Regional Consultation Workshop
Implementation of GMP/HACCP in Asia –
A status review

PRINCIPLES and CONCEPTS
OF
GMP and HACCP

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Why – Food Safety?
Why we should care about safe food

Foodborne and waterborne diarrheal diseases together kill 2.2 million people annually - WHO

Foodborne diseases and threats to food safety are a constantly growing public health problem.
CAC – Good Manufacturing Practices

- Design and Facilities
- Control of Operations
- Maintenance and Sanitation
- Personal Hygiene
- Transportation
- Product Information and Consumer Awareness
- Training
Scope

- Entire Food Chain – From Primary Production to the final consumer
- HACCP based Approach to enhance Food Safety
- Role for Governments, Industry and Consumers
Establishment: Design and Facilities
4.1. Location

Establishments should NOT be

- Environmentally polluted areas and industrial activities which pose a serious threat of contaminating food
- Areas subject to flooding unless sufficient safeguards are provided
- Areas prone to infestations of pests
- Areas where wastes, either solid or liquid, cannot be removed effectively
4.1.2 Equipment

- Permits adequate maintenance and cleaning
- Functions in accordance with its intended use
- Facilitates good hygiene practices, including monitoring
4.2 Premises and Rooms

- **Design and Layout**
  - Permits Good Food Hygiene Practices
  - Protects against Cross Contamination

- **Internal Structure and Fittings**
  - Walls, Partitions and Floor
  - Ceiling and Overhead Fixtures
  - Windows and Doors
  - Food Contact Surfaces

- **Temporary Mobile Premises and Vending Machine**
4.3 Equipment - Design

- Adequately cleaned, disinfected and maintained
- Equipment and containers should be made of materials with no toxic effect in intended use
- Equipment should be durable and movable
- Facilitates maintenance, cleaning, disinfection and monitoring
4.3 Equipment

- Food Control and Monitoring Equipment
  - Time temperature
  - Critical Limits

- Container for Waste and Inedible Substances
  - Identifiable, suitably constructed and made of impervious material.
  - Containers used to hold dangerous substances should be identified
4.4 Facilities

- Water Supply
- Drainage and Waste Disposal
- Cleaning
- Personnel hygiene facilities and Toilets
- Temperature Control
- Air quality and Ventilation
- Lighting
- Storage
5 Control of Operations
5.1 Control of Food Hazards

Food business operators should control food hazards through the use of HACCP

- **Identify** steps in their operations which are critical to the safety of food;
- **Implement** effective control procedures
- **Monitor** control procedures
- **Review** control procedures periodically
5.2 Key Aspects of Hygiene Control Systems

- Time and temperature control
- Specific Process Steps – Chilling, thermal processing, irradiation, drying, chemical preservation, vacuum or MAP
- Microbiological Cross Contamination
- Physical and Chemical Contamination
5.3 Incoming Raw Material Requirements

- Specifications for raw materials should be identified and applied
- Raw materials or ingredients should be inspected and sorted before processing
- Stocks of raw materials and ingredients should be subjected to effective stock rotation

5.4 Packaging

- Adequate protection
- Packaging materials or gases should be non toxic
- Should not pose threat during storage and use
5.5 Water

- In contact with Food
- As an Ingredient
- Ice and Steam

Potable Water Should be as specified in **WHO Guidelines for Drinking Water Quality** or Water of Higher Standard
5.6 Management and Supervision

- Type of control and supervision needed will depend
  - Size of the business,
  - Nature of its activities
  - Types of food involved

- Managers and supervisors should have knowledge of food hygiene principles and practices

- Effective monitoring and supervision
5.7 Documentation and Records

- Appropriate records of processing, production and distribution

- Records retained for a period that exceeds the shelf-life of the product

- Documentation can enhance the credibility and effectiveness of the food safety control system.
5.8 Recall Procedures

- Managers should ensure effective procedures
- Rapid recall
- Need for public warnings
- Recalled products should be held under supervision
  - Supervision until they are destroyed / reprocessed to ensure their safety
Establishment: Maintenance and Sanitation
6.1 Maintenance and Cleaning

Establishments and equipment should be kept in an appropriate state of repair and condition to:

- facilitate all sanitation procedures
- function as intended at critical steps
- prevent contamination of food, e.g. from metal shards, flaking plaster, debris and chemicals

- The necessary cleaning methods and materials will depend on the nature of the food business.

- Disinfection may be necessary after cleaning.
6.2 Cleaning Procedures and Methods

- Cleaning and disinfection programmes
  - Should be continually and effectively monitored

- Written cleaning programmes should specify:
  - areas, items of equipment and utensils to be cleaned
  - responsibility for particular tasks
  - method and frequency of cleaning
  - monitoring arrangements

- Relevant specialist expert advisors
6.3 Pest Control Systems

- Preventing Access
- Harbourage and infestation
- Monitoring and detection
- Eradication
Always Remember

- 1 fly leads to 900
- 1 cockroach leads to 30 - 40
- 1 moth leads to 400
- 1 beetle leads to 375
- 1 rodent leads to 30

Pesticides and rodenticides can only be applied by certified technicians
6.4 Waste Management

- Provision for the removal and storage of waste.
- Waste must not be allowed to accumulate.

6.5 Monitoring Effectiveness

- Sanitation systems should be monitored for effectiveness.
- Microbiological sampling of environment and food contact surfaces.
7 Establishment: Personal Hygiene

- Health Status
- Illness and Injuries
- Personal Cleanliness
- Personal Behaviour
- Visitors
8 Transportation

- Food must be adequately protected during transport
- Conveyances / containers for transporting food should be kept in an appropriate state of cleanliness, repair and condition
- Cleaning and disinfection should take place between loads
9. Product Information and Consumer Awareness

- Lot Identification
- Product Information
- Labelling
- Consumer Education
10 Training

- Awareness and Responsibilities
- Training Programmes
- Instruction and Supervision
- Refresher Training
What is HACCP?

- Have A Cup of Coffee & Pray???
- Hard Agonizing Confusing Complicated Paper Work

- Hazard Analysis and Critical Control Point
HACCP

- It’s a big name, that seems to be scaring a lot of people.....

- A system of food safety management that is
  - Science-based and systematic
  - Preventative
  - Applicable throughout the food chain
Before a food enterprise can apply HACCP, they must have programme of effective GMP in place.
Assemble the HACCP Team
→
Describe the Product
→
Identify Intended Use
→
Construct Flow Diagram
→
Onsite Confirmation of Flow Diagram
HACCP – 7 Key Principles

1. Identify Hazards
2. Determine Critical Control Points
3. Establish Critical Limits
4. Establish Monitoring Procedures
5. Establish Corrective Action Procedures
6. Establish Verification Procedures
7. Establish Record Keeping
1. List all Potential hazards associated with each step, conduct Hazard Analysis and consider any measures to control identified hazards

2. Determine Critical Control Points

3. Establish Critical Limits for each CCP

4. Establish a Monitoring System for each CCP

5. Establish Corrective Actions

6. Establish Verification Procedures

7. Establish Documentation and Record Keeping
<table>
<thead>
<tr>
<th>Process Step No</th>
<th>Process Step</th>
<th>Identify Potential Hazards, introduced, controlled, enhanced at this step</th>
<th>Indicate Likelihood and Severity of hazard</th>
<th>Are any Potential Food Safety hazards significant</th>
<th>Justify Your decision, Why it is a Significant hazard</th>
<th>What preventive Measures can be applied to prevent the Significant hazard</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
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<th>Justify Your decision for CCP</th>
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**HAZARD ANALYSIS WORKSHEET**
Is there a hazard with this raw materials?

Q - 1

Are you / customer going to process this hazard out of the product?

Q - 2

Is there a cross contamination risk to the facility / to other products which will not be controlled?

Q - 3

Next raw material

Not CCP

CCP
Q - 1
Is there a hazard at this process step?

Q - 2
Do preventative measures exist for identified hazards?

Q - 3
Is the step specifically designed to eliminate / reduce the likely occurrence of hazard to an acceptable level?

Q - 4
Could contamination occur at / increase to unacceptable level?

Q - 5
Will a subsequent step eliminate / reduce the hazards to an acceptable level?
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<thead>
<tr>
<th>Step</th>
<th>Hazard</th>
<th>Control Point Type</th>
<th>Principle 3</th>
<th>Principle 4 Monitoring</th>
<th>Principle 5 Corrective Actions</th>
<th>Principle 6 Verification</th>
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Benefits of GMPs and HACCP

- A formalized safety management system based on good science.
- A higher level of understanding and participation of employees.
- Demonstrates due diligence and defines responsibilities.
- Builds client and consumer confidence.
Foodborne diseases and threats to food safety are a growing public health problem.

- **Effective GMP – Stronger HACCP – Safer Food**

- **HACCP – A Minimum Mandatory Standards to start with....**
Thank you

I am available for further clarifications

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