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Introduction to Risk-Based Food Inspection

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**Workshop on Improved Food Inspection
Capacity Building Based on Risk Analysis
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Introduction to Risk-based Food Inspection

APEC PTIN Workshop on Improved Food Inspection Capacity Building Based on Risk Analysis
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Outline of the presentation

- Background - Why inspection and food chain approach?
- What is traditional inspection & risk-based food inspection?
- Concepts and approaches of risk-based food inspection
- Risk factors for food-borne diseases
- Risk-based inspections – important considerations and categorization process
- Risk-based inspections - requirements for implementing, role of government / inspectors
- Risk-based food inspection and Good Practices
- Benefits of risk-based inspection

Why Inspection?

- Food safety & QC primary responsibility of producer/processor
- National governments have mandate to ensure health of population including safe food supply
- National food control system – legislations including regulations
- Inspection to ensure that food laws/ regulations being complied with ie enforcement
- Facilitates market access
- Strengthens consumer protection and prevention of fraudulent practices
 - Safe food supply
 - Fair trade practices

Food Chain Approach to food safety



❑ **Hazards** - may arise at different stages of the food supply

❑ **Preventative risk-based approach** is followed rather than a reactive one based on sampling & testing (GAP, GMP, HACCP)

❑ **Sound national food control & regulatory** systems essential – standards & implementation at all stages

❑ **Roles and responsibilities** for food safety - all actors in the food chain namely- farmer or producer, processor, handlers, government, consumer

❑ **supportive enabling environment** required

Reorientation of Roles & Responsibilities

The Farmer - 1st step in food chain (implementing GAP, maintaining recs)

The Processor

- Ensure production of safe food
- Engage in proactive dialogue with regulatory bodies to agree on standards & ensure efficient & effective integration of industry & official food control system
- Upgrade facility, design & implement system, doc & maintain recs



Handlers

- Maintaining conditions necessary for ensuring safety & suitability

The Government

- creating an enabling environment (scientific, technical, financial, infrastructure, regulatory) - compliance by stakeholders
- Guarantor of the system

The Consumer

- demanding a safe product; following directions for storage & use

What is traditional inspection & Risk-based food inspection

- **Food inspection** – examination of foods or systems for control of food, raw materials, processing and distribution, including in-process & finished product testing, in order to verify that they conform to requirements
- **Risk-based food inspection** – focusing inspection on risk factors that may cause food-borne diseases
- **Food-borne disease risk factors** – are those factors that may cause food-borne disease in consumers if left uncontrolled
 - Poor conditions, procedures, or practices that result in out of control food safety hazards (B,C,P)

Traditional food inspections 1/2

- Centered on determining compliance by processing establishments with a number of regulations (may or may not be up-to-date) - Effectiveness depends on the available time/ resources to physically check facility and its products
 - ❑ Problem: ratio of number of establishments to number of inspectors available
- Non-compliance and violations dealt with by serving establishments notices/ fines
 - ❑ Problem: Corrective action cannot go beyond implementing of regulations. No assurance that violation will not recur
- Traditional inspection seeks correction of food safety concerns than future violations occurring
 - ❑ Problem: reactive & not preventative

Traditional food inspections 2/2

- Traditional inspection focuses on GHP & samples drawn & tested
 - Problem: Effectiveness?? (sampling, sample handling, corrective approach, reactive, processor may be back to earlier practices)
- Inspectors are not present at all times – many situations may be missed
- Analysing some samples may not cover every situation
- Labs may not have appropriate equipment, staff or follow procedures
- Large number of samples needed to be statistically valid
- Role of food safety is responsibility of inspectors
- Inspections not based on risk – all premises inspected at similar frequency

Risk-based inspection

- Risk-based method based on prioritizing inspection using a risk based approach
- Change of focus from end product testing and compliance of a product or premises to assessment of controls put in place in operations to address food borne disease risk factors that could put products at risk
 - ✓ Inspecting premises & processes for compliance with hygienic & other requirements of standards/ regulations
 - ✓ Evaluating HACCP plans & their implementation

Risk Factors for foodborne disease

Factors that may cause foodborne diseases in consumers if left uncontrolled

- May be common to many countries and types of food and food processing operations
- May be unique to country, food or operation as the origin, nature or traditional processing and handling methods of specific foods may differ
- Some are universal or nearly so

Techniques & Programmes to Determine Food-borne Risk Factors

- Epidemiological surveillance by health authorities by linking food borne diseases with their origin through outbreak investigations
- Contaminant monitoring programme
- Environmental considerations- quality of water used for irrigation of leafy vegetables, flies in eating places
- Product & producer/processor histories
- Frequency of non compliance by specific operations

Examples of universal food borne disease risk factors

- Cross contamination from raw to ready-to-eat products
- Food from unsafe sources
- Inadequate cooking
- Improper holding temperatures
- Contaminated equipments
- Poor personal hygiene
- Food handlers health status
- Water quality
- Presence of pests

Risk-based inspection procedures

- Consider hazards associated with the food
- Review the control measures in place
- Assess the adequacy of pre-requisite plans
- Prepare regulatory action plans including controls
- Verify HACCP plans, traceability and recall plans
- Target high risk establishments with available resources

Philosophy & approach of risk-based Inspection - 1

- Food inspectors to have **techniques & procedures** to facilitate their work & harmonize with other inspectors involved in verification of compliance & regulations
- **Foster partnership** with food processors and consumers – professionals contributing to improving system through incremental changes
- **Risk-based preventative approach** – verification of compliance of products or premises to an assessment of controls in place to address food-borne risk factors
- **Change of philosophy** from regulators to that of food safety professional

Philosophy & approach of risk-based Inspection - 2

- Where all necessary control measures are implemented, the **safety risks** associated with the products are minimized
- If QMS is adequate & fully implemented, **all products should meet the safety (& quality) requirements**
- In case of faulty products, risk-based inspections require an examination to determine **where the system is faulty** or **what hazards not being controlled** – in-plant record keeping is important & sampling only for verification purposes

Risk-based inspection - important considerations and prioritization

- Establishment registration and identification
- Establishment categorization
 - High or low risk based on risk factors
 - Product profiles, processes, consumer groups, etc
- Inspection prioritization
 - History of compliance
 - Product risk profiles

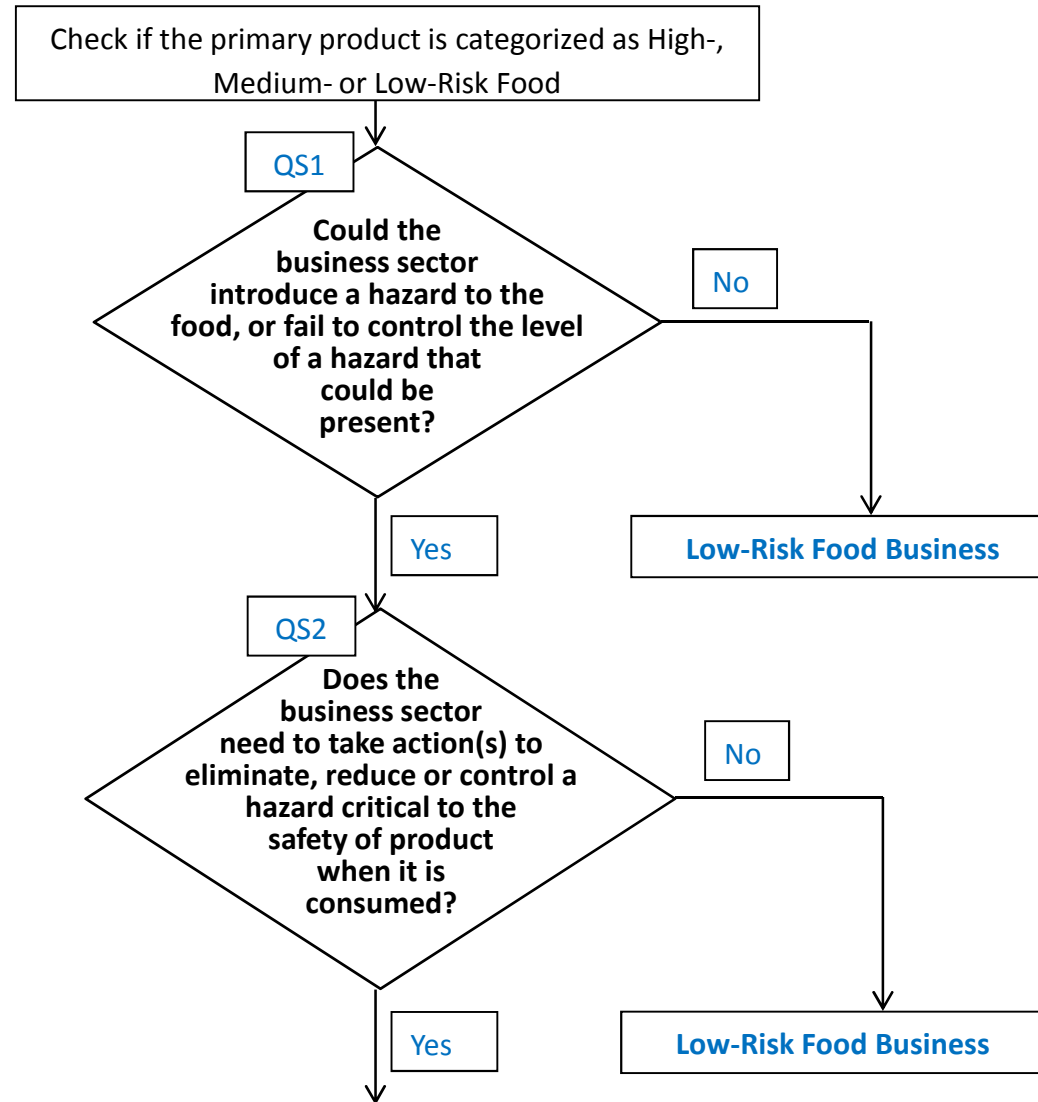
Establishment registration and identification

- Food processing establishment obtain registration before starting operations (ideally establishment layout to be checked before construction)
- Inspection of premises prerequisite for registration & issue identification number
- Issue license and review/ renew annually
- Inspector to ascertain registration is up to date
- Use registration number to consult records before inspection & identify inspection report

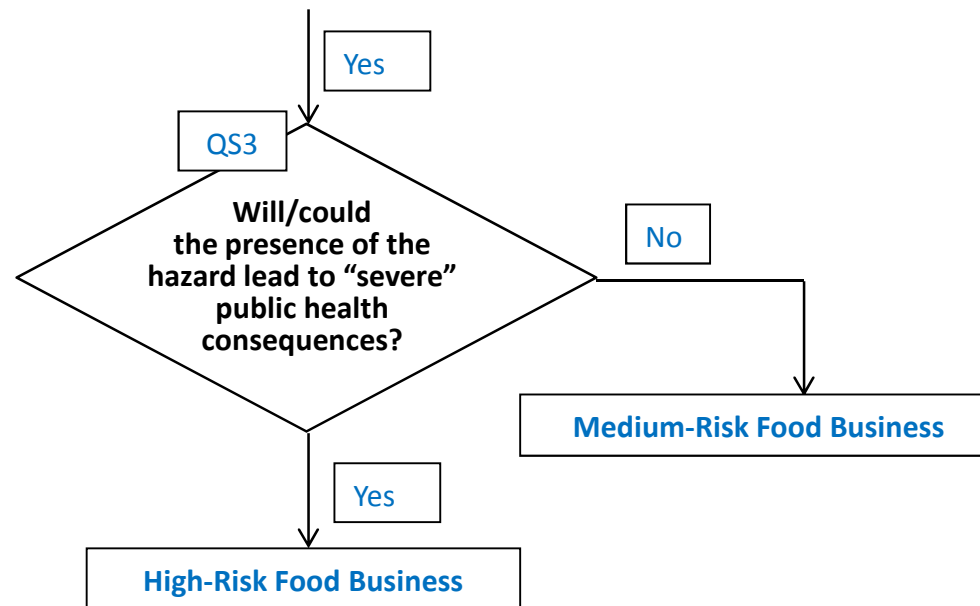
Establishment categorization

- Food risks in industries depend on types of foods handled- process and products
 - Bakery producing bread /pastries & cream fillings
 - establishments producing food to be cooked prior to consumption/ producing ready to eat products
 - Products like raw chicken are high risk because they naturally carry a high load of pathogenic bacteria. For such products, practices related to cross contamination & cooking are priority during inspection
 - Products having wide distribution & large consumption, those meant for children, infants, vulnerable segment of population pose more risk

Decision tree for risk categorization in the secondary food business sector



Decision tree for risk categorization in the secondary food business sector - contd...



Prioritization for inspection

- When number of establishments to be inspected is more prioritization is necessary
- Based on process/ product-related set of risk factors for food-borne disease - By identifying high risk foods or high risk food preparation processes Inspector can focus on those foods or processes that are most likely to cause food-borne disease if uncontrolled
- Record of compliance

Procedure for prioritization of Establishments/Businesses

- History of compliance by the establishment with its quality and safety management system & pertinent regulations the establishment profile is designated “High” or “Low” based on establishment records
- Establishment’s products are profiled on the level of food borne disease risk factors they present (eg inherent toxins) or marketing characteristics (reaching more populations/ vulnerable segments)

Food Establishments

Food establishments/business are undertakings carrying out any or all of the following :

- preparing
- processing
- manufacturing
- packaging
- storing
- transporting
- distributing
- handling or offering for sale or supply

High-risk Establishments/businesses

- Establishments dealing with high risk foods/
production methods where the potential exists to
put vulnerable groups or large numbers of
consumers at serious risk due to
 - nature of the food (e.g. ready-to-eat, raw chicken)
 - manner of food preparation/ processing facilities
provided
 - control system in place

Medium-risk Establishments/ businesses

- **Establishments where high-risk ready-to-eat foods are not prepared but the scale of the business is large. Such foods include:**
 - shellfish/fish (cooked and raw)
 - raw meat
 - cooked meat/poultry and meat/poultry products
 - milk and milk products
 - egg and egg products, etc.

Low-risk Establishments/ businesses

- **Businesses where the potential to cause harm to consumers is low. Eg.**
 - primary producers of honey
 - manufacturers of cereal products, jams and jelly, oils and fats
 - packers of tea, herbs, spices, nuts, etc.

Matrix to Assign a Priority Ranking to Establishments

<u>Establishment compliance profile</u>	<u>Product risk profile</u>	<u>Inspection priority</u>
Low	High	Top priority
Low	Low	Medium priority
High	High	Medium priority
High	Low	Low priority

Requirements for implementing risk-based inspections

- Food inspectors to have deep knowledge of food-borne illness risk factors associated with each step of production process & K & skills in various areas
- Partnership and coordination between inspectors, auditors, labs, producers and processors
- A supportive food control system incl laws
- Commitment from all stakeholders across chain

Knowledge and skill requirements for inspectors

- Knowledge of the following:
 - relevant laws and regulations;
 - food safety and quality;
 - food processing operations, food microbiology & chemistry
 - prerequisite programmes; HACCP system
 - properties and use of cleaning and sanitizing compounds;
 - hygiene practices, including personnel hygiene;
 - inspection techniques;
 - food sampling techniques and testing methods
- Compliance verification skills, experience and focus
- Appropriate training, a certificate/diploma & update certificates.
- Not have/ carry any transmittable disease
- Be a good communicator and exhibit dignity and integrity

Role of government in promoting risk-based inspections

- Have a compatible food control system
- Establish linkages b/w food inspection and food safety policies and strategies
- Equip inspectors with authority and responsibilities
- Provide trainings to food inspectors and businesses
- Assist food businesses in adopting pre-requisite programmes (GAP/GMP/GHP...) and HACCP

Risk-based food inspection and Good Practices

- Responsibility of food safety is within the food business
- Both build on same principle of risk-basis
- Food inspection has changed from full scope inspections to targeted inspections on critical points and implementation of preventative measures
- Reviews and evaluates QA and management systems including control measures
- Promotes partnerships b/w inspector and food business

Role of inspectors in RB inspections

To make an assessment of current practices & compliance with food law, regulations, standards, COPs

Auditor

- Determine if control measures implemented are working properly and correctly applied
- Determine operations critical to food safety

Inspector

- Determine awareness of personnel to risk factors (RF)
- Determine that control measures for each RF in place
- Ascertain that preventive measures applied are appropriate
- Determine extent to which GMP followed & complied with
- Detect NC and recommend necessary CAs
- Assess conditions of suitability of facilities, products, equipment, staff

Traditional vs risk-based inspection

Traditional

- **Corrective/ reactive**
- **Inspection planned randomly**
- **Emphasis on product/ premises inspection**
- **Sample collection for assurance purposes**

Risk-based

- **Preventive**
- **Prioritization based on risk factors**
- **Emphasis on process inspection/ controls in place to address risk factors**
- **Sample collection for verification purposes**

Benefits of risk-based food inspection

- Emphasizes on a preventative approach rather than corrective actions
- Places responsibility on various stakeholders specially producer/ processor rather than government of producing a safe food
- Fosters partnerships between inspectors and processors for purpose of improving food safety
- Uses limited resources in a more effective manner
- Investigate & apply enforcement action proportionate to risk
- Provide advice & information to food industry workers & management

Aspects to be covered in risk-based food inspection

- Pre-requisite programme
 - Plant construction and equipment
 - Management review
 - Training programmes
 - Customer complaints and handling
 - SOPs, SSOPs
 - Pest control programme
 - Personal hygiene
 - Supplier specifications and controls
 - Record keeping
- Regulatory action plan
- HACCP Plan, traceability

Some guidance tools



Information Exchange Mechanisms

- FAO Food Safety and quality home page
<http://www.fao.org/food/food-safety-quality/home-page/en/>
- Codex web site: www.codexalimentarius.net
- FAO Regional office for Asia and the Pacific
<http://www.fao.org/asiapacific/rap/home/en/>
- Capacity Building and implementation of international food safety standards in ASEAN countries <http://foodsafetyasiapacific.net/>

THANK YOU

