1 carcass per month
Risk
Forest A
Risk


New risk pathway identified by 'Big Abattoir' In-Depth-Interview
Risk
Sneaky pigs
COUNTRY B
50 pigs per week
Big Abattoir
Piggery B Good
Forest B
COUNTRY A
City A
1 pig per month
Market B
Town A
1 carcass per month
Forest A

Results from Poll: risk ratings for each Disease-X introduction pathway.

	Risk pathway	Likelihood	Consequence	RISK RATING	Action indicated
Risk 1	Pigs from sneaky pigs to big abattoir	Almost certain	Catastrophic	Extreme	Urgent attention
Risk 2	Wild pigs from Forest B to Forest A	Almost certain	Major	Extreme	Urgent attention
Risk 3	Pigs by permit from Piggery B Good	Possible	Minor	Low	Ongoing monitoring
Risk 4	Pigs from Market B to Town A	Likely	Moderate	Medium	Active management
Risk 5	Carcasses from Market B to Town A	Possible	Moderate	Medium	Active management
Risk 6	Transport trucks from B back to A	Likely	Moderate	Medium	Active management

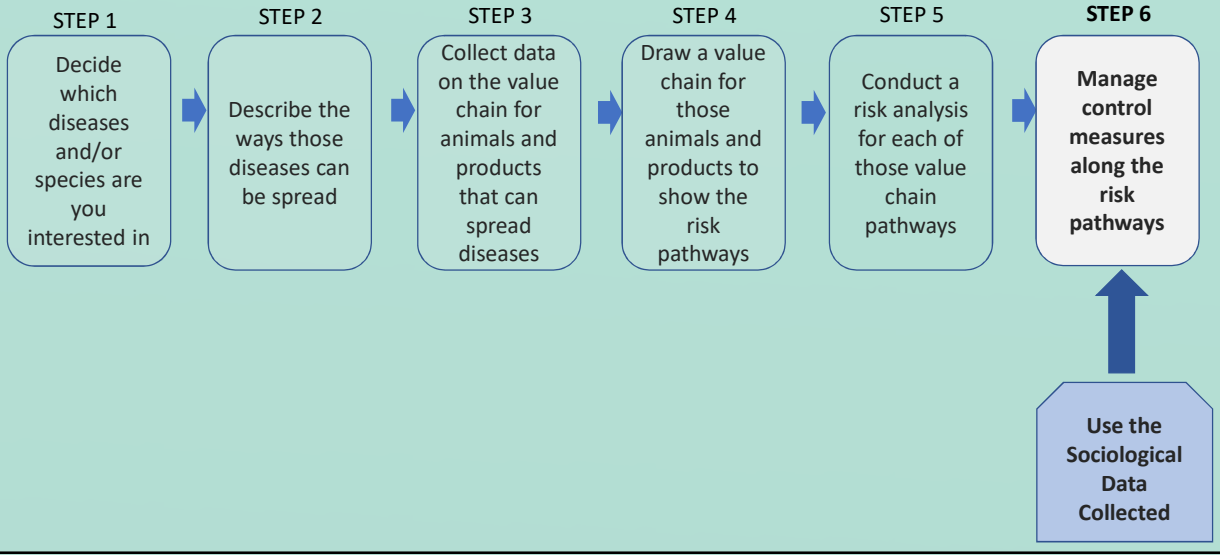
Note that the highest two risk pathways were detected through interviews and the lowest risk pathway was the only one identified prior to the sociological processes and interviews.



The two highest risk pathways for the introduction of Disease-X were detected through the sociological group discussion and in-depth-interview processes.

The lowest risk pathway was the only one identified by the key expert interview .

MODULE 5 - Disease control measures based on risk analysis



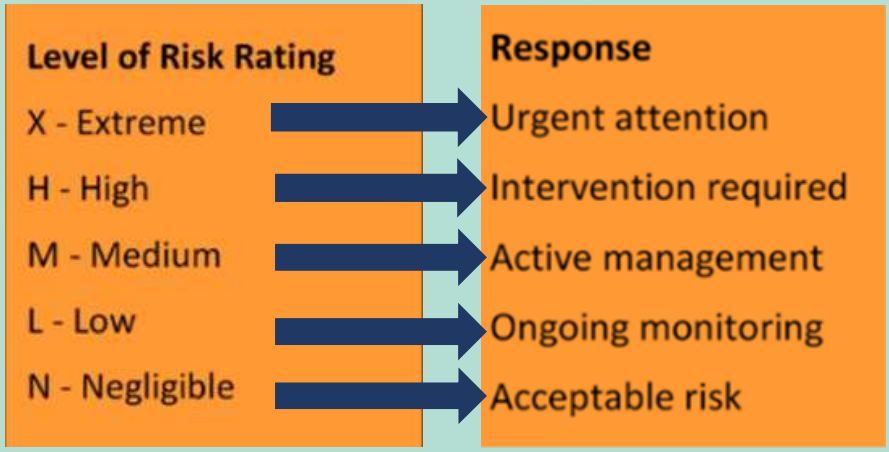
Why:

- Identification of rated risk pathways allows for appropriate actions to prevent disease entry across borders.
- A number of actions can be combined, if needed to reduce the risk to an acceptable level.

Examples of risk reduction/disease control methods (as listed in Module 2):

Animal movement bans
Movement requirements – lab tests
Movement requirements – clinical assessment
Animal product import bans
Quarantine before departure
Quarantine on arrival
Tests on animal products before or after importing
Vaccination of imported animals – at the origin
Vaccination of animals at the point of arrival
Education campaigns
Feed regulations
PPE
Farm biosecurity
Health certification
Early detection & quick response

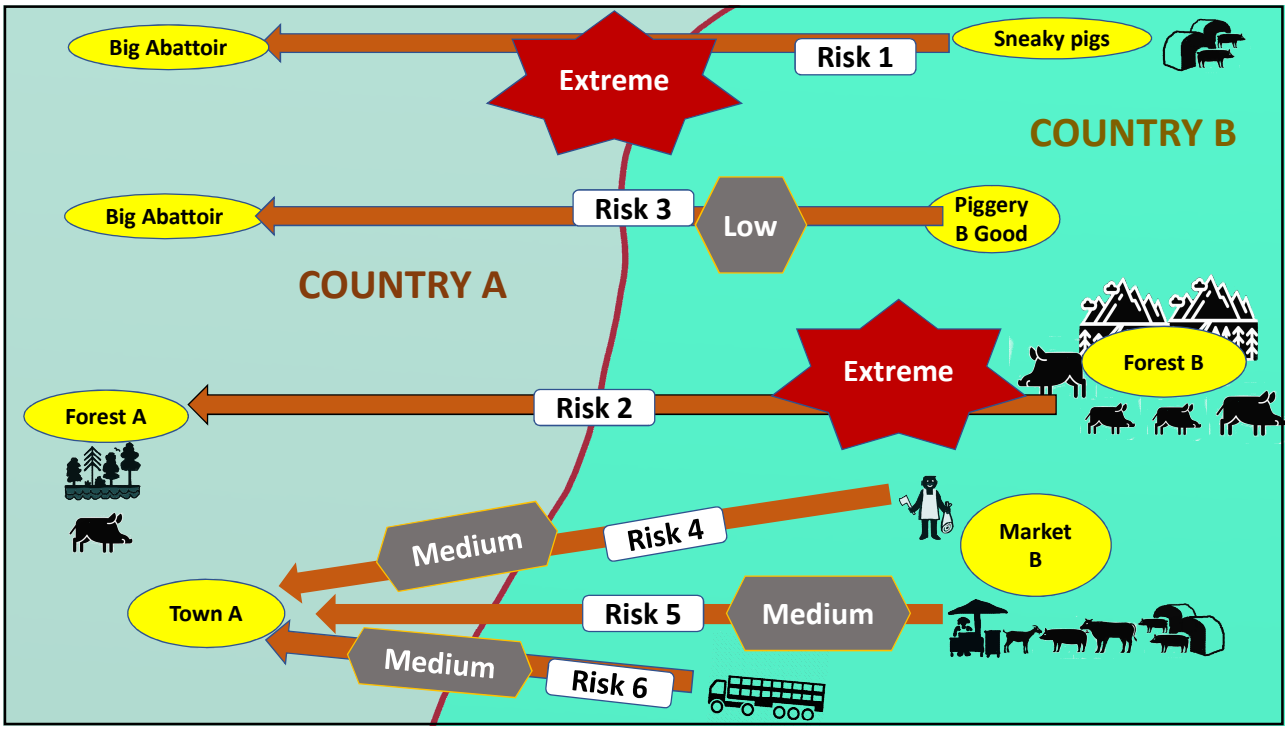
Response level needed for each risk rating.



What do the different types of responses mean?

Below are examples of risk treatment actions for different levels of risk ratings for the risk of wild mammals moving disease across a border. In a real situation, the specific disease control actions to implement would be evaluated using 'type of response' as a guide.

Risk rating	Type of response	Example
X	Urgent attention	Immediately construct a wildlife-proof fence at the site
H	Some action required	Mandate vaccination of livestock adjacent to entry site
M	Actively manage	Set up disease surveillance of local livestock
L	Ongoing monitoring	Conduct spot checks for susceptible wildlife entering
N	Nil: acceptable risk	No action but review the risk over time



We need to consider how the disease control measures will affect stakeholders and how likely that the measures will be complied with.

Some of the drivers of human behaviour for moving animals and products (identified through the sociological data collection) may help assess the likely effectiveness of control measures.

FAO: An example of a part of a detailed descriptive risk assessment addressing risk of spreading FMD within a country

Describe potential risk mitigation measures	Possible impacts of risk mitigation on stakeholders comments
	Refer to value chain analysis
Improve certification and checking of calves into market – restrict intake to calves from "certified" source Quarantine calves in market for several days before sale Quarantine calves in farms for several days after sale	Increased requirement for certification and checking increases work of veterinary services; perhaps increases cost of marketing for the producer and/or trader; requires enforcement backed by penalties Farm quarantine would require facilities at farm, and possibly education for farmers on how to maintain on-farm quarantine.

FAO Checklist of factors to consider when trying to assess the likelihood that a risk reduction measure will be complied with by farmers/traders/food handlers

- Does the measure require a significant increase in workload?
- Does the measure require a significant change in management? t
- Does the measure require significant investments?
- Are the means available for the implementation of the measure (e.g. vaccines, protective clothing)?
- Are people sufficiently committed?
  - education
  - understanding of risk, consequences and importance of measures
  - visibility of the risk (diagnostics/ testing)
  - severity of the risk (real and perceived)

Netherlands Compliance 'Table of Eleven'

5. Compliance behaviour

A regulatee has certain reasons to respond positive or negative on regulation. The responses to regulation are summarised in the so-called *Table of eleven*, a broadly accepted and used list of reasons for non-compliance In the Netherlands.
The base of this table is formed by a combination of social, psychological en criminal theories found in literature on compliance behaviour and on practical experience within the field of the maintenance of law and order. The dimensions of the table of eleven can be seen as behavioural scientific parameters, which can influence the compliance behaviour.

Table of eleven

Aspects of spontaneous compliance:
1. knowledge of the regulation
2. cost / benefit ratio
3. degree of acceptance of the regulation
4. loyalty and obedience of the regulatee
5. informal monitoring

Aspects of monitoring:
6. informal report probability
7. monitoring probability
8. detection probability
9. selectivity of the inspector

Aspects of sanctions:
10. chance of sanctions
11. severity of sanctions

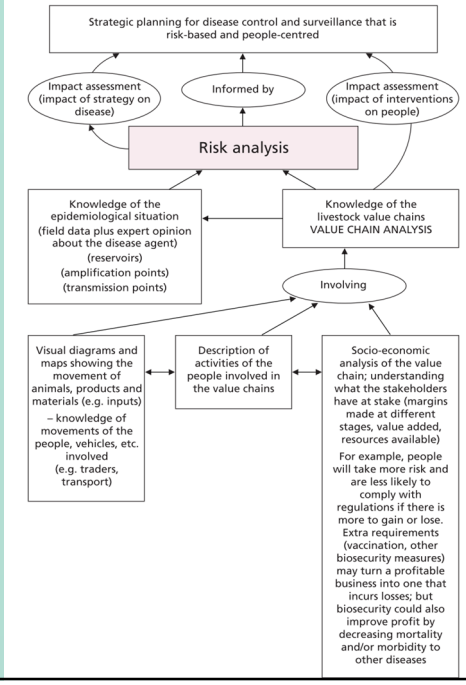
SUMMARY: Using value chain analysis results for cross-border animal disease risk reduction.

The value chain analysis information gathered (using a sociological approach) on cross-border animal and product movements in each region can be used to help reduce the risks of animal disease spread.

National Veterinary Services can use this data to plan practical and effective transboundary animal disease entry mitigation steps as well as targeted surveillance programs.

Participants are equipped to combine the information to conduct, document and analyse cross-border value chain analyses and related qualitative disease spread risk assessments.

FAO **Linking value chain analysis with epidemiology and risk analysis in disease control planning and management**



Risk-Based Evidence for Animal Health Policy

Frontiers in Veterinary Science Editorial article

Front. Vet. Sci., 04 September 2020

https://doi.org/10.3389/fvets.2020.00595

MODULE 5 EXERCISE.

Working through each step of the value chain analysis process to manage risks of FMD transborder introduction.