

**GM 6-10**



**CIVIL AVIATION AUTHORITY OF BANGLADESH**

**GUIDANCE MATERIAL ON MAINTAINING A STANDARD  
FLIGHT CATERING CENTRE**

**Issue 1**

**26 Nov 2018**

**CAAB HQ, Kurmitola, Dhaka 1229**

**Bangladesh**

**RECORD OF AMENDMENTS**

<b>Amendment Number</b>	<b>Date</b>	<b>Pages Affected</b>	<b>Date Entered</b>	<b>Initials</b>



A Standard Flight Kitchen

## FOREWORD

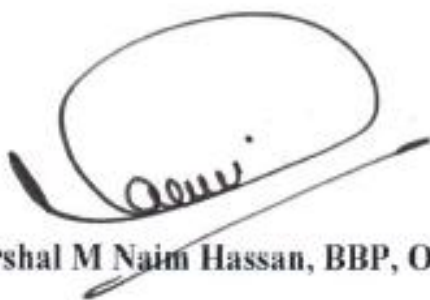
This Guidance Material (GM 6-10) for maintaining a standard flight catering centre provides guidelines for developing and maintaining a standard flight catering centre by the air operators in the light of WHO guide to hygiene and sanitation in aviation (2009), Bangladesh environmental conservation rule-1997 and Aviation Public Health Manual, Nov 2015, published by CAAB. It also provides necessary guidelines for training of food handlers who are engaged in food preparation for the crew and passengers.

This will help the operators of taking all the measures necessary for ensuring hygiene, wholesomeness and soundness of food at all stages-from its growth, production or manufacture to its final consumption by the passengers and crews.

The objective of this guidance is to attain contaminants free and hygienic food in the production and serving to the consumers. Commercially, therefore, it is important to provide food that is safe and of high quality.

In pursuance of the powers conferred upon the Chairman, Civil Aviation Authority of Bangladesh vide [rule 214 of CAR 84](#), the Chairman is pleased to approve this “Guidance Material on Maintaining a Standard Flight Catering Centre” and imparting training to the food handlers and Catering staff.

This shall take effect from the date of approval by the Chairman.



Air Vice Marshal M Naim Hassan, BBP, OSP, afwc, psc

Chairman

Civil Aviation Authority of Bangladesh

Date: 26 Nov 2018

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## **CHAPTER 1**

### **GENERAL**

#### **1.1 Objective**

- a. Food safety in Aviation has been defined as taking all the measures necessary for ensuring the hygiene, wholesomeness and soundness of food at all stages-from its growth, production or manufacture to its final consumption by the passengers and crews.
- b. The objective is to attain contaminants free and hygienic food in the production and serving to the consumers.
- c. Air Operators must keep it in mind that the passengers often assess an airline by the quality of the meals they serve on board.
- d. Commercially, therefore, it is important to provide food that is safe, of high quality, palatable, and attractively served.

#### **1.2 Structure and other requirements**

- a. Premises where food or beverages are stored, prepared or served should be roomy enough to avoid congestion and allow for possible expansion of operations.
- b. They should be constructed in such a manner so that they can be kept clean and provide protection against harbourage of rodents and insects.
- c. There should be adequate lighting and ventilation, both natural and artificial.
- d. It should be sited at airports or in their vicinity and as near as possible to the aircraft departure parking area.
- e. The structure should be of brick, concrete, or some other substantial material.
- f. The building should be designed to permit easy and adequate cleaning and to be kept in good repair.
- g. Partitions within the structure should be kept to a minimum in order to facilitate the use of mechanical cleaning equipment.

#### **1.3 Flight catering kitchen**

Aircraft meals are supplied by kitchens that are:

- a. Under the direct control of the airline; or
- b. Staffed and controlled by catering contractor but permanently supervised by the airline.



- c. Airlines should not uplift foods from a caterer that holds a monopoly business and prepares food in poor hygienic conditions.
- d. Airlines also to inspect and collect food samples and water for bacteriological and other examinations.



Biman Flight Catering Centre

## **CHAPTER 2**

### **PROTECTION AND CLEANING**

#### **2.1 Protection against insects and rodents:**

- a. All windows, doors and other openings should be insect-proof.
- b. Plastic insect-proof screening is recommended with 6 meshes per cm.
- c. Kitchen entrances should have self-closing, double doors, opening outwards.
- d. Cold air curtains can be used at entrances instead of screens.



Window Screening



Kitchen entrance door

#### **2.2 Cleaning of catering premises:**

- a. To ensure effective cleaning, walls, floors, doors, windows, ceilings and all other parts of the structure must be kept in a good state of repair.
- b. One person should be made responsible for the cleanliness of the premises.
- c. The cleaning of premises should be carefully planned so that every part is dealt with according to a schedule. Schedule to be approved by concerned Organization.
- d. The cleaners should be fully instructed in the use of cleaning tools and materials.
- e. They should also be made aware of the hazards.
- f. Moreover, cleaning apparatus and equipment are to be kept in a hygienic condition. This is a factor that is often overlooked.



Cleaning Tools

## 2.3 Disinsecting the premises

Disinsecting may be carried out by:

- a. Spraying & fumigation by insecticides
- b. Walls to be treated with insecticidal paint
- c. Use repellent dispensers or electrically operated equipment that emits ultraviolet rays, thereby attracting insects, which are then killed by contact with an electrified grille.



Fogging of insecticides



Mosquito Insect Killer

## 2.4 Exclusion of domestic animals

- a. Dogs, cats and
- b. other domestic animals should be excluded from all parts of the food premises.



## **CHAPTER 3**

### **CONSTRUCTION**

#### **3.1 Construction of the premises**

##### **3.1.1 Walls:**

- a. Walls should be light coloured and made of a substantial, durable, smooth, impervious and washable material.
- b. They should be free from ledges or projections, which collect dust, and be tiled, preferably from floor to ceiling, but if this is not possible then to a minimum height of 1.5 m (5 ft) from the ground and coved at the top.
- c. Surfaces that are not tiled must be finished in plaster and painted (preferably in a washable mat finish).
- d. Gloss paint may be used in dry goods storerooms.
- e. The parts of walls surrounding sinks should be tiled.

##### **3.1.2 Floors:**

- a. Floors must be even, impervious, without cracks or open joints, smooth (but not slippery), hard wearing and easy to clean. Floors should slope evenly towards drainage outlets.
- b. Suitable materials for floors are terrazzo, quarry tiles or granolithic chips bedded in concrete.
- c. Light colour for floor is recommended so that it reflects light and show up dirt.

##### **d. Ceilings:**

- e. The ceiling must not harbour dirt. It should be insulated. They can then be finished with a hard glossy paint.

##### **f. Doors and Windows:**

- g. Doors should be flush-fitting without panels or ledges. They should open outwards and be self-closing. The bottoms of doors should be protected on both sides with metal kitchen plates.
- h. Windows should be so sited as to facilitate cleaning both sides. The pans should be large rather than small.

### 3.1.3 Working surfaces:

- Working surfaces should be impervious to liquids, smooth and to be easily cleaned.
- Those with which food comes into contact should be made of a material that is nontoxic.
- Stainless steel, marble or laminated plastics are suitable materials.
- The bottom of tables must be at least 15 cm (6 in) above the floor, to permit easy cleaning.

### 3.1.4 Drainage:

- Kitchen drainage should be sufficient to remove all waste water.
- All drains should be large enough to carry peak loads. It should be adequately trapped and ventilated.
- The drainage system should be so constructed as to allow no risk of contamination of potable water supplies by liquid waste.

## 3.2 Water Supply

- Adequate supplies of both hot and cold running water are essential.
- All water used in food preparation should be potable. Water test to be carried out at least once in a year from a reputed national laboratory and to comply ECR 97/WHO standard (Ref: chapter 4, para 4.6 of Aviation Public Health Manual).
- Provides hot water for general purposes throughout the premises at temperatures above 60°C,
- Provision must be made for the temperature to be raised to 82°C for the sanitization of dishes and utensils.

### Water Quality Analysis results

SN	Parameters	WHO Standard Values	National Standard (ECR-97)	Obtained Results	Remarks
1	P <sup>H</sup>	6.5-8.5	6.5-8.5		
2	Turbidity(N.T.U)	<5	10		
3	Total Hardness(mg/L)	<500	200-500		
4	Chloride(mg/L)	<250	150-600		
5	TDS (mg/L)	<1000	1000		
6	Iron Fe (mg/L)	<0.3	0.3-1		
7	Arsenic As (mg/L)	0.01	0.05		
8	Nitrate-N (mg/L)	<1	<1		
9	Total Coliforms (N/100ml)	0	0		

Comments by authorized person:\_\_\_\_\_

Signature with Seal:\_\_\_\_\_

## CHAPTER 4

### STORAGE FACILITIES

#### 4.1 Food store

- a. All food stores should be dry, well lit, well ventilated, vermin-proof and clean, and
- b. To be situated away from sources of heat, both natural and artificial.
- c. All racks and shelves should be easily removable for cleaning purpose and to be made preferably of stainless steel.



Racks and Shelves

#### 4.2 Storage in refrigerators, cold rooms

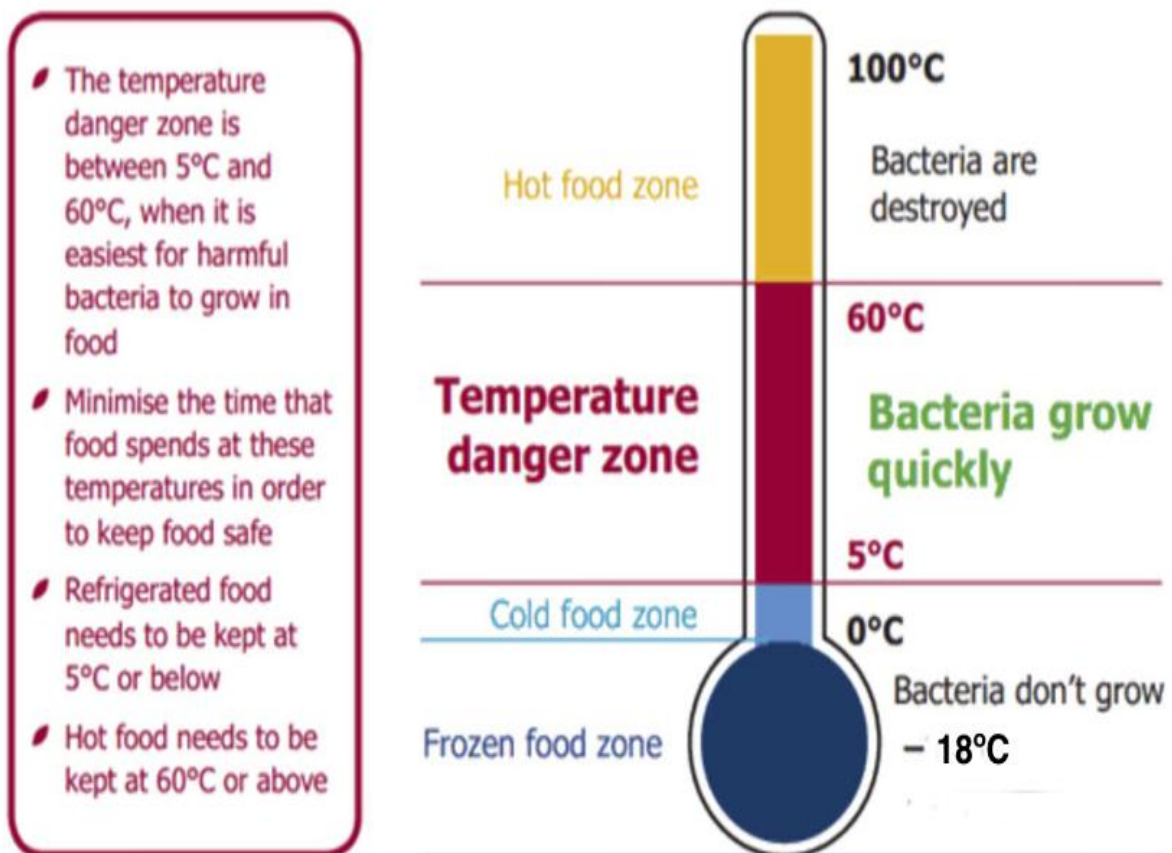
- a. Foodstuffs must not be stored directly on the floor, even if they are in boxes or cartons.
- b. Refrigerators and cold rooms should be away from sources of heat.
- c. A sealed trapped gulley should be provided to drain away liquid during defrosting.
- d. Internal surfaces and racks should be made of metal.
- e. The temperature of refrigerators and cold rooms should not exceed 4° C.
- f. Thermometers should be sited in the warmest zone of the refrigerated area.
- g. Separate refrigerators should be provided for the various types of food. Thus there should be one each for :
  - (a) dairy products, (b) meat, (c) fish, (d) fruit, (e) vegetables, and (f) confectionary.
- h. To avoid risk of cross-contamination, cooked and uncooked foods should not be stored in the same refrigerator
- i. They should be thoroughly washed at least once in a week.
- j. Disinfectants should not be used, as they may taint the food.
- k. In flight catering, refrigerated transit and holding rooms are necessary.



### 4.3 Deep freeze storage:

- The temperature of food in deep freezes should never rise above  $-18^{\circ}\text{C}$  ( $0^{\circ}\text{F}$ ),
- It may decrease to as low as  $-40^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$ ) for much longer term storage.
- For stock rotation of food in deep freeze 3 months is the standard for all aircraft meals.
- Hot food should not be placed in refrigerators or deep freezes till it has first been cooled at a temperature of  $30^{\circ}\text{C}$  ( $85^{\circ}\text{F}$ ).
- The cooling period should not exceed 2 hours.
- To achieve rapid cooling of frozen food, blast freezers are usually installed. Air at temperatures as low as  $-35^{\circ}\text{C}$  is blown over the food. On removal from the blast freeze, the food should go straight into the deep freeze.

### 4.4 FOOD MAINTENANCE TEMPERATURE



**Figure 1:** Maintaining optimum temperature for flight food

## **CHAPTER 5**

### **FOOD HANDLERS**

#### **5.1 Employment:**

- a. Persons suffering from food or water borne diseases are not to be employed in food preparation or food handling.
- b. Food handlers are to be kept under regular surveillance.
- c. Staff who has infected wounds or sores should be taken care of.
- d. Those suffering from gastrointestinal illness should be excluded from work in the flight kitchen till medically cleared.
- e. All persons applying for jobs as food handlers should undergo a pre recruitment medical examination.
- f. Only those who are free from infection and are proved not to be carriers should be recruited.
- g. All the food handlers shall undergo thorough annual medical checkup by CAAB authorized medical officer.

#### **5.2 Training of food handlers:**

- a. All food handlers must receive training in food hygiene.
- b. Such training should be given by specialist officers employed by airlines, or by officers of the health authority, or by both.
- c. Lectures, films and visual aids, should be imparted in training.
- d. All food handlers should receive basic instruction in hygiene including the following :
  - (i) company regulations and procedures,
  - (ii) health requirements,
  - (iii) use of equipment,
  - (iv) use of protective clothing,
  - (v) handling food,
  - (vi) reporting of sickness,
  - (vii) personal and general hygiene in working areas.





Conducting Training programme of Food Handlers

### **5.3 Training of other staff:**

#### **5.3.1 Storekeepers:**

They must be taught about the practice and value of stock rotation of food items and temperature control.

#### **5.3.2 Cleaners:**

Cleaners should be taught correct practices for storing cleaning materials, technique of using equipment and materials, the reasons for strict adherence to cleaning schedules and correct way to report faults.

#### **5.3.3 Chefs:**

In addition to basic training, they should learn the rudiments of bacteriology and how to prevent contamination.

## CHAPTER 6

### FOOD PREPARATION

#### 6.1 Care of food

- a. Raw foods to be washed to remove soil or other contaminants.
- b. Green salads should be soaked for 5 minutes in a 50 mg/l solution of sodium hypochlorite, and then thoroughly rinsed in running potable water.
- c. The vegetables may be washed in an ordinary vegetable sink with potable water.



- d. Normally, meals should be prepared as near as possible to the time of consumption, unless they are to be deep frozen.
- e. After foodstuffs are removed from storage, they should be prepared and cooked as soon as possible.
- f. Frozen raw foods to be completely thawed before cooking.



- g. Containers should be stored in a clean dry area;
- h. They should not be used for any other purpose;
- i. Caterers should not overstock food, so that all food can be used within its shelf life;
- j. All food must be used in strict rotation and to be maintained in a register;
- k. Packs should be properly date marked or coded with the date of production;
- l. Meals that are to be frozen should be transferred to a deep freeze without delay;
- m. For storage of up to 3 months, food should be kept at temperatures of  $-18^{\circ}\text{C}$  ( $0^{\circ}\text{F}$ ).
- n. Frozen packs should be put straight into a convection oven or steamer after removal from the deep freeze.
- o. Meals should be served as quickly as possible after the reheating cycle is complete
- p. Any food prepared in excess of consumer requirements must not be reheated more than once.

## **6.2 Crew meals:**

- a. Cabin crew to be supplied with special meals, or allowance to be given to purchase food on arrival.
- b. Captain should be given a completely different meal from that of the co-pilot.
- c. The same principle must apply if they eat in the ground catering premises, a few hours before take-off. This is an essential safety precaution to reduce the possibility of food poisoning of both of the flight crew from taking contaminated food by a pathogen.

## CHAPTER 7

### CROSS INFECTION

#### 7.1 Preventive measures of bacterial infection

- a. There is possibility of transfer of bacteria from raw foods to cooked foods either by human contact or by contact with equipment.
- b. Raw foods should be handled by separate personnel in a separate section and with different equipment from that used for cooked foods.
- c. Raw and cooked foods are not to be kept together.
- d. After raw food has been handled :
  - the operative's hands,
  - all knives,
  - cutting boards,
  - slicing machines,
  - work surfaces,
  - All utensils and equipment must be washed and sterilized before contact is made with cooked foods.



Kitchen Equipment

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## CHAPTER 8

### STAFF CLOAKROOM

#### 8.1 Design and Facilities

- Staff cloakrooms should be provided, separately for each sex.
- It will include toilets with wash-hand-basins, individual lockers for clothes, changing rooms and showers.
- The toilet areas should be well lit and ventilated and not open directly on to a food area.
- Kitchen staff should enter the food premises after passing through the changing and wash rooms
- In addition to cloakrooms, there must be an adequate number of wash-hand-basins conveniently located throughout the premises.
- The kitchen staff should take shower before entering in the kitchen for food preparation.



**Figure 2:** Standard cloakroom in the flight Catering

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## CHAPTER 9

### WASHROOM

#### 9.1 Staff washroom

- a. Washrooms to be provided with automatic faucets (taps) using “electronic eyes” (which automatically control the flow of the water to the faucet) are preferable, as they will reduce contact with hands/fingers.
- b. Provide paper wipes for cleaning, will reduce the risk of cross-contamination.
- c. Post hand-washing signs to encourage good hand-washing practices (Ref: chapter 6.10.2 of Aviation Public Health Manual).
- d. Require all food handlers to wash hands frequently.
- e. Use disposable paper towels for hand drying.
- f. Use the proper chemical sanitizing agent following the manufacturer’s contact time.
- g. Frequently clean and sanitize all surfaces.
- h. Provide hand dryers to dry hands after hand washing.
- i. Clean and sanitize equipment at least once during each shift.



Automatic Faucet (water tap)



Hand dryer





Flight Kitchen of Emirates Airlines

## **CHAPTER 10**

### **WASHING UTENSILS**

#### **10.1 Washing utensils by hands**

- a. The cleansing and sanitization of non disposable dishes and utensils in flight kitchens and airport restaurant and snack bar kitchens should be carried out.
- b. For manual cleansing and sanitization of dishes and utensils preferably three large stainless steel should be used.
- c. Only in very small establishments, all utensils and dishes are washed by hand.
- d. In larger establishments, manual cleansing and sanitization are usually confined to cooking pots and pans,
- e. The hot water supply should be abundant and delivered at temperature of 60 °c (140°F)
- f. Prior to cleansing, waste food from dishes and utensils should be scraped .
- g. The dishes and utensils should then be soaked, scraped and pre-rinsed in the first sink to remove remaining scraps of food, grease and other deposits.
- h. Soaking should be carried out at a temperature of approximately 45 °C (115 °F).
- i. A recommended concentration of an efficient detergent should be added to the water to emulsify fats.
- j. Dishes and utensils should then be thoroughly cleansed in the second sink in water maintained at a temperature of approximately 50°C (120 °F)
- k. The water, which should be changed frequently, should contain an efficient detergent added at a concentration that should be suited to the mineral content of the water.

#### **10.2 Washing utensils by machine:**

- a. Items such as crockery, glasses, trays, and containers are cleansed and sanitized by machine
- b. In larger establishments, all items other than pan are washed by machine.
- c. Utensils are fed through the machine on a moving belt.
- d. The first section is the wash tank, in which the temperature of the water should be 60°C (140 °F).
- e. The next tank is the rinse tank, in which water at a temperature of 82 °C (180 °F) is sprayed through fine nozzle jets.
- f. The third section of the Machine is a hot air drying chamber, operating at approximately 100 °C (212 °F).
- g. Utensils are dry on exit from the machine within a few seconds.



**Figure 3:** Automatic washing machine

### **10.3 Dish washing:**

- a. Mechanical dish washing is recommended to enable the correct temperature of 82° C (180 °F) to be achieved.
- b. Where dish washing is carried out by hand, two sinks, or preferably three, should be provided.
- c. Sinks and draining boards should have a smooth, hard, even surface and be constructed of stainless steel or plastic.
- d. Wooden sinks and draining boards should not be used.

### **10.4 Pan washing:**

- a. When pan washing is done manually, at least two, or preferably three sinks of large capacity are required (as shown in the figure below).
- b. Completely automatic washing machines may be used for the cleansing and sanitization of pots, pans, large baking utensils, etc



**Washing Sink**

## **CHAPTER 11**

### **TRANSPORTATION OF FOOD**

#### **11.1 Food transportation from kitchen to aircraft**

- a. Special vehicles (refrigerated) are necessary for transportation of flight meals from food preparation premises to the aircraft: It should be transported at 4°C (40 °F) to the aircraft
- b. Where the flight catering premises are not at or adjacent to the airport, vehicles should be refrigerated.
- a. All vehicles should be hygienically maintained and kept clean.
- b. They should not be used to carry the contents of waste bins.
- c. The catering vehicle should be washed out each time after off loading used equipment and prior to servicing other aircraft.
- d. In addition, at the end of each day, the interior of the vehicle should be washed with a detergent.



Refrigerated Vehicles

#### **11.2 Preservation of food in the aircraft**

- a. Foods that are served to the passengers are stored in the galley of pantry areas.
- b. Cold food served on the trays previously laid out in flight catering; on the aircraft they should be kept either in refrigerated modules or in containers holding a small slab of dry ice.
- c. Hot meals on short haul aircraft are normally kept in heat retaining ovens and served immediately after take-off .
- d. Hot meals on long-haul aircraft, which should be either frozen or chilled and reheated in a variety of ovens, quite rapidly, so that they can be served , if necessary, shortly after take-off.

- e. Aboard aircraft cold meals should be held at temperatures below 10 ° C (50°F) and hot meal above 60°C (145° F)
- f. Meals that are to be served hot are not to be heated shortly after take off, they must be kept at a temperature below 10° C (50° F) until they are placed in ovens.



Aircraft Galley



## CHAPTER 12

### WASTE DISPOSAL

#### 12.1 Disposal of Food waste

- a. After offloading from the aircraft, waste food, including left-over unserved whole meals, should be brought back to flight catering without delay.
- b. Offloading should commence as soon as possible after the aircraft lands, so that the galley can be cleaned before fresh equipment and food is loaded.
- c. The waste food must not remain in flight catering. Disposal should be rapid, safe and hygienically executed. All meal trays should be removed.

#### 12.2 Disposal of kitchen garbage

- a. Waste should be kept in covered bins or disposable paper or plastic sacks provided with a foot operated hinged lid.
- b. Full bins or sacks should be removed from the kitchen promptly and their contents suitably disposed off.
- c. If waste food is to be used for animal feed, it should be stored separately from garbage.
- d. Provision must be made for the washing and disinfection of used garbage bins.
- e. Garbage bins should never be washed or stored in the vicinity of aircraft containers used for human excreta.
- f. When in use, they are placed near or inside food preparation areas and may be handled by catering staff.





Flight catering centre of Singapore Airlines

## CHAPTER 13

### LABORATORY FACILITIES

#### 13.1 Catering laboratory

- a. All large flight catering establishments should have their own laboratory.
- b. This will enable all meals supplied to bacteriological control.
- c. Individual items and processes can be checked as necessary, and at the time of production.
- d. Bacteriological test can also be done from the national laboratories but full control can only be achieved if a laboratory is provided at a flight catering unit.



National Food Safety Laboratory





Flight Catering Centre of Malaysian Airlines

## CHAPTER 14

### INSPECTION

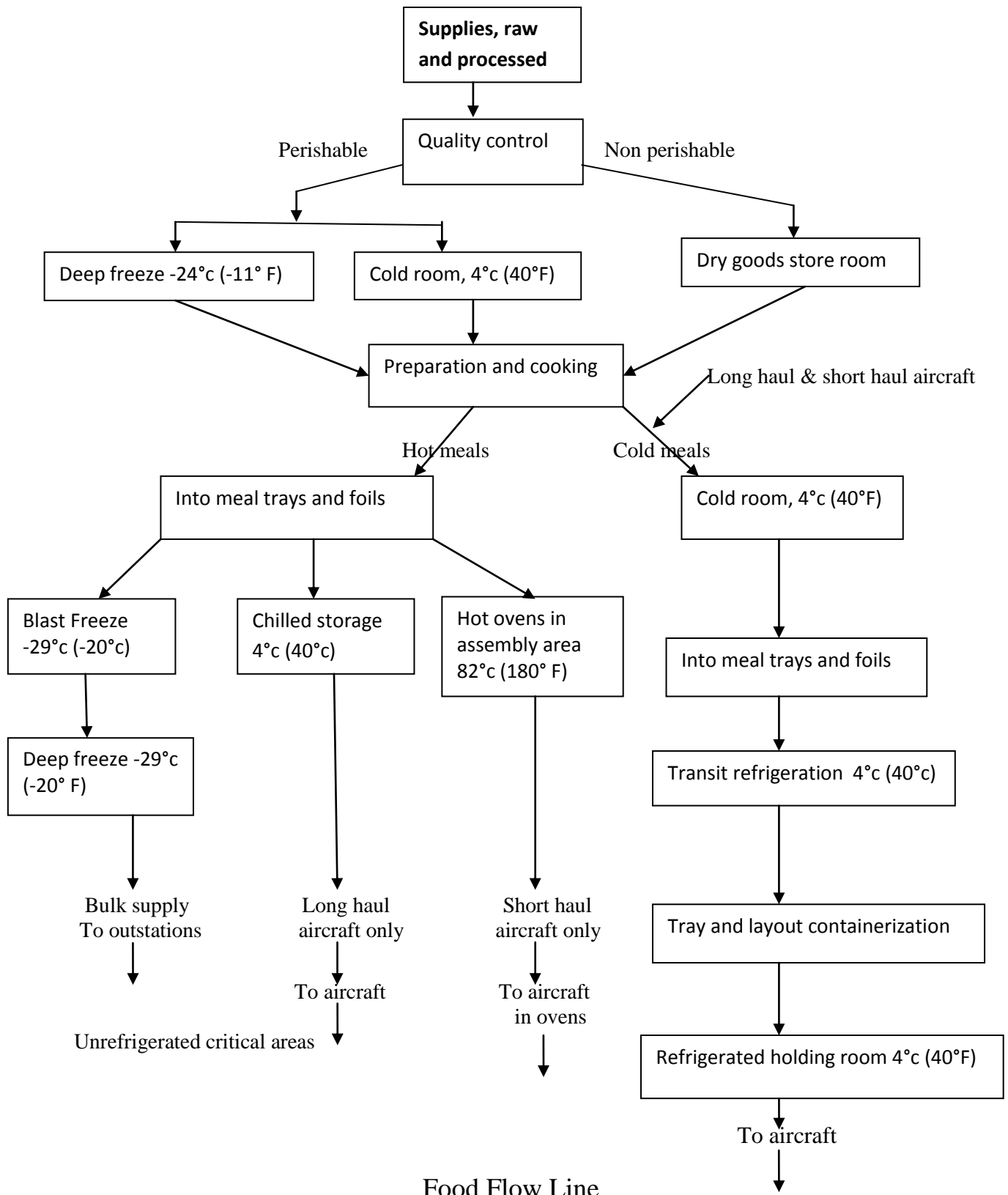
#### 14.1 Inspection of flight catering centre

- a. All food premises should be inspected regularly and frequently by health authority officers and by airline hygiene officers.
- b. The health authority shall have enforcement authority.
- c. The frequency of inspection will depend on the operating standards found i.e. it will be increased when conditions are unsatisfactory and decreased when they are good.
- d. Detailed inspections on all structural defects, faulty methods of food preparation and handling techniques should be carried out on monthly intervals.
- e. It is necessary to see during follow up visits that recommendations previously given have been duly implemented
- f. In addition, frequent adhoc visits should be made to check handling practices.



Inspection of Flight Catering Store

Fig: FOOD FLOW LINE



Food Flow Line

## **CHAPTER 15**

### **PREVENTION OF CONTAMINATION**

#### **15.1 Care of Hands**

- a. Hands are the most common medium by which pathogenic organisms are transferred to food from the skin, nose, bowel as well as food itself.
- b. They should therefore be kept clean, and be thoroughly washed not only every time after toilet is used and after raw food is handled but frequently throughout the day.
- c. An efficient and approved bactericidal soap helps to reduce the number of pathogenic organisms on the hands.

#### **15.2 Care of Equipment:**

- a. All using articles, equipment and utensils should be thoroughly cleaned.
- b. The use of disposable piping bags, gloves and head covers are recommended.
- c. Cutting boards made from a synthetic rubber compound are preferable to those from wood, as the wood provides bacterial breeding ground or causing splinters to penetrate the food.

#### **15.3 WHO recommended the following steps of hand wash to clean soiled hands.**

Wash hands when visibly soiled for a duration of 20-30 seconds.

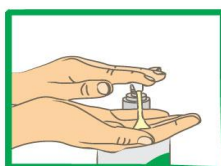
- a. At first wet your hands with water.
- b. Then apply a palmful of liquid soap in a cupped hand, covering all surfaces.
- c. Rub hands palms to palms;
- d. Rub the back of each hand with fingers interlaced;
- e. Rub Palms together with fingers interlaced;
- f. Rub with back of fingers to the opposing palms;
- g. Rotational rubbing of left thumb clasped in right palm and vice versa;
- h. Rub the tips of fingers.
- i. Rub each wrist with different hands, then
- j. Rinse the hands with water
- k. Dry thoroughly your hands
- l. Your hands are now safe.



## How to wash your hands?



Wet hands with water.



Apply soap.



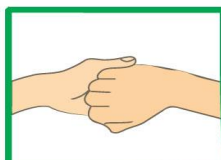
Rub hands palms to palms .



Rub the back of each hands with fingers interlaced.



Rub palms together with fingers interlaced.



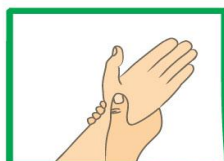
Rub with back of fingers to the opposing palms.



Rub each thumb clasped in opposite hands.



Rub the tips of fingers.



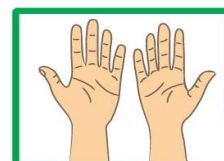
Rub each wrist with different hands



Rinse with water.



Dry thoroughly your hands.



Your hands are now clean.

Source: World Health Organization

**Figure 4:** WHO recommended steps of hand wash

## CHAPTER 16

### References:

1. Aviation Public Health Manual, 1<sup>st</sup> Edition, Nov 2015, Civil Aviation Authority of Bangladesh.
2. WHO Guide to Hygiene and Sanitation in Aviation, Third Edition, Geneva (2009)
3. Bangladesh Environmental Conservation Rules 1997 (ECR-97)