Food crisis management

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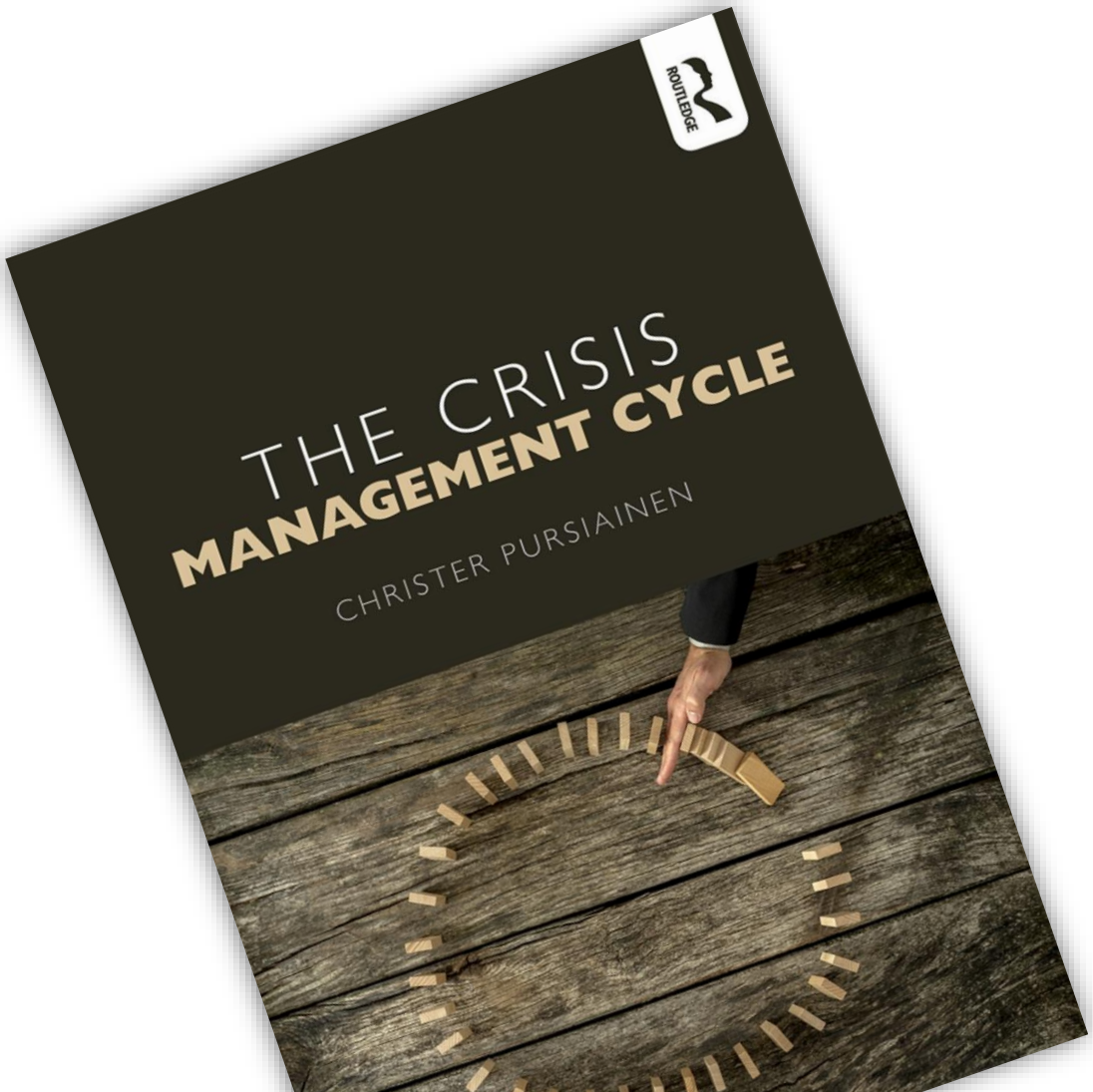

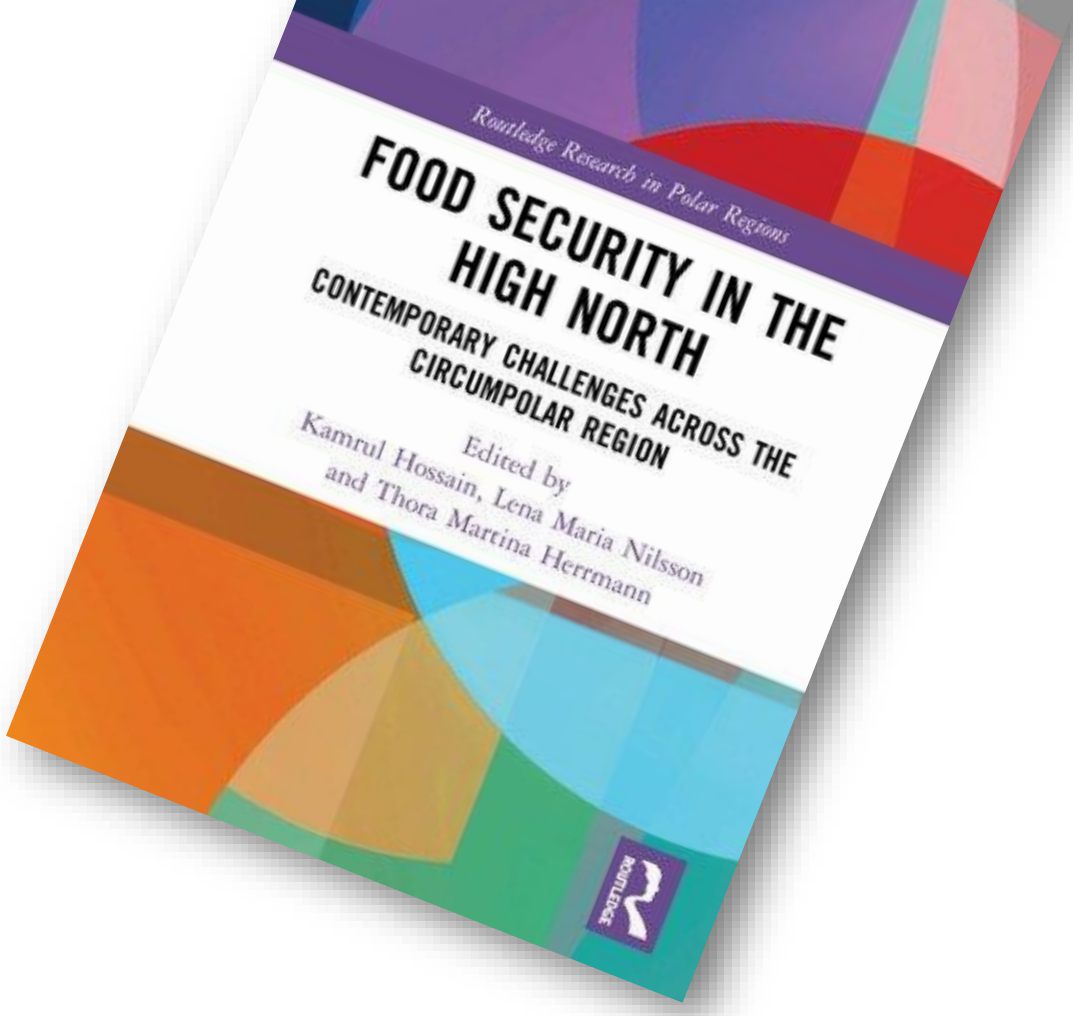

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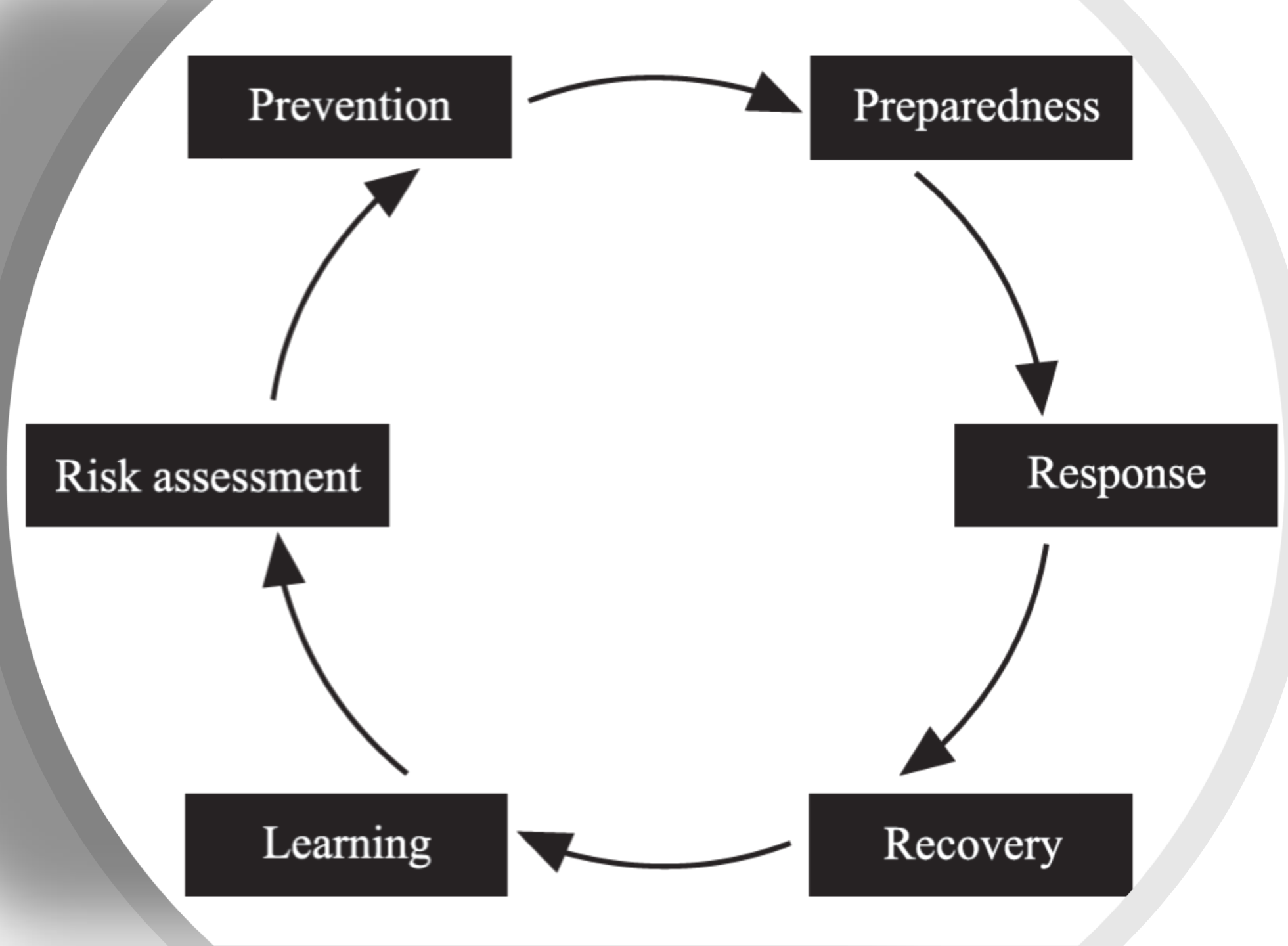

Prevention
Preparedness
Response
Recovery
Learning
Risk assessment

Crisis scenarios in my 2020 article

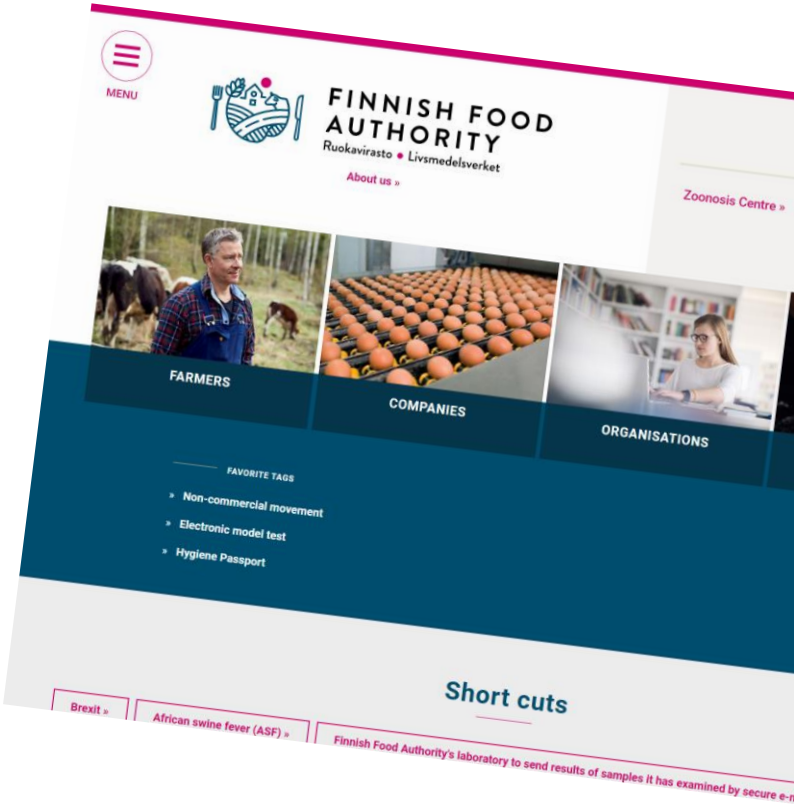
- Radiological fallout and contamination
- Animal disease epidemics
- Oil spills and fishery collapse

Example scenario

- Animal disease epidemics crisis management (example: Finland)
  - Is there an effective crisis management system to handle this kind(s) of risk(s), by systematically going through all the phases of the crisis management?
  - Identify the bottlenecks and shortcomings in order to enhance the crisis management system.

Risk assessment (1/5)

- Important questions:
  - Is there a well-planned and functioning risk assessment system?
    - What is the respective legislation?
    - Wo are the actors? The role of the competent national authority?
    - Is some kind of risk assessment/management standard followed (e.g., ISO 31000)
    - Are animal diseases included in the National Risk Assessments? See Art. 6(1)d of Decision No 1313/2013/EU (2019/C 428/07).
    - Are animal diseases included in regional and local (municipal) Risk Assessments?
    - Which animal disease risks are duly assessed and how often?



Risk assessment (2/5)

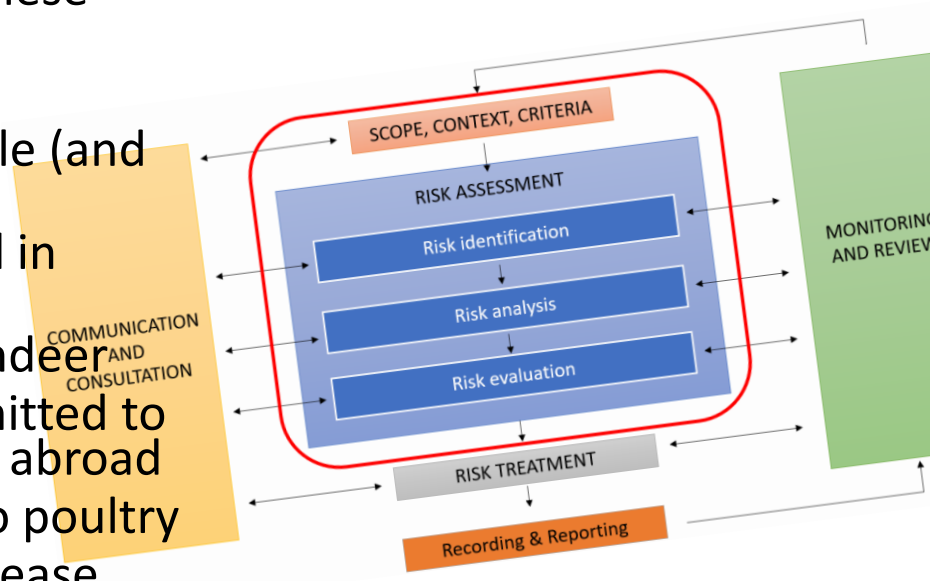
- Risk identification

ISO 31000

  - Which risk identification techniques or their combinations are used?

  - A-class diseases are the most transmittable and serious. These include, among others

    - Foot-and-mouth disease (FMD), which may infect cattle (and reindeer)
    - Chronic wasting disease (CWD), which has been found in reindeer and moose
    - Orf virus, which can be found in sheep, goats, and reindeer
    - African swine fever virus (ASFV), which may be transmitted to farmed pigs from wild boar or through human activity abroad
    - Avian influenza (bird flu), which may be transmitted to poultry
    - Infectious hematopoietic necrosis (IHN), which is a disease that affects fish (mainly salmon)



Risk assessment (3/5)

- Risk identification (cont.)
  - Some of these diseases may be transmitted to humans and cause specific health problems
  - In any case, animal diseases, even if mostly harmless to humans, may severely damage the reputations of farms or companies, require long-term regulative bans on selling and exporting, or necessitate the mass slaughter of animals
  - New, unexpected serious animal diseases
    - Climate change related risks, due to the increased survivability of diseases and reduced development times and extended transmission times for marine fish diseases, terrestrial parasitic diseases, bacterial diseases, and insect-borne diseases, permafrost melting etc.?
    - Animal origins of the SARS-CoV-2 and similar animal-to-human-transmitted diseases?

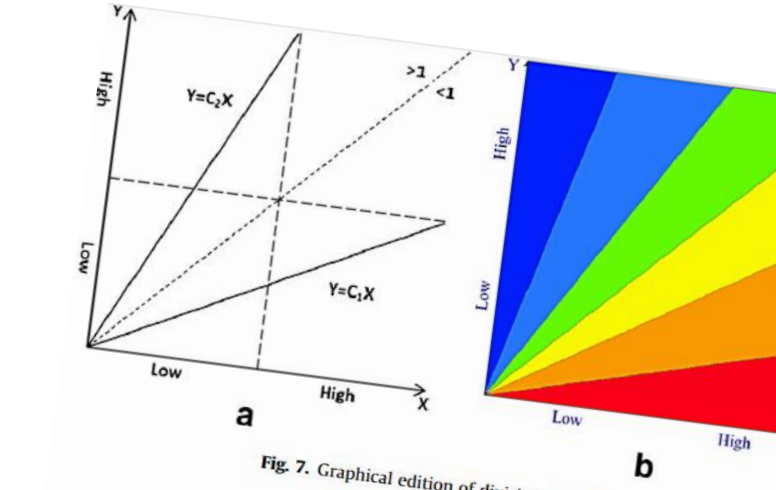
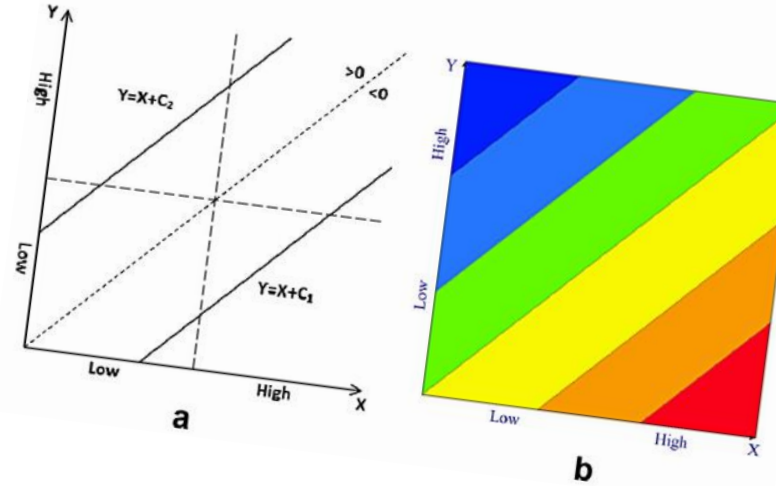


Fig. 7. Graphical edition of division formula.

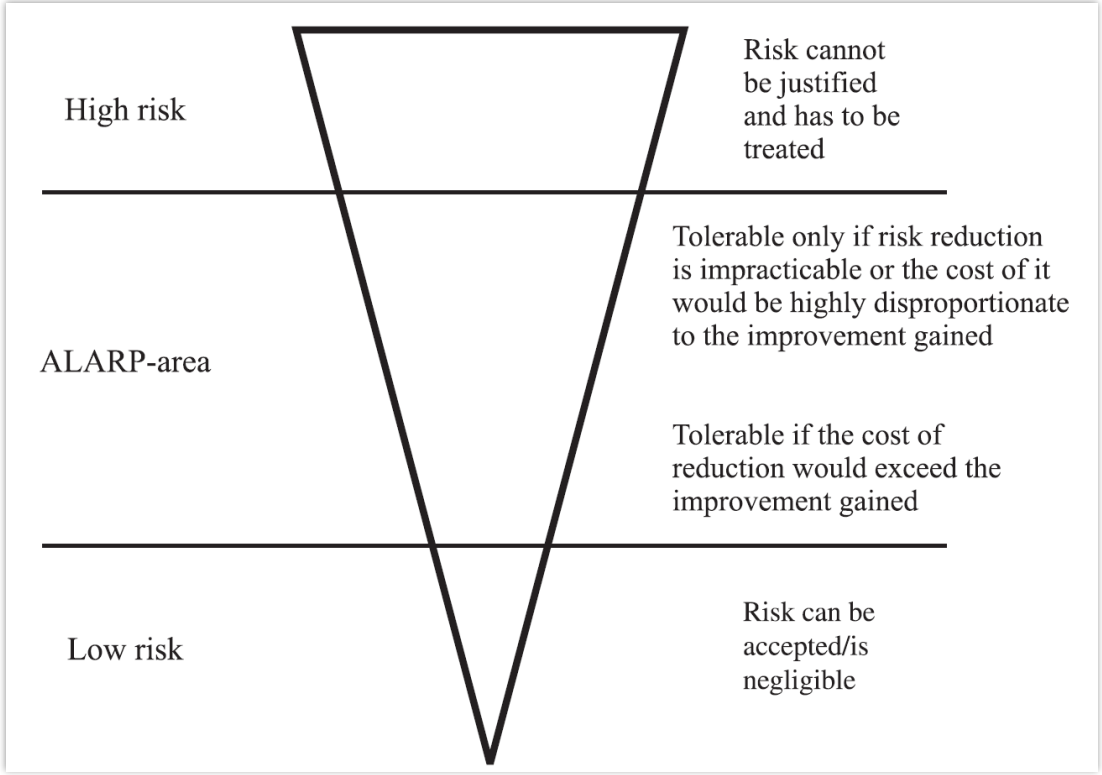


Risk assessment (4/5)

- Risk analysis
  - Are animal diseases included in the National Risk Assessments? [See Art. 6(1)d of Decision No 1313/2013/EU (2019/C 428/07).]
  - Are animal diseases included in regional and local (municipal) Risk Assessments
  - Which animal disease risks are duly assessed?
  - Which risk assessment techniques or their combinations are used?
  - Example:
    - Lyytikäinen, T. et al. (2011). *The spread of foot-and-mouth disease (FMD) within Finland and emergency vaccination in case of an epidemic outbreak*. Evira Research Reports 1/2011.
      - Monte Carlo simulation
      - The simulations show that the potential for the spread of FMD in Finland is low. One-third of the outbreaks would be sporadic in one farm and would not cause further contagion, lasting on average 3.5 weeks until the farm was disinfected, after which the restrictive measures would be lifted. The most typical outcome, occurring in more than 60% of the iterations, would result in an outbreak affecting an average of five farms and lasting approximately five weeks. Even in the worst-case scenario, the outbreak lasted only ten weeks and affected twenty-nine infected farms; no simulated outbreak spiralled out of control.

Risk assessment (5/5)

- Risk evaluation
  - Which risk evaluation (typically cost-benefit) techniques or their combinations are used?
  - Which risks will be selected for further treatment?



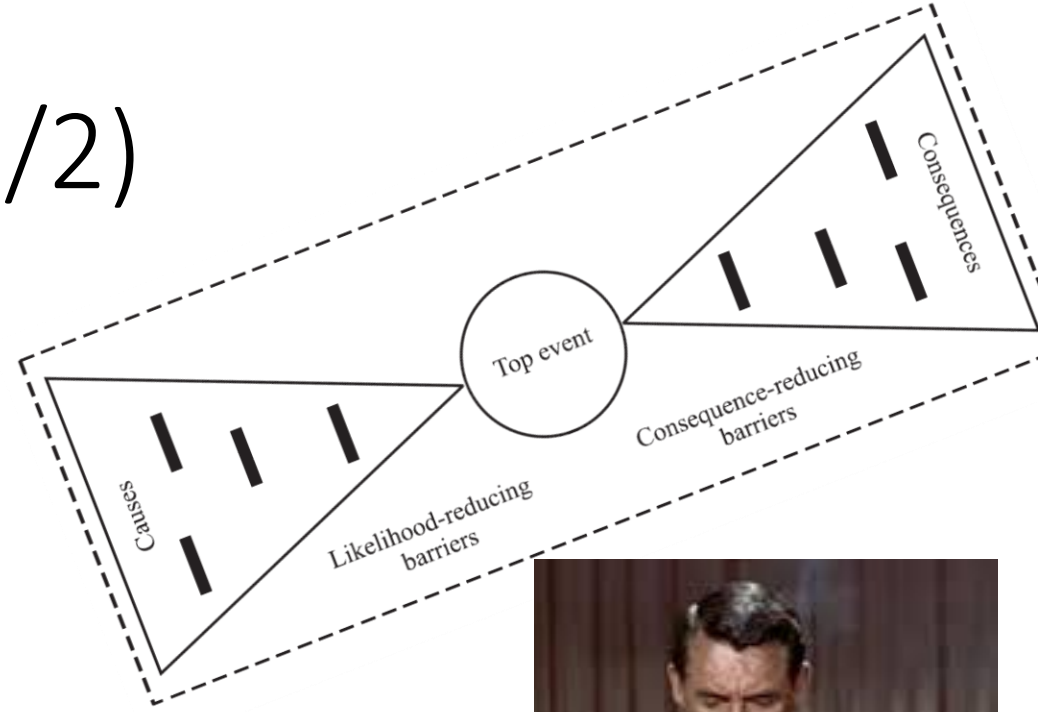
As low as reasonably practicable principle = ALARP

Prevention (1/2)

- The main instrument of prevention is combined EU and national regulations, as well as guidelines and guidance on importing animals and animal products, the biosecurity of animal holdings, the isolation of infected animals if needed, and sometimes vaccination.

- However, vaccination is generally not a solution.
  - For example, in the case of FMD (Lyytikäinen et al. 2011), routine vaccination would cause more harm than good, at least economically. The results of the simulations of the spread of the disease, coupled with an economic analysis of different scenarios, do not support emergency vaccination policies in Finland; vaccination would have a negligible effect on the spread of the disease even in worst-case outbreaks.

Prevention (2/2)

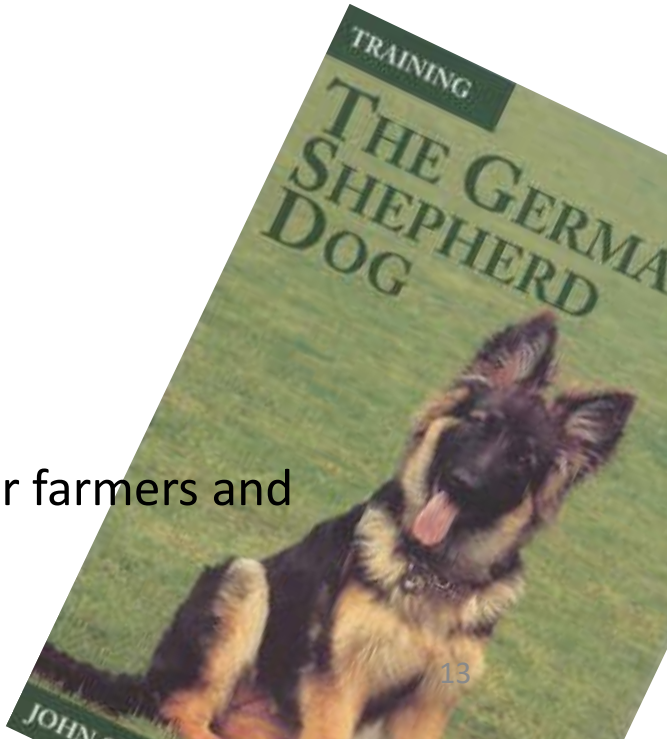


- Systematic risk treatment (prevention and mitigation), following ISO 31000 language, includes the following strategies, typically in combinations:
  - 1) Avoiding the risk by deciding not to start or continue with the activity that gives rise to the risk
  - 2) Taking or increasing the risk in order to pursue an opportunity
  - 3) Removing the risk source
  - 4) Changing the likelihood
  - 5) Changing the consequences
  - 6) Sharing the risk with (or transforming it to) another party or parties (e.g., through contracts, buying insurance)
  - 7) Retaining the risk by informed decision

Preparedness

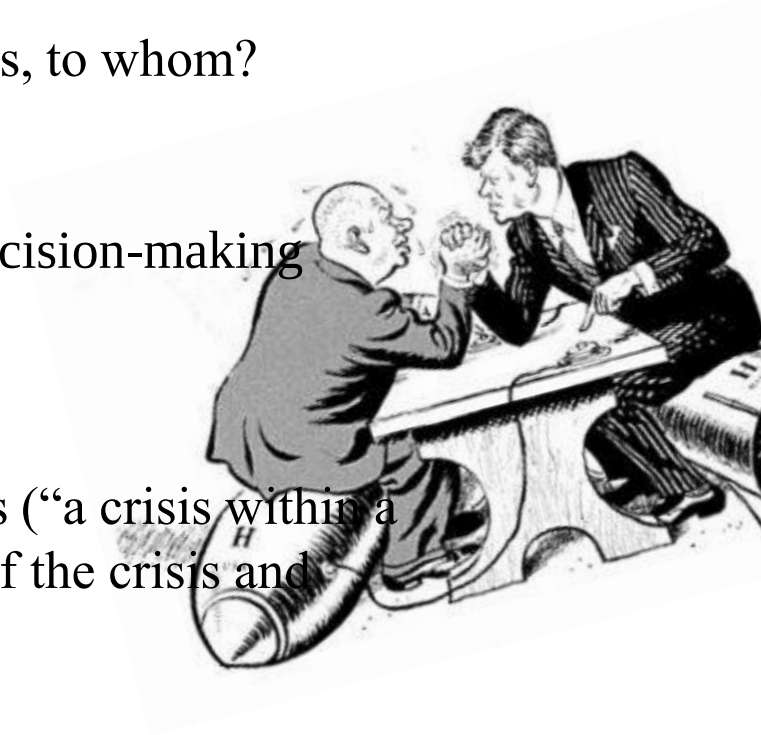
- As it is impossible to prevent all animal diseases, the solution is to be ready to identify them and to create the capacities and capabilities to respond to an outbreak. This involves e.g.,

  - Contingency planning
  - Responsible authorities and nominated veterinars
  - Emergency stocks
  - Training and exercises
  - Education and information about the symptoms
  - A rapid communication system
  - Checking of suspected cases and immediate isolation of such animals
  - Long-term monitoring and random samples
  - Risk-based testing of imported animals and animals close to the border
  - An early warning system, which entails well-regulated responsibilities for farmers and authorities



Response (1/2)

- In any crisis, response includes:
  - Sensemaking
    - Is this a crisis, how should it be ‘framed’, what kind of a crisis, to whom?
  - Decision-making
    - Who is doing the decisions, how a multidimensional crisis decision-making (administrative levels, concerned sectors etc.) is coordinated?
  - Communication (meaning-making)
    - The danger is unintentionally creating a communication crisis (“a crisis within a crisis”) which may have serious impact on the management of the crisis and reputation of the respective country/authorities/organisation

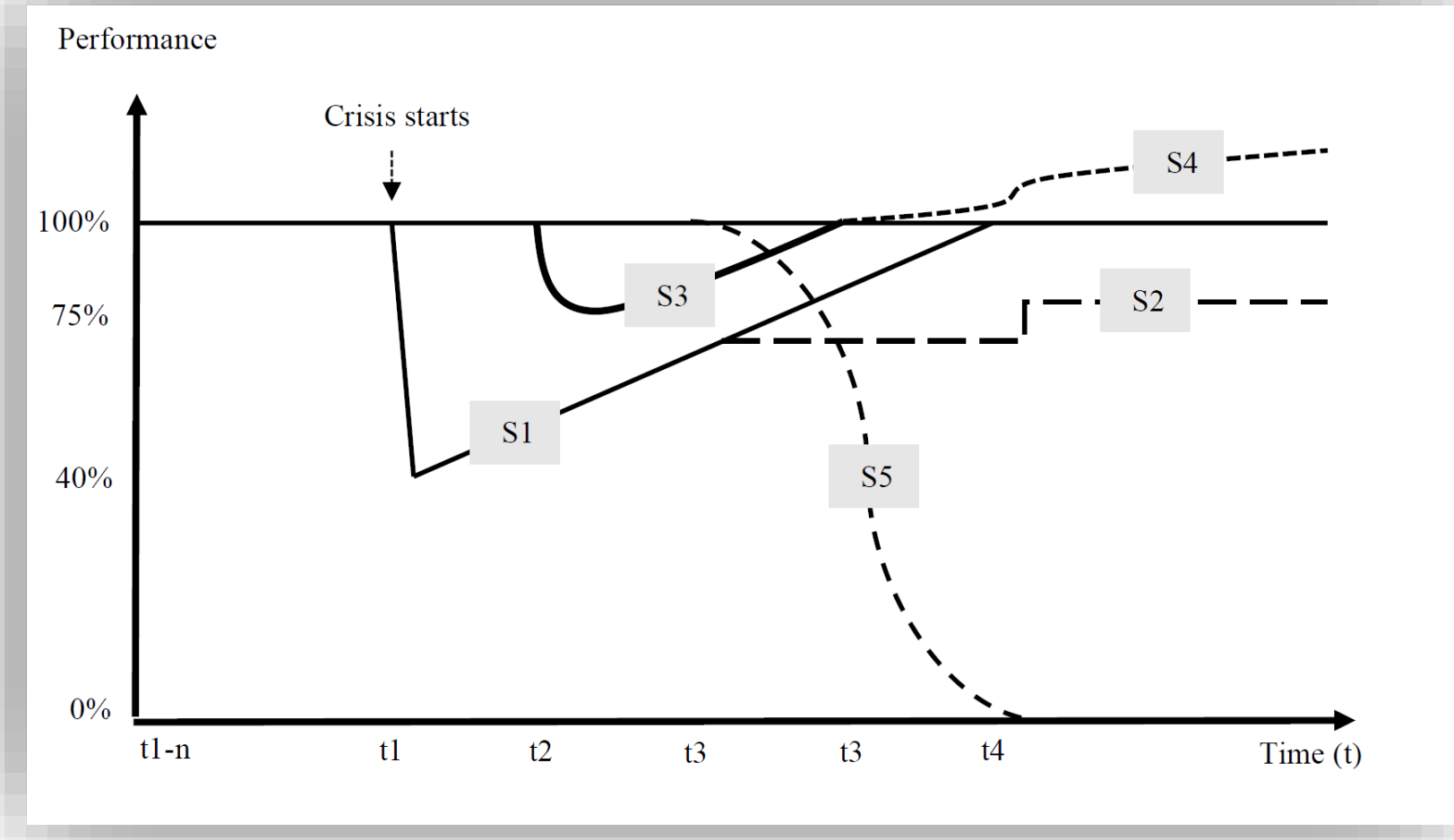


Response (2/2)

- If an animal disease is identified, several routine tasks ensue, which may include:
  - Slaughtering and destroying animals
  - Clearing, cleaning, and disinfecting animal shelters
  - Destroying or handling manure and other infectious material.
  - Overlapping with these measures, any further spread of the disease must be prevented. This means
    - diagnosing and mapping the origin of the disease; examining contact farms
    - isolating the infected area
    - establishing protection and surveillance zones around the infected farm(s), usually for some kilometres
    - restricting the movement of animals and animal products in specified zones
    - and, for some diseases, vaccinating animals

Recovery (1/2)

- Any recovery process is a combination of proactive (planned and prepared) and reactive (improvisation) measures.
- The ’resilience triangle’ illustrates that this is about a conscious choice between strategies rather than any objective recovery strategy



Recovery (2/2)

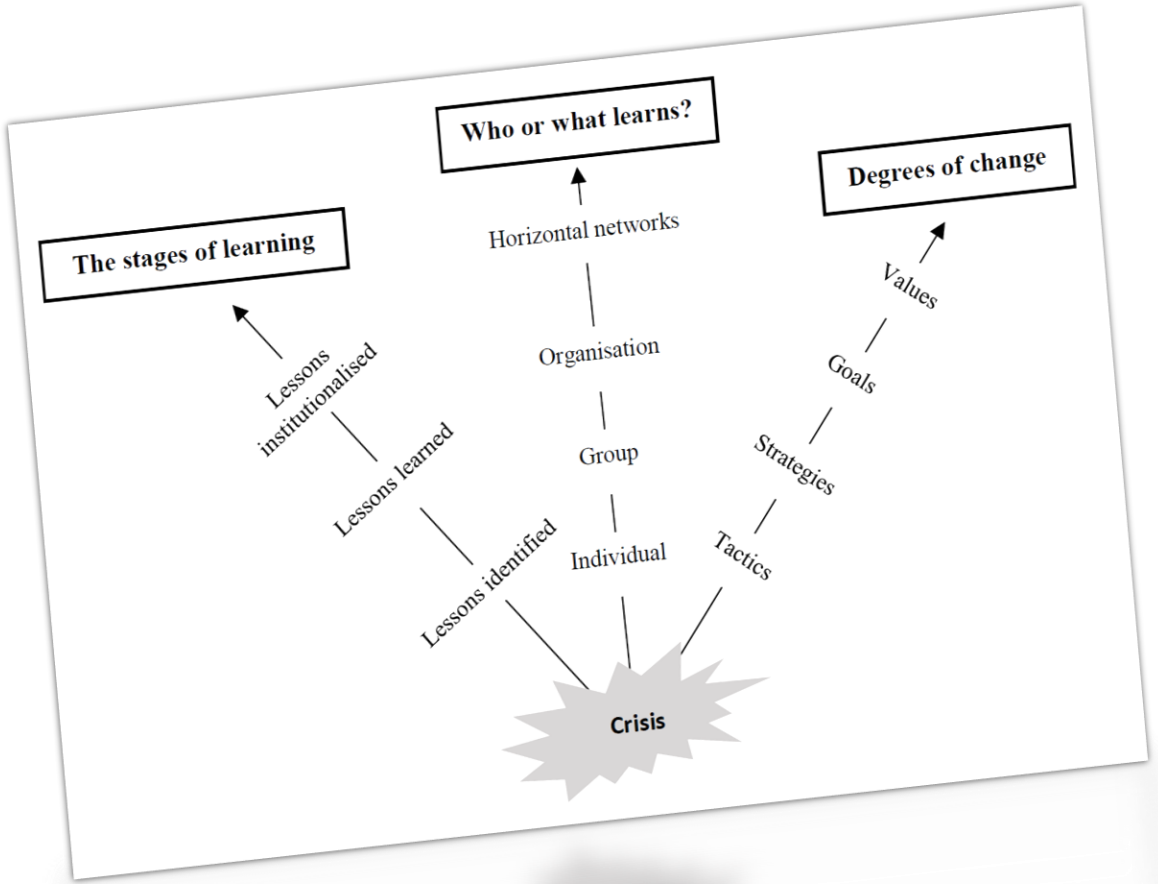
- Who or what should be recovered?
  - Livestock farmers may struggle to recover their livelihood if many animals must be slaughtered or if serious harm is done to the farmer's reputation.
    - One recovery measure, therefore, is financial support for affected animal owners.
    - In Finland, for instance, owners are entitled to compensation for slaughtered animals and lost property. Compensation for the loss of production is discretionary and may cover up to 75% of the losses incurred.
  - A more problematic issue is reputation loss and recovering from that.

Learning

- Post-crisis learning is supposed to feed back to the ’crisis management cycle’

- Any kind of post crisis learning includes the following issues

- The important questions include:
  - Who has learned what? Is there a system to make systematic, institutionalised efforts to draw lessons from each disease case?
  - Will, after processing a suspected disease or eradicating a disease case, the success of the measures be routinely re-assessed, and contingency plans and guidelines updated?
  - Is this followed by arranging additional training or education?



Some conclusions

- In terms of competent authority, food security crisis management is within its sector well organized in the case of the current country and respective scenario.
- All the scenarios touch upon in my 2020 article concern several dimensions of society. Hence, crisis management must involve simultaneous cross-sectorial vision, and institutional solutions and analyses must be coordinated.
- In a food crisis, local, national, regional, and sometimes international crisis management approaches would need to be combined into a coordinated toolkit in the spirit of a multilevel governance approach.

Thank you for your attention!

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