Risk Categorization of Food Establishment

Dedi Fardiaz
Department of Food Science and Technology, Faculty of Agricultural Engineering
SEAFAST Center
BOGOR AGRICULTURAL UNIVERSITY

What is the content of this Guideline?

Assuring food safety and quality

Guidelines for strengthening national food control systems

ISSN 0254 4725

FAO
FOOD AND
NUTRITION
PAPER
76

FOOD AND AGRICULTURE ORGANIZATION OF THE
UNITED NATIONS
Rome, 2003

1. PREAMBLE
2. INTRODUCTION
3. IMPORTANT FOOD ISSUES
4. ELEMENTS OF A NATIONAL FOOD CONTROL SYSTEM
5. STRENGTHENING NATIONAL FOOD CONROL SYSTEM
6. SPECIFIC ISSUES FOR DEVELOPING COUNTRY
   6.1 Food Systems
   6.2 Food Processing Industry
   6.3 Street Foods
   6.4 Food Control Infrastructure and Resources
   6.5 Technical Assistance: Role of International Agencies
   ANNEXES

Dedi Fardiaz

Important questions to be answered: How does a country develop an Effective and Efficient Food Control System?

1. **Food Legislation**

2. **Food Control Management (Single Agency System, Multi Agency System, Integrated System)**

3. **Inspection Activities**

4. **Laboratory Services**

5. **Information, Education, Communication and Training**

What laws, regulations, standards, code of practices, and guidelines related with food safety are available?

How does the government control food safety? Is there any specific system applied?
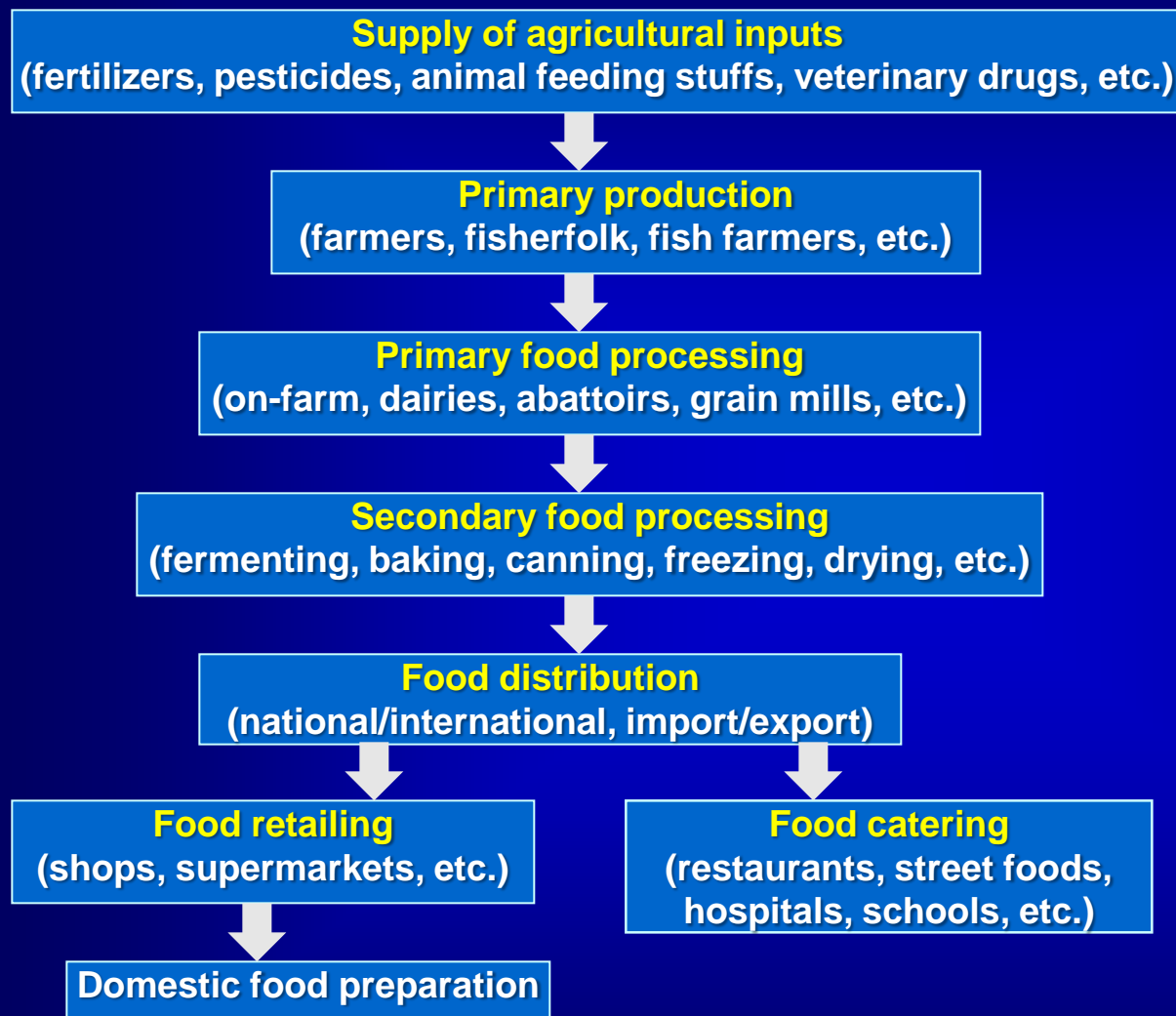
How are risk-based inspection activities implemented?

How does the government manage food safety laboratories, reference labs?

How are information exchanged amongs stakeholders? Any training program? For whom?

Principal stages of the food supply chain (FAO, 2006)

Supply of agricultural inputs
(fertilizers, pesticides, animal feeding stuffs, veterinary drugs, etc.)

↓

Primary production
(farmers, fisherfolk, fish farmers, etc.)

↓

Primary food processing
(on-farm, dairies, abattoirs, grain mills, etc.)

↓

Secondary food processing
(fermenting, baking, canning, freezing, drying, etc.)

↓

Food distribution
(national/international, import/export)

↓

Food retailing
(shops, supermarkets, etc.)

Food catering
(restaurants, street foods, hospitals, schools, etc.)

↓

Domestic food preparation

Should we give special attention to food-supply-chain commonly practiced in SAARC countries?

Examples:

- **Small farmers**
- **Small fishermen**

- **SMEs (processors)**
- **Hosehold food industries**

- **Traditional markets**
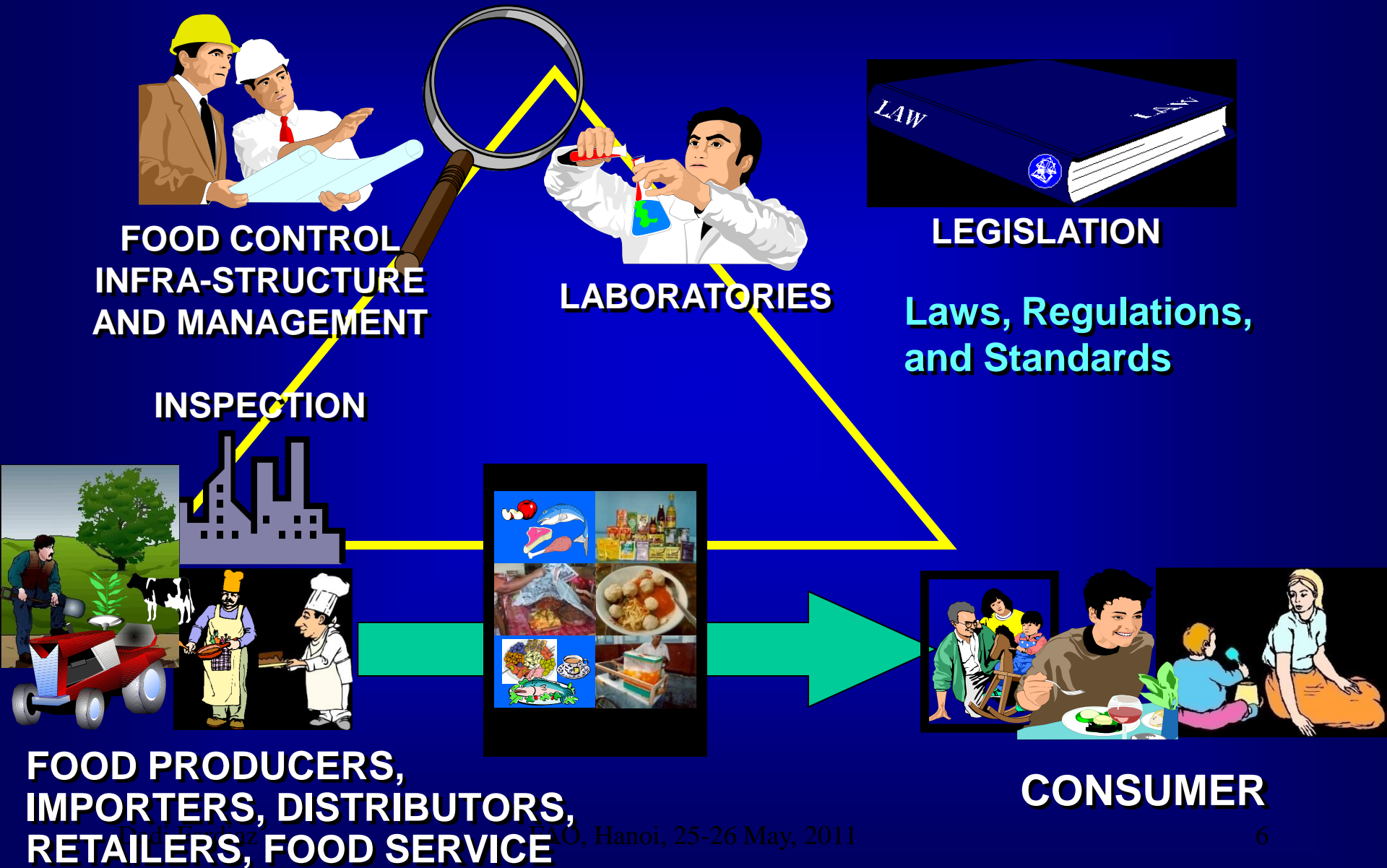- **Streetfood vendors**
- **SMEs (caterers, restaurants, etc)**

Dedi Fardiaz

How do we assess the Risk?
How do we manage the Risk?
How do we communicate the Risk?

Risk Factors Related to Food Business	Risk Factors Related to Foods

cross contamination -
food from unsafe sources -
inadequate cooking -
improper holding temperatures -
contaminated equipment -
poor personal hygiene -
food handlers' health status -
water quality -
presence of pests -

Food-borne diseases occur most frequently because of consumption of contaminated food by microbiological hazards (depend on pH and a_w)

- High-Risk Foods
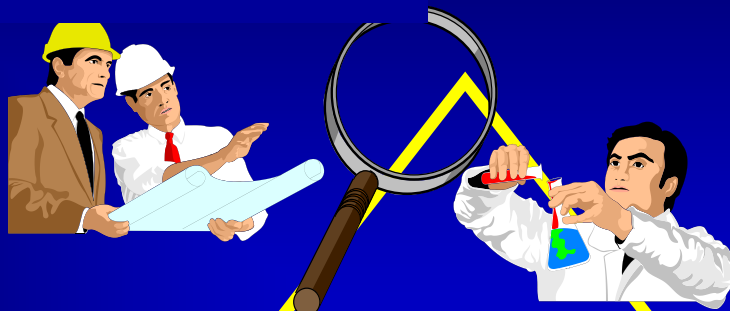- Medium-Risk Foods
- Low-Risk foods

Risk Analysis (CAC)

Risk Assessment

1. Hazard identification
2. Hazard characterization
3. Exposure assessment
4. Risk characterization

Risk Management

Risk Communication

Need to regulate, to build the capacity, and to control

FOOD CONTROL INFRA-STRUCTURE AND MANAGEMENT

INSPECTION

LABORATORIES

LEGISLATION

Laws, Regulations, and Standards

FOOD PRODUCERS, IMPORTERS, DISTRIBUTORS, RETAILERS, FOOD SERVICE

CONSUMER

Develop More Effective and Efficient Food Safety Control Policy

Set Laws and Regulations to Protect Consumer Health and Insure Fair Trade
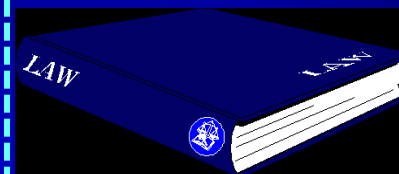
How do we enhance Food Safety?

Build the Capacity of the Producers to Raise Their Food Safety Awareness

**Empower Consumer to Participate in Food Safety Activities (Education, Campaigns, Monitoring, etc.)**

FAO, Hanoi, 25-26

Risk-based food inspection manual

Dedi

Risk-based Food Inspection Manual (FAO, 2008)

Traditional Food Inspection	Risk-based Food Inspection
Has centred on determining compliance by food processing establishments with a number of regulations (may or may not be up to date).	Focuses inspection on risk factors that may cause food-borne disease.
The effectiveness of this method of inspection depends on the time available to inspectors to check the facility under inspection and particularly its products physically.	The inspector will make better use of his/her scarce time allocation to each processor, without overlooking existing non-compliance and violations of regulations.
The method is corrective. No assurance after this type of inspection that there will not be recurrence of the violation.	The inspection will be based on risk and will thus fulfil its ultimate purpose of safeguarding the consumer. Product samples will be collected and analysed only for verification purposes and no longer as a means to ensure product safety.
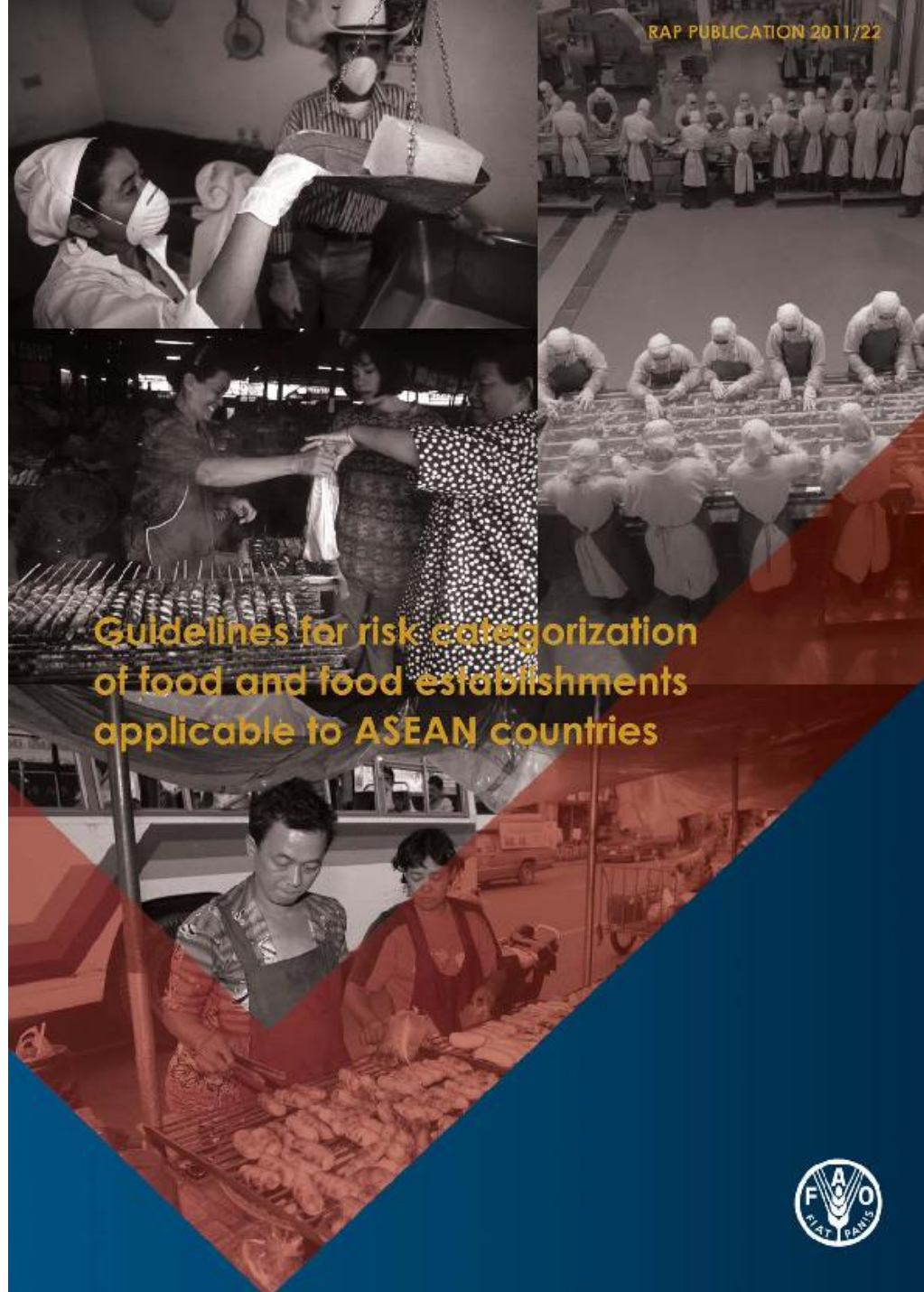
Guidelines for risk categorization of food and food establishments applicable to ASEAN countries

2011
FAO ROAP, Bangkok, Thailand

PURPOSE
The purpose of classifying food businesses according to risk category, is to allow the regulatory agency responsible to food inspection to prioritise inspections of food businesses based on those which pose the greatest potential risk to the population if the safety of food is out-off control.

Classification of food businesses according to risk category was prepared with special attention to specific condition in ASEAN countries.

SCOPE
The scope of this Guideline are as follows:

a) **provides a framework for the risk categorization which include high-risk, medium-risk, and low-risk food businesses to meet specific needs of ASEAN countries;**
b) **addresses different types of food sector, including imported, exported and domestic foods;**
c) **includes impact of products, primary producer's level controls, processing types and consumer group on risks;**
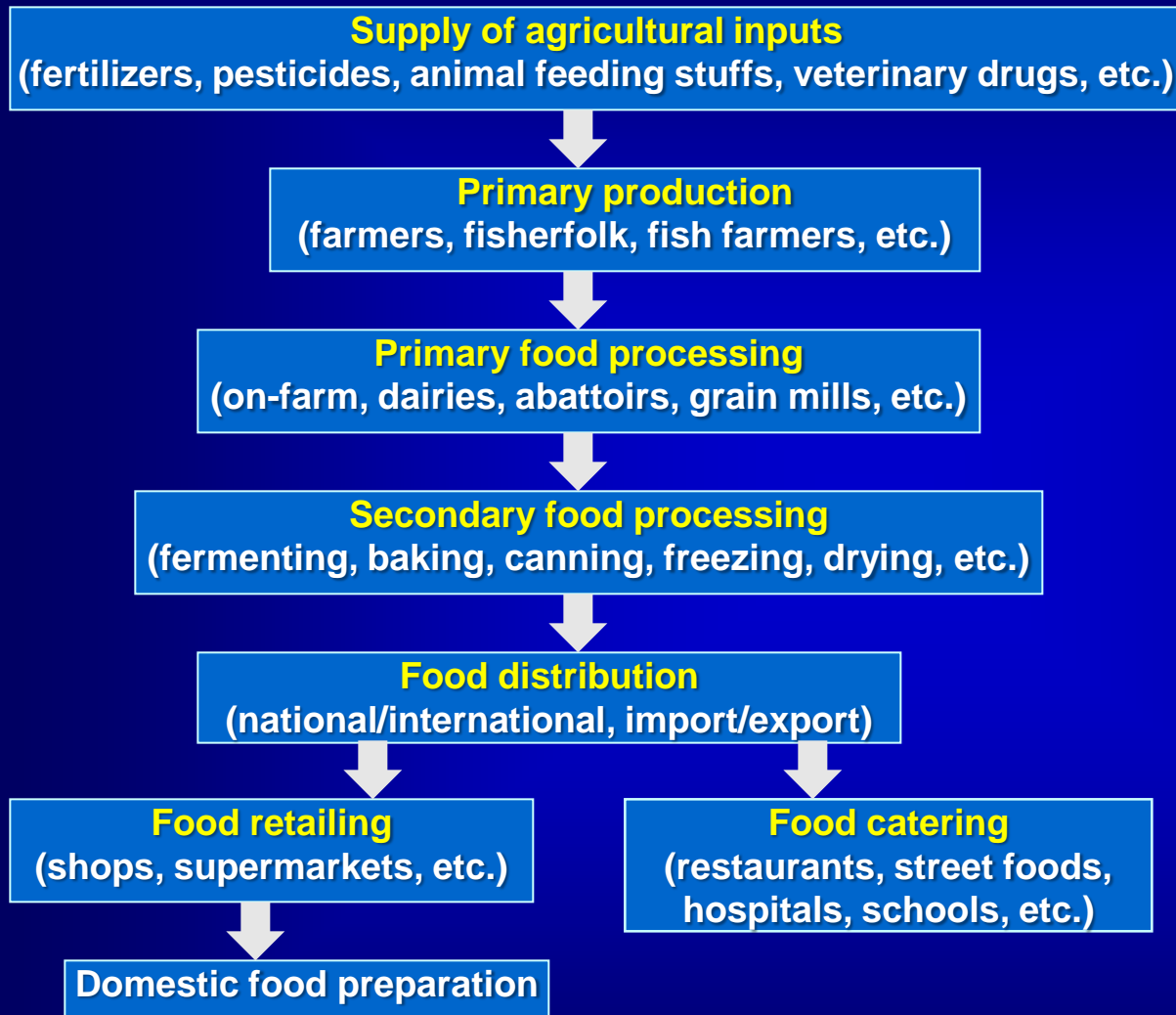d) **covers the foods traded in ASEAN countries.**

Risk Level Matrix for Fish and Fishery Products (FAO, 2009)

Fish/fishery product	Characteristics that increase risk			Events that are reasonably likely to occur and that will increase risk			Risk level
	No terminal heat application	Bad safety record	No CCP identified for a hazard	Harmful recontamination or contamination	Abusive handling–time–temp	Growth or accumulation of hazard	
Molluscan shellfish live and eaten raw	X	X	X	X	X	X	High
Fermented < 8% NaCl	X	X		X		X	High
Semipreserved > 6% NaCl, pH < 5	X				X	X	Medium
Frozen freshwater fin fish					X	X	Low

Prioritizing establishments based on establishment type and product profile (FAO, 2009)

Establishment type	Compliance	Product	Priority
Fish landing	High	Fresh fish for processing and direct consumption after cooking	Low
Aquaculture producer	Low	Molluscan shellfish for consumption raw	High
Processing plant	High	Frozen fish fillets	Low
Retail fish market	Low	Variety of fresh and processed products some of which are consumed without further processing	High

DETERMINATION OF FOOD BUSINESS RISK CATEGORY

Supply of agricultural inputs
(fertilizers, pesticides, animal feeding stuffs, veterinary drugs, etc.)

↓

Primary production
(farmers, fisherfolk, fish farmers, etc.)

↓

Primary food processing
(on-farm, dairies, abattoirs, grain mills, etc.)

↓

Secondary food processing
(fermenting, baking, canning, freezing, drying, etc.)

↓

Food distribution
(national/international, import/export)

↓

Food retailing
(shops, supermarkets, etc.)

Food catering
(restaurants, street foods, hospitals, schools, etc.)

↓

Domestic food preparation

Special attention should be given to Food Business in ASEAN countries:

- **Small farmers**
- **Small fishermen**

- **SMEs (processors)**
- **Hosehold food industries**

- **Traditional markets**
- **Streetfood vendors**
- **SMEs (Caterers, restaurants, etc)**

Principal stages of the food supply chain (FAO, 2006)

Type of Food Businesses

Special attention should be given to Food Business in ASEAN countries:

- **Small farmers**
- **Small fishermen**

- **SMEs (processors)**
- **Hosehold food industries**

- **Traditional markets**
- **Streetfood vendors**
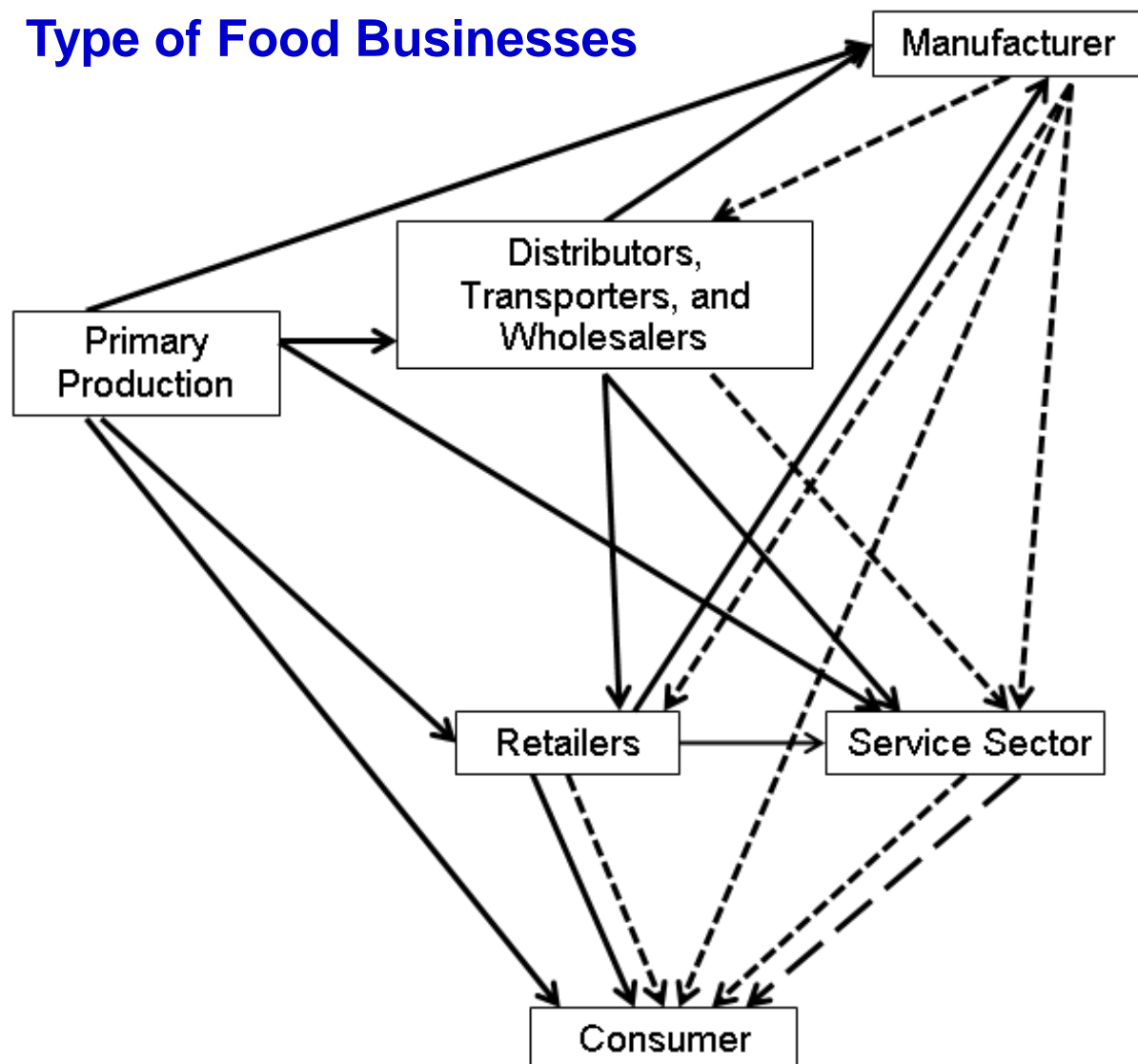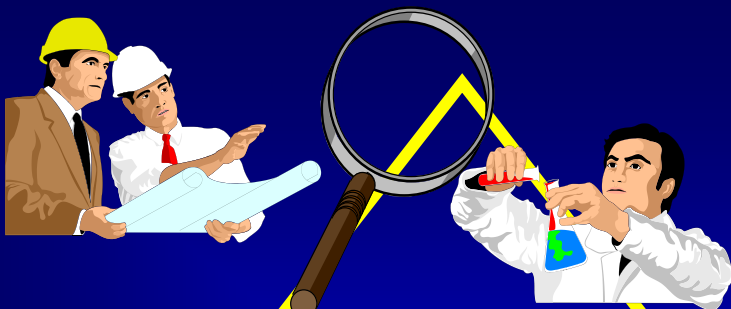- **SMEs (Caterers, restaurants, etc)**

Special attention should be given to Food Business in ASEAN countries:

- Small farmers
- Small fishermen

- SMEs (processors)
- Hosehold food industries

- Traditional markets
- Streetfood vendors
- SMEs (Caterers, restaurants, etc)

Dedi Fardiaz   FAO-ROAP, India, 17-21-06-13

Photos taken from www.flickr.com
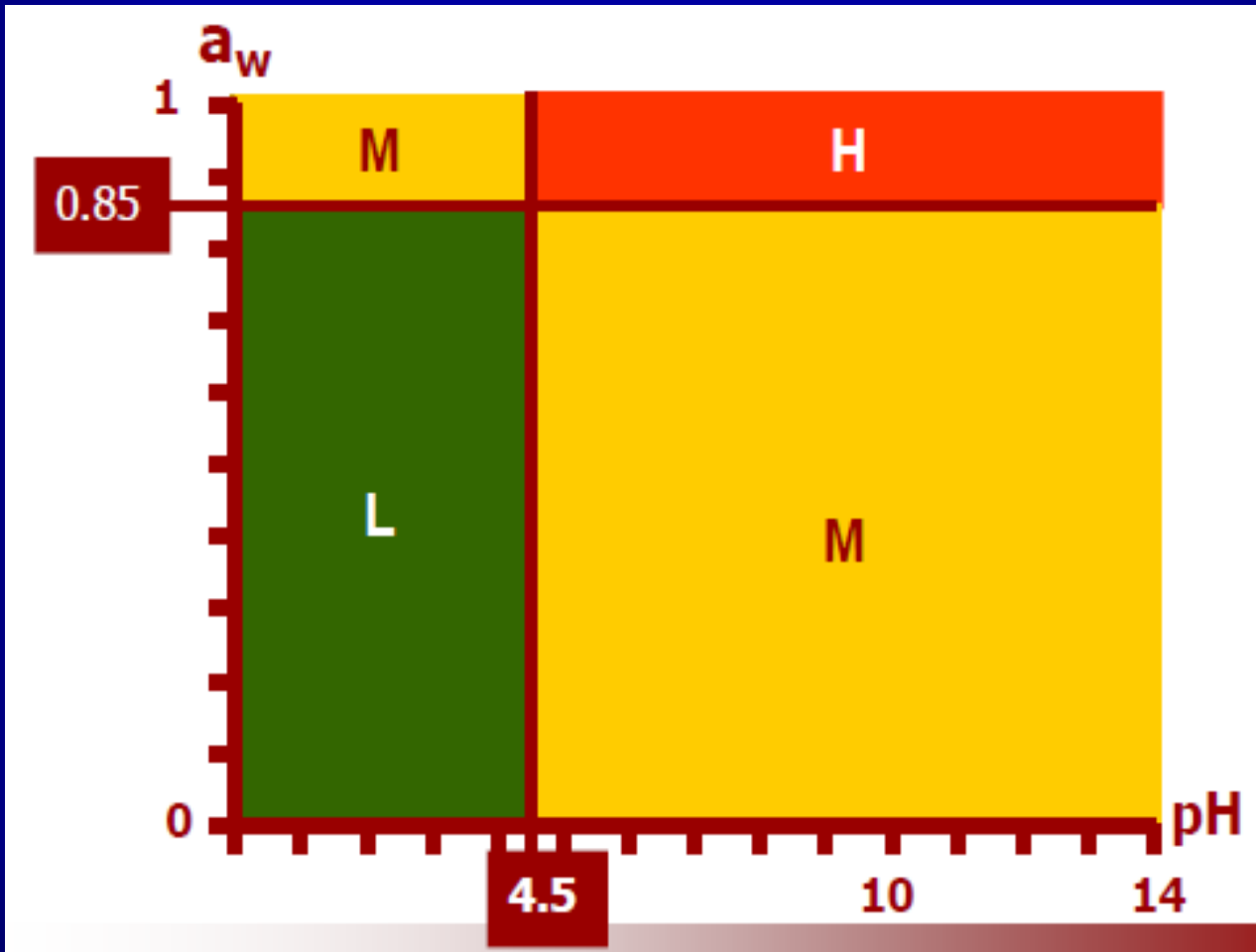
Risk Factors Related to Food Business

Risk Factors Related to Foods

Risk-based Food Control Program

Food-borne Disease Risk Factors:
Those factors that may cause food-borne disease in consumers if left uncontrolled

Risk Factors Related to Foods

Risk Factors Related to Food Business

Risk Factors Related to Foods
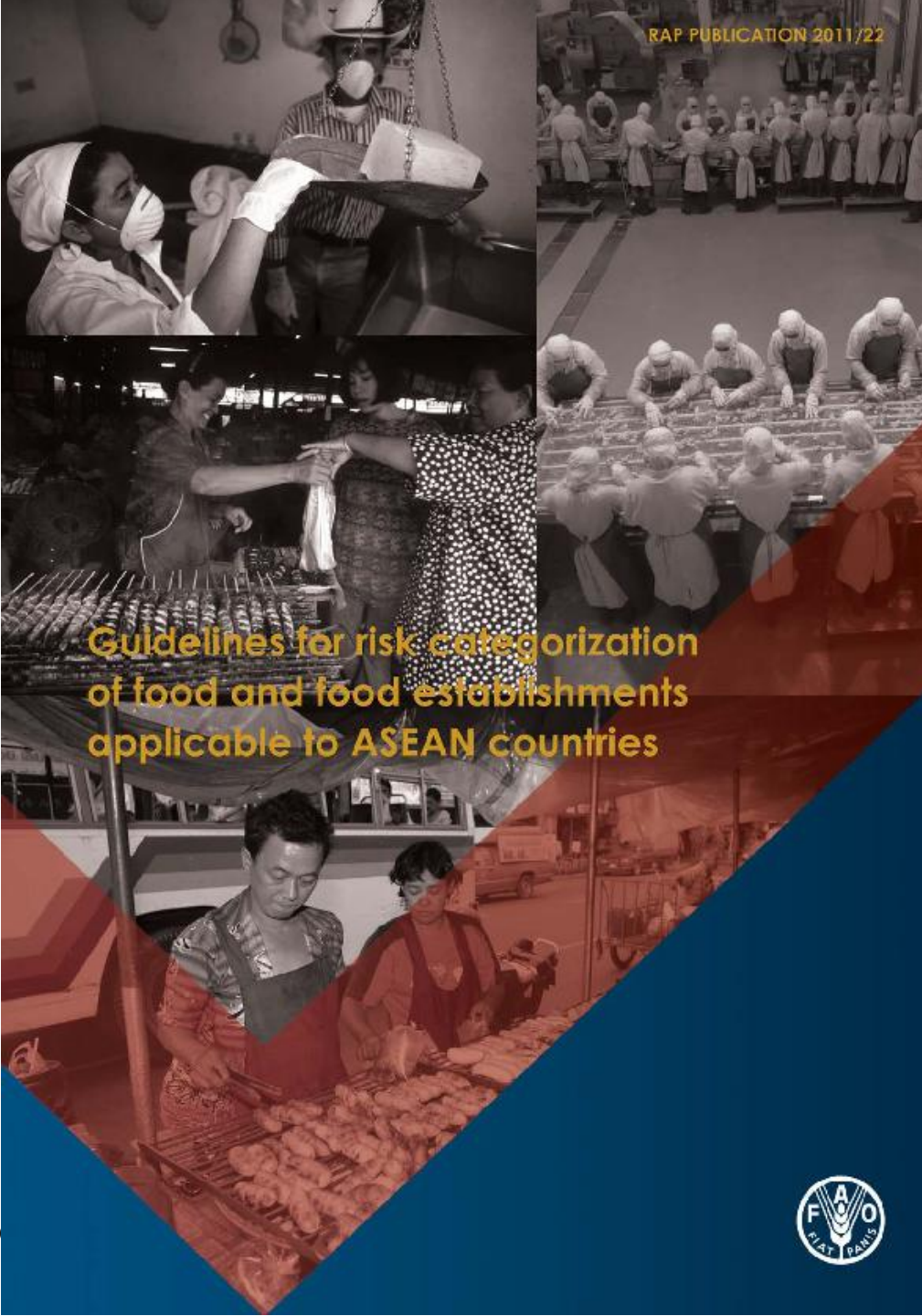
cross contamination -
food from unsafe sources -
inadequate cooking -
improper holding temperatures -
contaminated equipment -
poor personal hygiene -
food handlers' health status -
water quality -
presence of pests -

Food-borne diseases occur most frequently because of consumption of contaminated food by microbiological hazards (depend on pH and a_w)

- **High-Risk Foods**
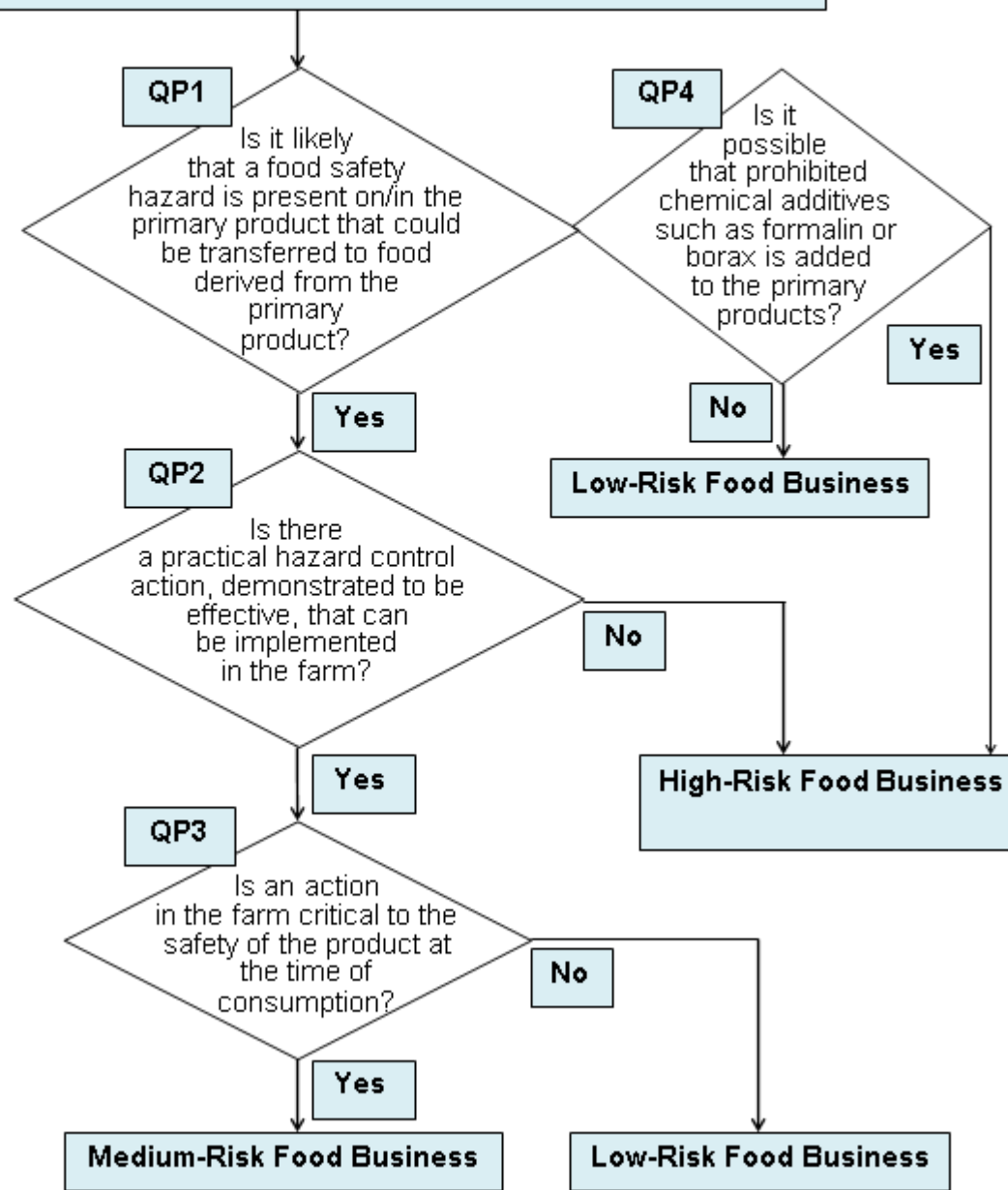- **Medium-Risk Foods**
- **Low-Risk foods**

Guidelines for risk categorization
of food and food establishments
applicable to ASEAN countries

RAP PUBLICATION 2011/22

Decision Tree Used in this Guidelines

Check if the primary product is:
- live animals(livestock, fish, poultry) up to the point of slaughter;
- fish (chilled fresh, head on, gut in);
- harvested live shellfish and live crustaceans; or
- grain (producers, handlers, storage).

QP1 — Is it likely that a food safety hazard is present on/in the primary product that could be transferred to food derived from the primary product?

QP4 — Is it possible that prohibited chemical additives such as formalin or borax is added to the primary products?

Yes

No → **Low-Risk Food Business**

Yes

QP2 — Is there a practical hazard control action, demonstrated to be effective, that can be implemented in the farm?

No

Yes

High-Risk Food Business

QP3 — Is an action in the farm critical to the safety of the product at the time of consumption?

No

Yes

Medium-Risk Food Business

Low-Risk Food Business

Businesses dealing with primary foods	Main Activity	QP1	QP2	QP3	QP4	Risk-Category		
						High	Medium	Low
Beef Cattle	Animal husbandry, slaughtering, fresh handling	yes	no			X		
Piggery	Animal husbandry, slaughtering, fresh handling	yes	no			X		
Dairy Farm, small scale	Animal husbandry, milking	yes	no			X		
Poultry Farm, small scale	Farming, butchering, fresh handling	yes	no		yes	X		
Freswater Fish Farm	Farming, fresh handling	yes	yes	yes			X	
Captured Fish	Catching, fresh handling	yes	no		yes	X		
Vegetable Farm	Farming, harvesting, packaging, fresh handling	yes	yes	yes			X	
Rice Farm	Farming, harvesting, threshing, drying	no						X

FREQUENCY OF INSPECTION

Risk Category	Frequency of Inspection (every x months)		
	Starting Point	Maximum	Minimum
High-Risk Food Business	6	3	12
Medium-Risk Food Business	12	6	18
Low-Risk Food Business	18	12	24

SUMMARY

- **Risk categorization is a complex process that may be influenced by a number of factors. Therefore, different approaches seemed to be used in classifying food business based on risk category.**

- **Different approach has been used in classifying food business based on risk category, among others:**

  - **Approach Using Risk Categorization Model (RCM) Questionnaires**
  - **Priority Classification System Based on Score**
  - **Food Business Categorization Using Desicion Tree Model**

- **Food Business Categorization Using Desicion Tree Model is Suggested in this Guideline**

SUMMARY

Decision tree model of this Guideline has been applied in categorizing both businesses dealing with primary and secondary foods which include high-risk, medium-risk, and low-risk food business. However, the national authority in each country may review and revise if needed according to food business conditions existing in the country concerned .

Thank You Very Much