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INTRODUCTION TO RISK-BASED FOOD REGULATORY DECISION-MAKING: APPLICATION TO FOOD IMPORTS

Workshop On Risk-Based Food Regulatory Interventions

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Overview

Foundations to Modernized Food Regulatory Approaches

Introduction to Risk-Based Decision Making

Application to Import Control: Risk-Based Approaches

Food Safety Management Requires a Collaborative Approach

- ❑ Industry
  - Farmers, food manufacturers, food distributors, food service establishments and retailers

- ❑ Consumers

- ❑ Government(s)/Regulators

Important Role of the Regulator

- Oversight on Managing the Interaction between Food Producers and Consumers
- Delegated Authority of Consumers to Protect them from Health Concerns and Fraud:

Empowered to Make Decisions on behalf of the Public (Consumers)

What Does a Regulator Do ?

Primary Risk Manager:

- ❑ Provides Direction and Guidance for Risk Management Approach
  - Regulatory Measures
  - Non-regulatory Measures

Food Regulator's Mandate

- ❑ Robust decisions call for a structured, evidence-based and documented approach
- ❑ Direction from Codex: CXG82-2013

Risk Analysis Provides Structure to Food Regulatory Decisions

- **Risk Analysis** is the **logical framework** that underlies **decision-making** concerning all kinds of risks (not only for food safety and nutrition)

- Applied to Food Safety and Nutrition Decision-Making Developed through the FAO/WHO Food Standards Program and particularly the Codex Alimentarius Commission (Codex)

Definition of Food Risk Analysis

*An **iterative and highly interactive** process that should be followed by food **decision-makers** to address food safety and nutrition issues, using **robust evidence**, including **scientific information** and regular exchange with all parties and stakeholders involved*

Comprises 3 components :

Risk Assessment

Risk Management

Risk Communication

Risk Analysis Paradigm Provides Structure

Robust Food Decisions

An Added Incentive to Follow

The Risk Analysis Paradigm and Risk Assessment in Particular

Obligations Under the World Trade Organization Agreements

ENSURING FOOD SAFETY AND ANIMAL AND PLANT HEALTH MEASURES SET OUT THE BASIC RULES IN THE WTO

- ❑ SPS Agreement
  - Applies to all sanitary and phytosanitary measures which may, directly or indirectly, affect international trade.
- ❑ TBT Agreement
  - Ensures that technical regulations, standards, and conformity assessment procedures are non-discriminatory and do not create unnecessary obstacles to trade.
  - Applies to all products, including industrial and agricultural products
  - Does not apply to sanitary and phytosanitary measures as defined in SPS Agreement

Directions - SPS Agreement on Risk Assessment

Article 5: Assessment of Risk and Determination of the Appropriate Level of Sanitary or Phytosanitary Protection

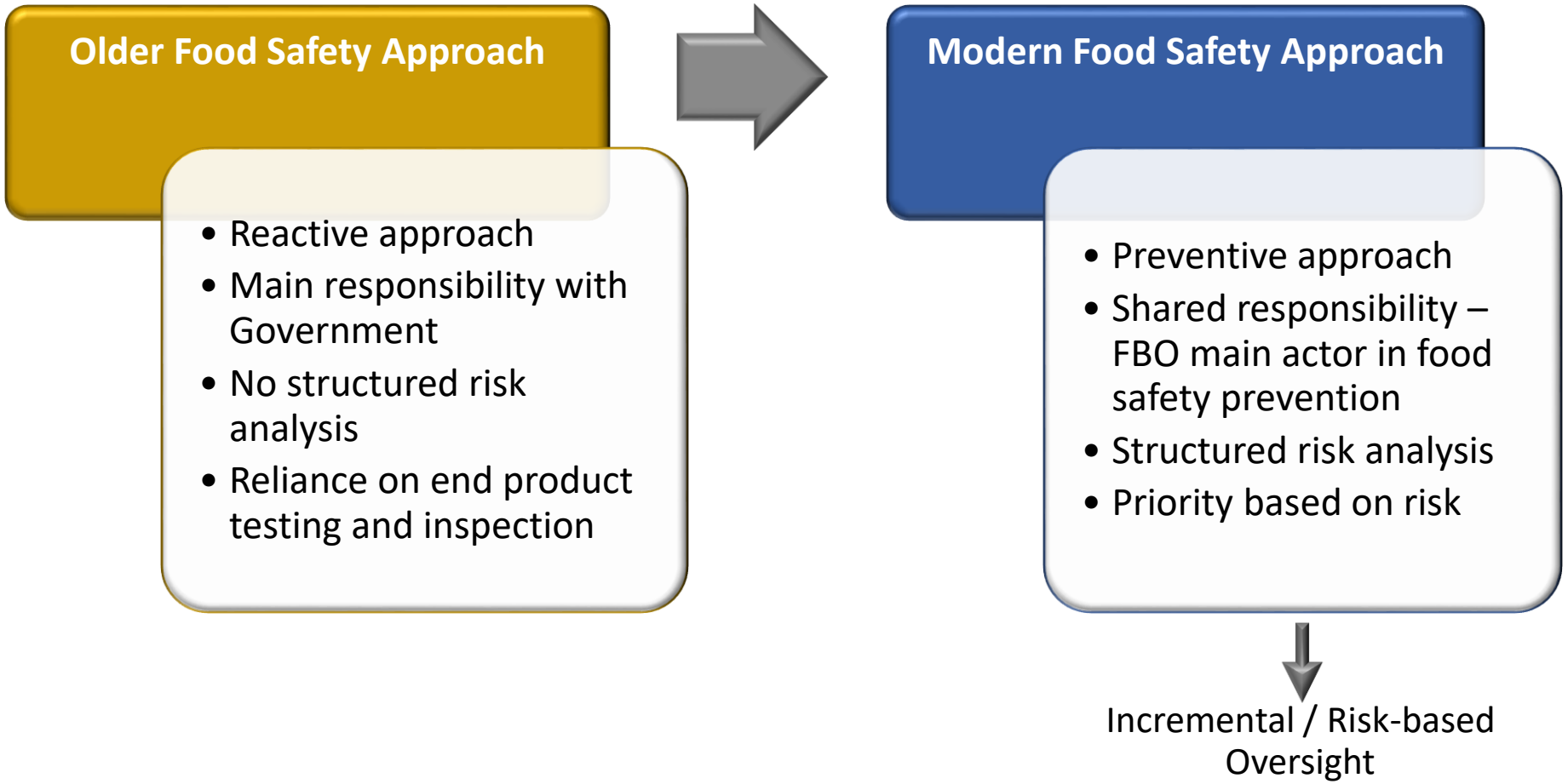
1. Members shall ensure that their **sanitary** or phytosanitary **measures** are based on an assessment, as appropriate to the circumstances, of the **risks to human**, animal or plant life or health, taking into account risk assessment techniques developed by the **relevant international organizations**.
2. In the assessment of risks, Members shall take into account **available scientific evidence**; relevant processes and production methods; relevant inspection, sampling and testing methods; prevalence of specific diseases or pests; existence of pest- or disease-free areas; relevant ecological and environmental conditions; and quarantine or other treatment.

Directions - SPS Agreement on Risk Assessment (2)

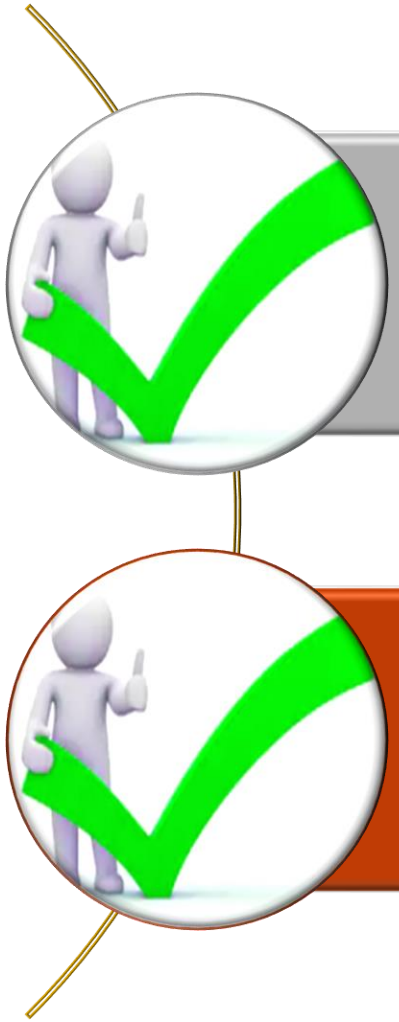
Article 5: Assessment of Risk and Determination of the Appropriate Level of Sanitary or Phytosanitary Protection

4. Members should, when determining the appropriate level of sanitary or phytosanitary protection, **take into account the objective of minimizing negative trade effects**.
5. With the objective of achieving consistency in the application of the concept of appropriate level of sanitary or phytosanitary protection against risks to human life or health, or to animal and plant life or health, each Member **shall avoid arbitrary or unjustifiable distinctions in the levels it considers to be appropriate in different situations** (…)

Moving Towards Risk-based Interventions



Focusing on Risk-Based Decisions



Food Safety Decision-Making and Positioning Risk Analysis

Risk-Based Decision-Making Approaches

Risk Based Interventions / Meaning ....

Working Definition for a Risk-Informed Decision-making System

A systematic means by which to facilitate decision making to reduce public health risk in light of limited resources and additional factors that may be considered.

Enhancing Food Safety

(IOM/NRC 2010)

Risk Based Interventions / Meaning …(2)

*The **Impact** of the Food Regulatory Decision is Commensurate to the **Level of Risk***

Risk Analysis Provides Structure to Food Regulatory Decisions

Risk Analysis is the **logical framework** that underlies **decision-making** concerning all kinds of risks (not only for food safety and nutrition)

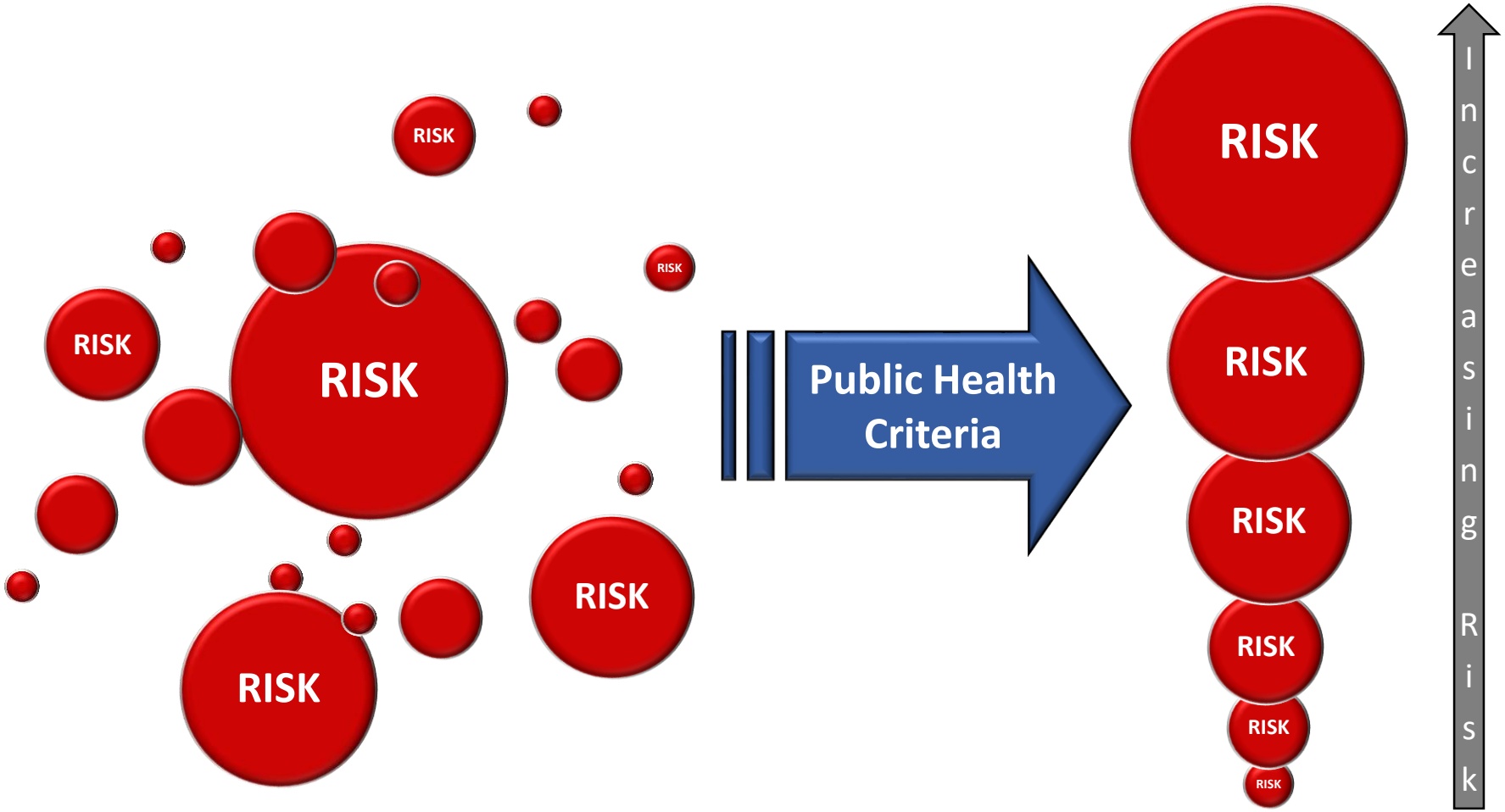
An iterative and highly interactive process that should be followed by food decision-makers to address food safety and nutrition issues, using robust evidence, including scientific information and regular exchange with all parties and stakeholders involved

Risk Analysis Paradigm Provides Structure

Robust Food Decisions

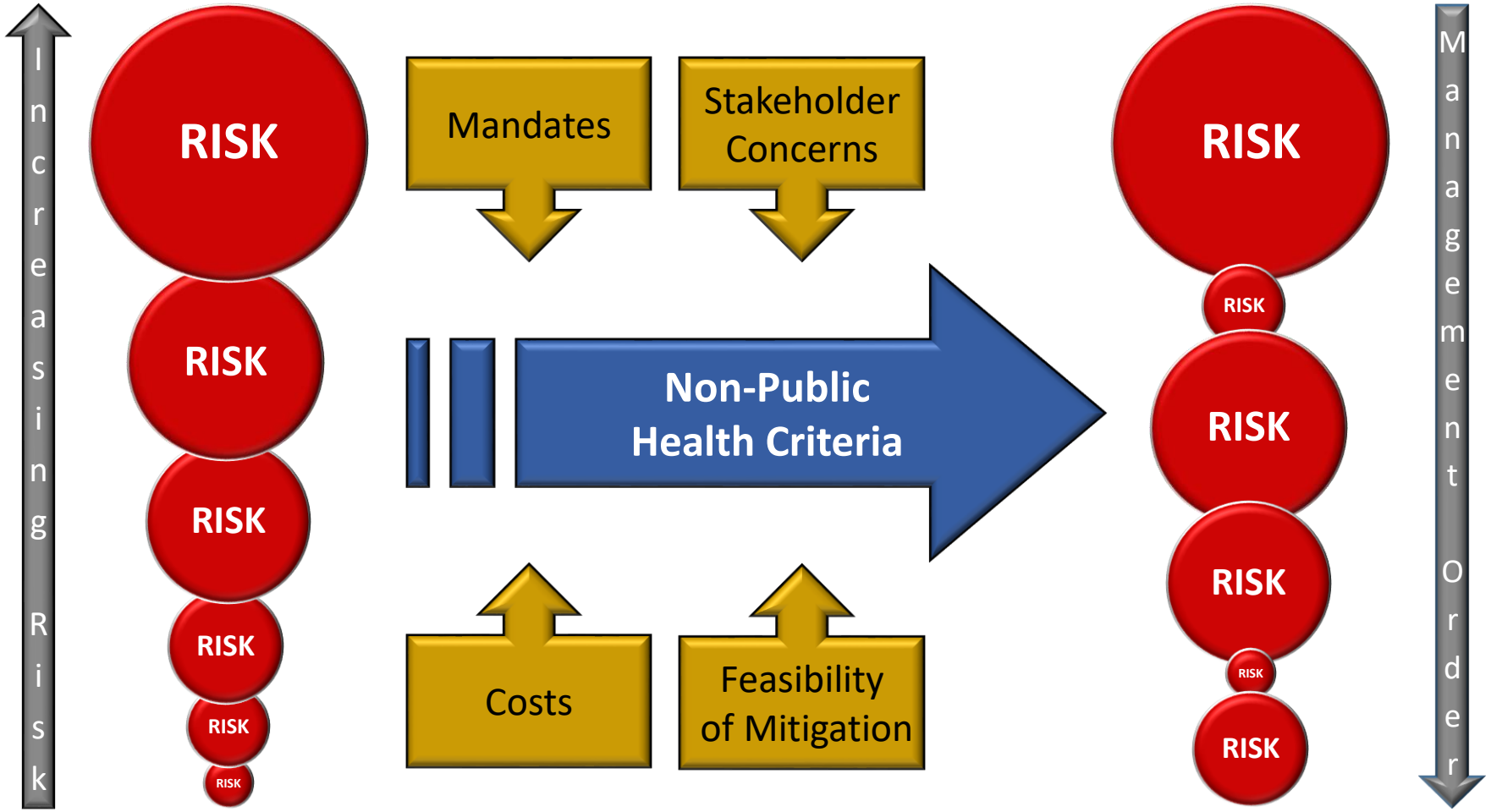
First Stage Risk Ranking

The Relative Risk of Multiple Hazards are Ranked Based on Public Health Outcomes



Risk-Informed Prioritization

Risk *Management Decision-making* May Consider Additional Factors



CCFICS Principles for Food Import & Export Certification

1995: PRINCIPLE 7

Inspection systems to ensure food safety should be designed and operated on the basis of ***objective risk assessment appropriate to the circumstances***

Risk Based Inspection

❑A risk-based inspection:

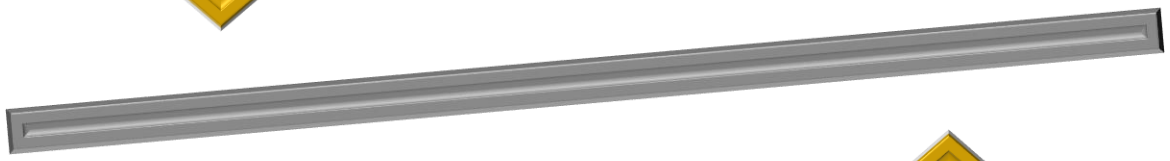
- Proactive and preventive in nature.
- Supported by Data Collection and Analysis.
- Supported by Identification of “Higher Risk Situations”.
- Directs Resources to the areas of Higher Risk:
  - Establishments, food products and inherent hazards.

❑ Efficient use of available resources while protecting public health:

- Higher inspection frequency and/or inspection intensity towards the high-risk **establishments and food imports.**

Competing Priorities in Food Inspection

Inspection resources



Trade facilitation & Public health protection

Risk-Analysis Driven Approach

Assessment

- Establish the risk profile of consignments, products or establishments:
  - Identify the high-risk food products/imports
  - Identify the high-risk establishments

Management

- Establish the intensity and frequency of inspections
- Implement and Evaluate
- Manage Non-Conformities Based on Risk

Communication

- Communicate the new risk-based inspection model to stakeholders

Benefits

❑ Predictability

- Ability to analyze the historical food inspection records and anticipate future potential risks.

❑ Efficiency

- Inspection resources are optimized and aligned with the food safety risks.

❑ Customization

- Inspection systems are customized to the specific country reality.

❑ Documentation

- Databases enable to have a record of all importers including historical performance records.

Enablers

Change of management/operation:

❑Regulatory Enabler

- **Training:** Inspection personnel needs to be trained in risk analysis principles and risk-based inspection.
- **Databases and data collection procedures** – Databases and data collection procedures need to be created that contain:
  - Information related to the importers, country of origin and type of products imported
  - Historical data on the results and types of inspections performed including non-compliances observed by the inspector.
- **IT solutions:** Online platforms and databases need to be created:
  - **Dynamic risk algorithm** that allows to assign the intensity and inspection frequency based on the historical data and risk posed by an importation

Components of Risk-Based Import Control

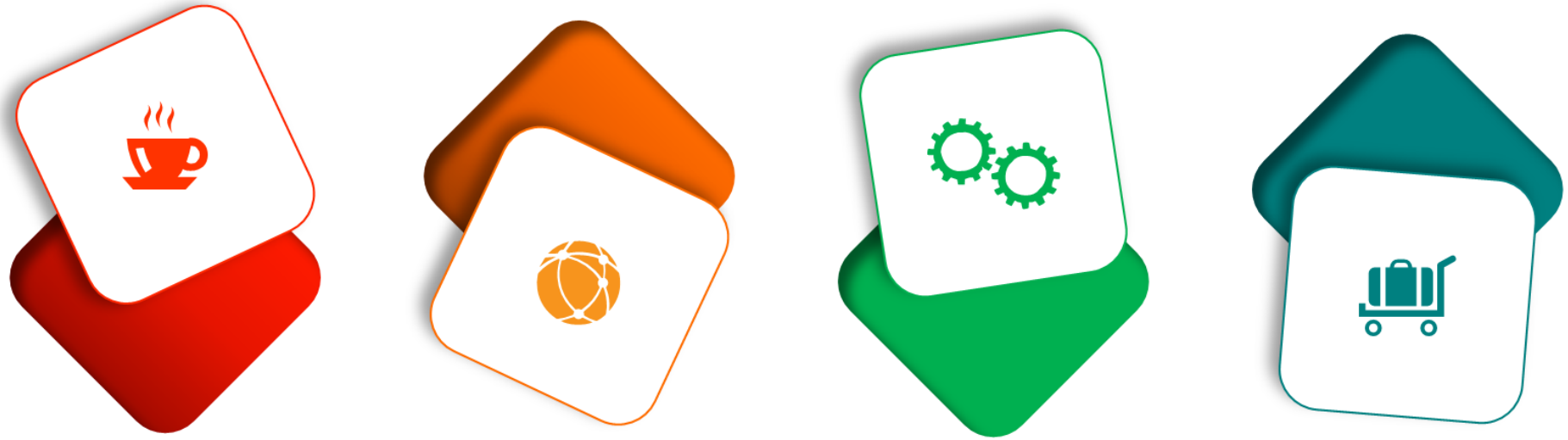
1. Legal framework
2. IT Infrastructure
3. Harmonization of tariff codes
4. Risk algorithm
5. Requirements imported food
6. Inspection intensity and frequency
7. Continuous improvement

Risk Parameters in Food Import Control

- ❑Inherent risk of the traded commodity
- ❑Country of origin : robustness of regulatory system
- ❑Risk Related to Establishment : e.g., Attestation of compliance verification (certifications if any)
- ❑History of compliance of exporter /importer

Food Import Risk Algorithm

IMPORT AND EXPORT RISK-BASED BORDER INSPECTION SYSTEM FOR FOOD COMMODITIES



AgriFood Product

Country of Origin

Facility at Origin

Importer Performance

IMPORT RISK = PRODUCT RISK + COUNTRY RISK + Establishment/Facility RISK + IMPORTER RISK

Risk Based Interventions: Assigning Channels

No inspection required	Documental inspection	Physical inspection* With / without Sampling and testing

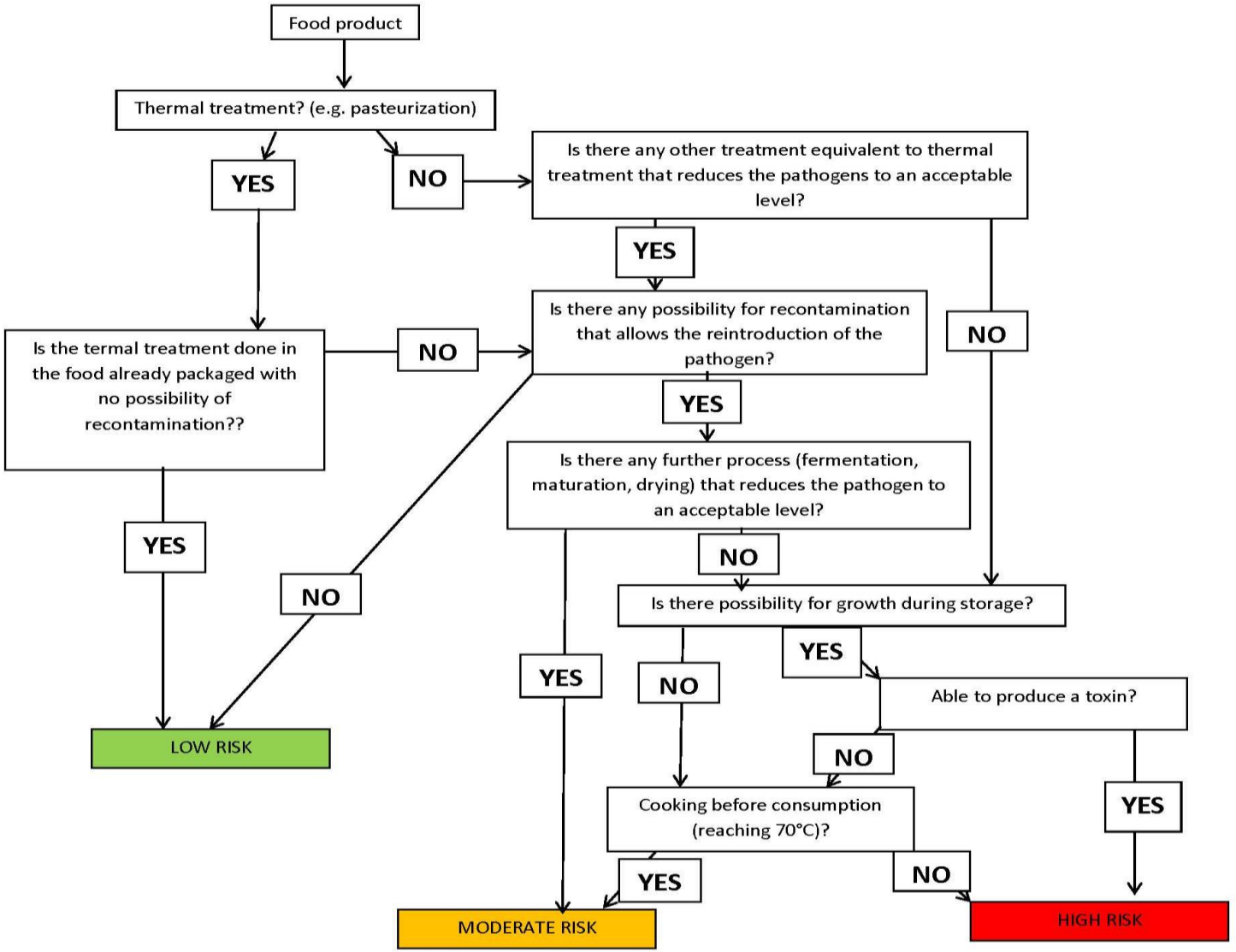
Food Import Risk Algorithm: Parameter 1

IMPORT AND EXPORT RISK-BASED BORDER INSPECTION SYSTEM FOR FOOD COMMODITIES

Agri-Food Product

IMPORT RISK = PRODUCT RISK + COUNTRY RISK + Establishment/Facility RISK + IMPORTER RISK

Example of Decision Tree – Risk Related to One Hazard



Microbial Hazard

An Example of Food Categorization Method: Multiple

Combining Hazards

Agri-food tariff	Microbiological risk	Chemical risk	Overall risk
HS1	High (100)	High (100)	**High (10,000)**
HS2	Moderate (10)	Moderate (10)	**Moderate (100)**
HS3	Low (1)	Low (1)	**Low (1)**

The specific scoring system needs to be decided by the country.

In this example, the risk scores vary from 1 to 100 and the final risk score is calculated by multiplying the microbiological risk by the chemical risk score.

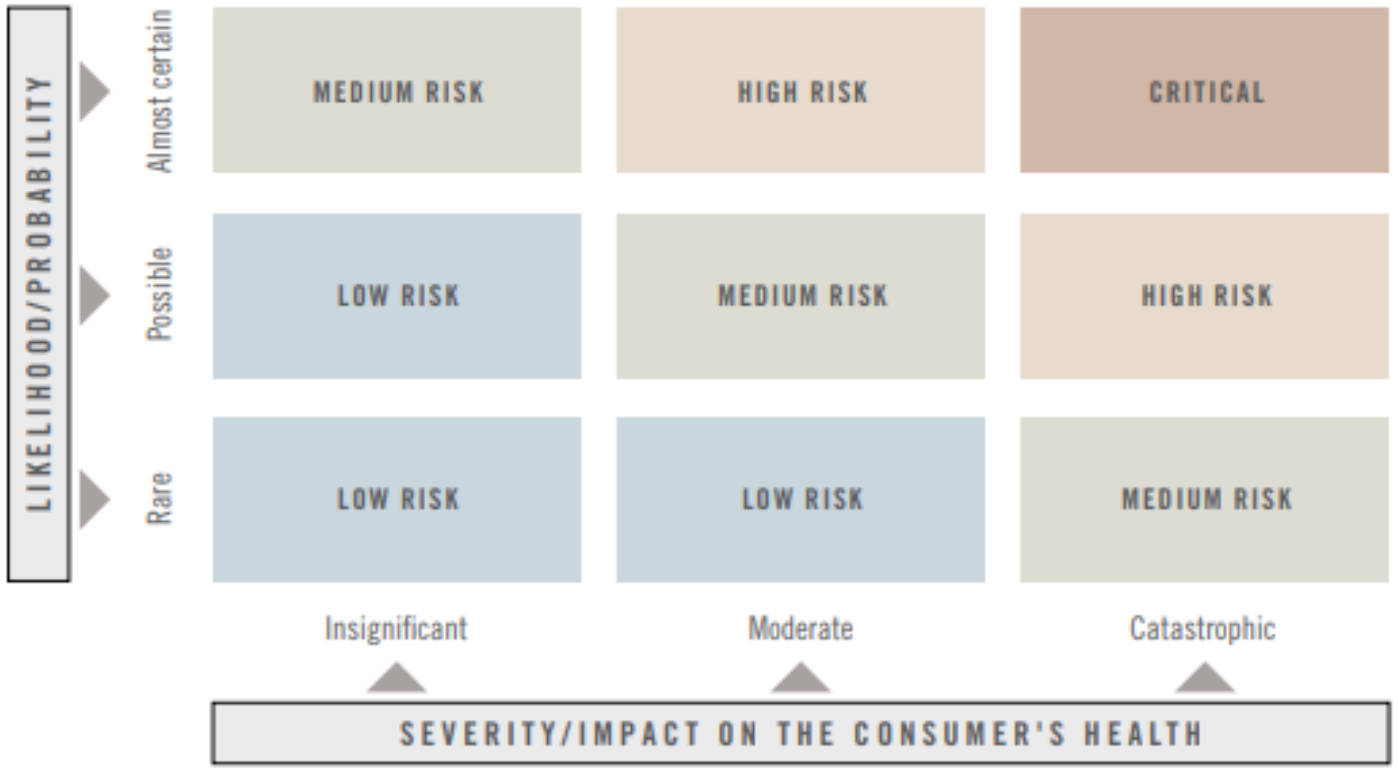
Example of Parameters Influencing Risk Matrix for Food

With a Biological Hazard

Probability	
Score	**Definition**
1	There is no evidence of the presence of the hazard in the food or it has been found sporadically (prevalence < 1%)
10	There are reports of the presence of the hazard in food (prevalence between 1-10%)
100	The hazard is frequently found in food (prevalence > 10%)

Severity	
Score	**Definition**
1	Hazard produces a hospitalization rate < 1% and mortality <0.1%
10	The hazard produces a hospitalization rate up to 10% and mortality up to 1%
100	Hazard produces a hospitalization rate > 50% and mortality > 1%

Example of a Risk Matrix



http://www.fao.org/3/ca5465en/CA5465EN.pdf *fig 2.4*

Risk is calculated by the assumption that risk equals probability multiplied by severity

RISK = PROBABILITY X SEVERITY

Example of Parameters Influencing Risk Matrix for Food

With a Chemical Hazard

Exposure	
Score	**Definition**
1	There is no evidence of the presence of the hazard in the food or it has been found sporadically in the last 5 years (0.1-1% samples above MRL)
10	There are reports/data of the presence of the hazard in the food (1-5% above MRL)
100	The hazard is frequently found in the food (>5% above MRL)

Toxicity	
Score	**Definition**
1	Reversible Toxicity (pharmacological or organ) ADI: 0.1-10 mg/kg/day
10	Irreversible organ toxicity, neurotoxic ADI: 0.001-0.1 mg/kg/day
100	Mutagenic, carcinogenic in humans, effects on reproduction ADI: <0.001 mg/kg/day

Example of High Risk Foods

#	Type of product/Activity	Expected Hazard	Type of Risk	CODE
1	Baby formulas produced with or without heat processing (solid or liquid)	STEC, Cl. perfringens, B. cereus, S. aureus, Salmonella spp., Cronobacter sakazakii. Chemical residues	High Risk	
2	Cheese from Pasteurized milk, including milk-based spreads	STEC, S. aureus, Salmonella spp., Campylobacter jejuni, L. monocytogenes,etc.	High Risk	
3	Cheeses from unpasteurized cow milk	STEC, S. aureus, Salmonella spp., Campylobacter jejuni, L. monocytogenes,etc.	High Risk	
4	Cream including Icecream	STEC, Salmonella spp. Chemical residues Foreign matter	High Risk	
5	Curry powder and other spices (chilies, turmeric, coriander, etc)	Spore formers e.g. Cl. perfringens, Cl. botulinum, B. cereus Chemical residues - heavy metals, mycotoxins, etc. Foreign matter	High Risk	
6	Eggs and eggs products e.g. fresh, liqued, frozen, and draied		High Risk	
7	Fish - raw/frozen, unprocessed (Wild or Aquaculture)	Salmonella spp., V. parahaemolyticus, L. monocytogenes Chemical residues - heavy metals, marine toxins, etc . Foreign matter - bones	High Risk	
8	Fresh Fruits & Veg/R-T-E and pre-cut and packaged		High Risk	
9	Fresh Juices including coconut milk		High Risk	
10	Ice	STEC, Salmonella spp. Chemical residues Foreign matter	High Risk	
11	Meat — ground, minced, marinated	STEC, Salmonella spp., Campylobacter jejuni, parasites Chemical residues — heavy metals, antibiotics, etc. Foreign matter — bone, metal fragments, etc.	High Risk	
12	Meat – organs / offals e.g. brain, kidney, liver	STEC, Salmonella spp., Campylobacter jejuni, parasites Chemical residues — heavy metals, antibiotics, etc. Foreign matter	High Risk	
13	Meat and poultry – raw/fresh chilled/	STEC, Salmonella spp., Campylobacter jejuni, parasites Chemical residues — heavy metals, antibiotics, etc. Foreign matter — bone, etc.	High Risk	
14	Milk - infant formula and products for special medical purposes	STEC, Salmonella spp., Campylobacter jejuni, L. monocytogenes Chemical residues — antibiotics, etc. Foreign matter	High Risk	
15	Milk - raw unprocessed	STEC, Salmonella spp., Campylobacter jejuni, L. monocytogenes Chemical residues — antibiotics, etc. Foreign matter	High Risk	
16	Milk and milk by-products (fluid and condensed)		High Risk	
17	Mushrooms - fresh, unprocessed	STEC, Salmonella spp., Cl. botulinum Chemical residues Foreign matter	High Risk	
18	Purees and mixes destined to infants - produced without heat processing	STEC, Cl. perfringens, B. cereus, S. aureus, Salmonella spp., Cronobacter sakazakii.	High Risk	
19	Shellfish, e.g. bivalves, molluscs raw unprocessed	V. parahaemolyticus, Hepatitis A and E virus, Salmonella spp. Chemical residues - heavy metals, marine toxins, etc Foreign matter — shell, grit, etc	High Risk	
20	Smoked fish and other marine products with various processing treatments e.g., steamed and minimally processed and/or fermented preparations (including ready to eat/re-heating)	Salmonella spp., V. parahaemolyticus, L. monocytogenes Chemical residues - heavy metals, marine toxins, etc . Foreign matter - bones	High Risk	

Example of Medium Risk Products

#	Type of product/Activity	Expected Hazard	Type of Risk	CODE
22	Butter, margarine	STEC, Listeria monocytogenes Chemical residues Foreign matter	Medium Risk	
23	Cakes, Desserts including dairy desserts, milk-based sweets, Bakery products containing milk, and eggs such as sandwich, burgers, hotdogs meat rolls, etc.	STEC, Salmonella, Listeria monocytogenes, S. aureus Chemical residues Foreign matter	Medium Risk	
24	Coconut - dried, flakes and preserved	Salmonella spp., STEC Chemical residues - mycotoxins Foreign matter	Medium Risk	
25	Dehydrated, smoked, salted, cured and fermented Meat products - e.g. sausages and Pastrami, luncheon	STEC, Salmonella spp., B. cereus, S. aureus, parasites Chemical residues - heavy metals, antibiotics, additives, etc Foreign matter - bone, etc	Medium Risk	
26	Dried Fruits - dehydrated, sugar coated/glazed/enriched e.g. Mango bar, morobba, dried dates and figs, apricots etc.	STEC, Salmonella spp. Chemical residues Foreign matter	Medium Risk	
27	Fermented milk drink, drinking yoghurt	STEC, Salmonella spp. Chemical residues Foreign matter	Medium Risk	
28	Frozen and Dehydrated Vegetables	STEC, Cl. perfringens, B. cereus, S. aureus, Salmonella spp., L. monocytogenes Chemical residues Foreign matter	Medium Risk	
29	Frozen Fast food items containing meat, egg and milk e.g. burgers, hotdog, meat, pizzas, etc.	STEC, Salmonella spp., Cl. perfringens, L. monocytogenes Chemical residues	Medium Risk	
30	Frozen Fast food items containing seafood	Vibrio parahaemolyticus Chemical residues - heavy metals, marine toxins (histamine- scombroid fish,PSP-paralytic shellfish poisoning) Foreign matter - bones	Medium Risk	
31	Frozen Fish products - processed and ready to cook e.g. fillets, fish fingers, cutlets	STEC, Salmonella spp., V. parahaemolyticus Chemical residues - heavy metals, marine toxins, etc Foreign matter - bones	Medium Risk	
32	Frozen Meats and meat products		Medium Risk	
33	Frozen Prawns - RTE (cooked/steamed) or not	V. parahaemolyticus, Salmonella spp. Chemical residues - heavy metals, sulphur dioxide, etc Foreign matter — shell, grit, etc	Medium Risk	
34	Fruits - frozen, peeled, sliced or pulps	STEC, Salmonella spp. Chemical residues Foreign matter	Medium Risk	
35	Meat canned, thermal processed such as Corned Beef and Canned sausage	Sporeforming pathogens e.g. Cl. botulinum Chemical residues - heavy metals, etc Foreign matter	Medium Risk	
36	Milk - powdered and instant (Products may contain microbial flora e.g. pathogens, yeast cells, mould spores, etc which are unable to grow until powder is reconstituted)	STEC, Salmonella spp., C. sakazakii Chemical residues - antibiotics, etc Foreign matter	Medium Risk	
37	Milk - UHT and Sterilized	Chemical residues Foreign matter	Medium Risk	
38	Pasteurized/ UHT Fruit juices, fruit squashes, fruit cocktails (with or without added sugar), inlcudes pasteurized or UHT Coconut milk	STEC, Salmonella spp. Chemical residues Foreign matter	Medium Risk	
39	Peanut butter	Salmonella spp. Chemical residues Foreign matter	Medium Risk	
40	Rice - cooked/chilled (ready to serve/to be reheated)	Sporeforming pathogens e.g. B. cereus Chemical residues - mycotoxins Foreign matter	Medium Risk	
41	Seasame, and S. paste		Medium Risk	
42	Skimmed milk powder	STEC, Salmonella spp., C. sakazakii Chemical residues - antibiotics, etc Foreign matter	Medium Risk	
43	Soy product e.g. Soy milk, soy curd etc.	Sporeforming pathogens e.g. B. cereus Chemical residues – mycotoxins Foreign matter	Medium Risk	
44	Spices for direct consumption	Sporeforming pathogens e.g. Ci. perfringens, Cl. botulinum, B. cereus Chemical residues - heavy metals, mycotoxins, etc Foreign matter	Medium Risk	
45	Spices including Curry powder and other spices (chilies, turmeric, coriander, etc)	Spore formers e.g. Cl. perfringens, Cl. botulinum, B. cereus Chemical residues - heavy metals, mycotoxins, etc. Foreign matter	Medium Risk	
46	Teas, Herbal drinks, extracts, infusions	Sporeforming pathogens e.g. Cl. perfringens, Cl. botulinum, B. cereus Chemical residues - heavy metals, mycotoxins, etc Foreign matter	Medium Risk	

Example of Low Risk Products

#	Type of product/Activity	Expected Hazard	Type of Risk	CODE
47	Alcoholic Beverages		Low Risk	
48	Bakery mixes such as cake mixes, custard powder, ready-mixes stored at ambient temperature	Cl. perfringens, B. cereus, S. aureus Chemical residues Foreign matter	Low Risk	
49	Bakery products (low moisture) without meat, poultry, egg and milk e.g. breads, plain toast, bread crumbs, garlic bread	Pathogens from post-processing handling e.g. S. aureus Chemical residues Foreign matter	Low Risk	
50	Bars and wafers (dry and low water activity), prepared from cereals, oil seeds	Chemical residues Foreign matter	Low Risk	
51	Beans, bean sprout(s), sliced and cubed vegetables - dried or frozen	STEC, Cl. perfringens, B. cereus, S. aureus, Salmonella spp. Chemical residues	Low Risk	
52	Beans, seeds, legumes in brine and/or in sauces bottled/canned- heat processed	Spore formers e.g. Cl. perfringens, Cl. Botulinum Chemical residues	Low Risk	
53	Beverages — non-alcoholic	Chemical residues Foreign matter e.g. glass	Low Risk	
54	Biscuits, Breads, dry cakes low water activity flour based foods	Pathogens from post-processing handling Chemical residues Foreign matter	Low Risk	
55	Breakfast cereals, corn and potato flakes with or without sugar	Foreign matter	Low Risk	
56	Cakes		Low Risk	
57	Canned vegetables	STEC, Salmonella spp. Chemical residues	Low Risk	
58	Canned/bottled vegetables and fruit	Sporeformers e.g. Cl. Botulinum Chemical residues	Low Risk	
59	Caramel	Foreign matter	Low Risk	
60	Carbonated non-alcoholic beverage, soft drinks e.g. lemonade, cola etc	Chemical residues Foreign matter e.g. glass	Low Risk	
61	Chewing Gum		Low Risk	
62	Chocolate - bars, and with nuts, fruit, or cream filled etc	Salmonella spp. Chemical residues e.g. mycotoxins	Low Risk	
63	Coffee	Chemical residues - mycotoxins	Low Risk	
64	Coffee Whiteners		Low Risk	
65	Drink powder - instant mix	Chemical residues - heavy metals, mycotoxins, etc. Foreign matter	Low Risk	
66	Drinks - energy drink with added stimulants	Chemical residues - heavy metals, mycotoxins, etc Foreign matter	Low Risk	
67	Drinks - non-alcoholic and soft drinks	Chemical residues - heavy metals, mycotoxins, etc Foreign matter	Low Risk	
68	Fats, oils (except butter, margarine)	Chemical residues - heavy metals, Low Foreign matter	Low Risk	

Example of Low Risk Products (cont'd)

#	Type of product/Activity	Expected Hazard	Type of Risk	CODE
69	Fish — canned, sardines, tuna, mackerell, Salmon	Sporeforming pathogens e.g. Cl. botulinum Chemical residues - heavy metals, histamine	Low Risk	
70	Flavor extracts, flavorings additives.	Chemical residues - heavy metals, contaminants, etc Foreign matter	Low Risk	
71	Flour, raw (refined, fortified and fibre enriched, wheat)	Chemical residues - heavy metals, contaminants, etc Foreign matter	Low Risk	
72	Flour-based products (vermicelli, lachha semai, semolina, corn flour and thickening agents) - (Products may contain microbial flora e.g. yeast cells, mould spores, and sporeforming bacteria which are unable to grow)	Chemical residues - heavy metals, contaminants, etc Foreign matter	Low Risk	
73	Food Supplemensts Non-dairy		Low Risk	
74	French fries (frozen), ready to fry	Chemical residues - heavy metals, contaminants, etc Foreign matter	Low Risk	
75	Fruits - concentrates, jams, jelly, squashes and marmalades	Chemical residues Foreign matter	Low Risk	
76	Fruits - preserved in syrup in cans/tetra pack/pouch/bottle drink- heat processed	Chemical residues - heavy metals, food additives Foreign matter	Low Risk	
77	Fruits and vegetables - pickled in brine, oil and sugar	Sporeforming pathogens e.g. Cl. botulinum Chemical residues - heavy metals Foreign matter	Low Risk	
78	Gelatin		Low Risk	
79	Gelatin-based candy, toffees, thickening and solidifying agent	Chemical residues - heavy metals, food additives Foreign matter	Low Risk	
80	Grains, legumes, seeds, pulses-raw	Chemical residues - heavy metals, environmental contaminants	Low Risk	
81	Herbs, dried/powdered, packaged	Sporeforming pathogens e.g. Cl. perfringens, Cl. botulinum, B. cereus Chemical residues - heavy metals, mycotoxins, etc Foreign matter	Low Risk	
82	High fructose corn syrup, lactose etc	Chemical residues - environmental contaminants, etc Foreign matter	Low Risk	
83	Honey — pure	Sporeforming pathogens e.g. Cl. Botulinum Chemical residues - heavy metals, environmental contaminants, etc Foreign matter	Low Risk	
84	Ketchup		Low Risk	
85	Molasses, for direct consumption	Foreign matter	Low Risk	
86	Mushrooms - in brine, bottled/canned, heat processed	Sporeforming pathogens e.g. Cl. botulinum Chemical residues - heavy metals, pesticides, etc Foreign matter	Low Risk	
87	Mushrooms - dried/powdered	Sporeforming pathogens e.g. Cl. botulinum Chemical residues - heavy metals, pesticides, etc Foreign matter	Low Risk	

Example of Low Risk Products (cont'd)

#	Type of product/Activity	Expected Hazard	Type of Risk	CODE
88	Mustard		Low Risk	
89	Noodles, pasta - cooked, ready to eat	Sporeforming pathogens e.g. Cl. botulinum Chemical residues - heavy metals, pesticides, etc Foreign matter	Low Risk	
90	Noodles, pastas, spaghetti, Couscous - raw unprocessed	Sporeforming pathogens e.g. Cl. botulinum Chemical residues - heavy metals, pesticides, etc Foreign matter	Low Risk	
91	Nut and nut products, roasted salt/sugar coated	Chemical residues - heavy metals, mycotoxins, etc Foreign matter	Low Risk	
92	Oils (cooking, edible)	Chemical residues - heavy metals, mycotoxins, etc Foreign matter	Low Risk	
93	Pickles, relishes, chutneys and condiments (Products may contain microbial flora e.g. pathogens, moulds, etc which cannot grow)	Sporeforming pathogens e.g. Cl. perfringens, Cl. botulinum, B. cereus Chemical residues - heavy metals, mycotoxins, etc Foreign matter	Low Risk	
94	Pizza (frozen), ready to eat by microwave heating	Salmonella spp., B. cereus, S. aureus Chemical residues Foreign matter	Low Risk	
95	Popcorn, fried legumes, seeds and other crisps	Chemical residues - heavy metals, contaminants, etc Foreign matter	Low Risk	
96	Potato, chips, crisps and flakes	Chemical residues Foreign matter	Low Risk	
97	Potato, whole peeled heat processed, canned	Sporeforming pathogens eg. Cl. botulinum Chemical residues Foreign matter	Low Risk	
98	Processed cereal-based food for children and young people	Sporeforming pathogens e.g. Cl. perfringens, B. cereus Chemical residues - mycotoxins Foreign matter	Low Risk	
99	Rice — puffed or pressed	Sporeforming pathogens e.g. B. cereus Chemical residues – mycotoxins Foreign matter	Low Risk	
100	Rice — raw	Sporeforming pathogens e.g. B. cereus Chemical residues – mycotoxins Foreign matter	Low Risk	

Example of Low Risk Products (cont'd)

#	Type of product/Activity	Expected Hazard	Type of Risk	CODE
101	Salt - iodized salt	Chemical residues — heavy metals, environmental contaminants Foreign matter	Low Risk	
102	Soups, liquid (heat processed) in cans and tetra packs, Soups dehydrated	Sporeforming pathogens e.g. B. cereus, Salmonella spp. Chemical residues Foreign matter	Low Risk	
103	Soy Sauce	Chemical residues — mycotoxins, chloropropanols, etc Foreign matter	Low Risk	
104	Sugar - refined sugar	Chemical residues Foreign matter	Low Risk	
105	Sweetners		Low Risk	
106	Sweets - all types	Chemical residues Foreign matter	Low Risk	
107	Tea	Chemical residues Foreign matter	Low Risk	
108	Vegetables canned/bottled in brine, heat treated	Sporeforming pathogens eg. Cl. botulinum Chemical residues Foreign matter	Low Risk	
109	Vinegar/salad dressings (except with Mayonnaise)/seasonings	Chemical residues Foreign matter	Low Risk	
110	Wafers		Low Risk	
111	Water (PET bottled)	STEC, Salmonella spp, Hepatitis A Virus Chemical residues	Low Risk	
112	Water, carbonated/gas water	STEC, Salmonella spp, Hepatitis A Virus Chemical residues Foreign matter	Low Risk	

Summary of Risk Attribution Parameters

- ❑ Qualitative
  - A ‘descriptive’ way of assessing risk (e.g. low, high, negligible)
- ❑ Semi-quantitative
  - Variables are scored on an arbitrary scale and values combined according to some rule
  - Best used for risk ranking
- ❑ Quantitative
  - numerical estimates of risk using actual values and statistical modelling

Practical Considerations of Risk-Based Decisions for Imports

Discussion


thank you
danke
謝謝
рахмат
ngiyabonga
teşekkür ederim
gracias
Баярлалаа
спасибо
mersi
kia ora
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shukriya
mercé
мерси
شكرًا لك
তোমাকে ধন্যবাদ
감사합니다
xièxie
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merci