

**DRAFT**

**Code of Veterinary Practice**

**Good Manufacturing Practice for  
Raw-Unclean Edible-Birdnest (EBN)**

For stakeholder consultation only

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## Abbreviations

|      |                                       |
|------|---------------------------------------|
| AoAC | Association of Analytical Communities |
| CoVP | Code of Veterinary Practice           |
| EBN  | Edible-Birdnest                       |
| GAHP | Good Animal Husbandry Practice        |
| GMP  | Good Manufacturing Practice           |
| OIE  | World Organization for Animal Health  |

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## Foreword

This standard was developed by the Project Committee on Raw-Unclean Edible-Birdnest established by SIRIM Berhad.

This standard was developed with the following objectives:

- a) to improve and maintain the quality of EBN produced by Malaysia;
- b) to ensure sustainability of EBN industry in Malaysia; and
- c) to assist the EBN industry in international trade, in particular, for exporting EBN to China.

This standard will be subjected to periodic review to reflect current needs and conditions. Users and other interested parties may submit comments on the contents of this standard for consideration into future versions.

Compliance to this standard does not by itself grant immunity from legal obligations.

## Code of Veterinary Practice: Good Manufacturing Practice for Raw-Unclean Edible-Birdnest (EBN)

### SECTION 1: GENERAL

#### 1.1 Scope

This Code of Veterinary Practice (CoVP) prescribes GMP and requirements of raw-unclean EBN harvested from caves or ranches in the production of quality and safe raw-unclean EBN which may include but not limiting to sorting, pre-cleaning, drying, weighing, packing and labelling activities; specification of raw-unclean EBN which determines the quality, physical, and grading requirement of raw-unclean EBN.

#### 1.2 Normative references

The following normative references are indispensable for the application of this CoVP. For dated references, only the edition cited applies. For undated references, the latest edition of the normative reference (including any amendments) applies.

MS 1514, *Good Manufacturing Practice (GMP) for food*

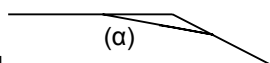
Association of Analytical Communities (AOAC) Official Methods of Analysis, 18<sup>th</sup> Edition. Revision 1, 2006

Pesticide Act 1974

#### 1.3 Definitions

For the purposes of this CoVP, the following definitions apply.

##### 1.3.1 angle of the contact planes ( $\alpha$ )



**Figure 1**

“ $\alpha$ ” is the angle of contact planes (the horns) for which the nest was built in its natural form with the converging point of the two planes as the center (Figure 1). The above term of “ $\alpha$ ” refers to the nearest 4 types described below in terms of  $\alpha$  value.

##### 1.3.2 cave edible-birdnest

EBN produced by edible-birdnest swiftlets harvested from caves.

##### 1.3.3 contaminant

Any biological or chemical agent, foreign matter, or other substances not intentionally added to raw-unclean EBN.

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### 1.3.4 dimensions

#### 1.3.4.1 contact planes of EBN

The two lines (A and B) radiating out from the mid point of the horn as in Figure 2(i).

#### 1.3.4.2 depth of EBN

The contact plane to the centre rim of the nest (from D to E in Figure 2(ii)).

#### 1.3.4.3 height of EBN

The measurement from the mid -point of the base radiating out perpendicularly to the mid-point of the rim of the EBN (from C to E in Figure 2(i)).

#### 1.3.4.4 horn of EBN

The part of the nest located at the both ends of the rim of the nest.

#### 1.3.4.5 length of EBN

The measurement from horn (A) to horn (B) of EBN as in Figure 2 (ii).

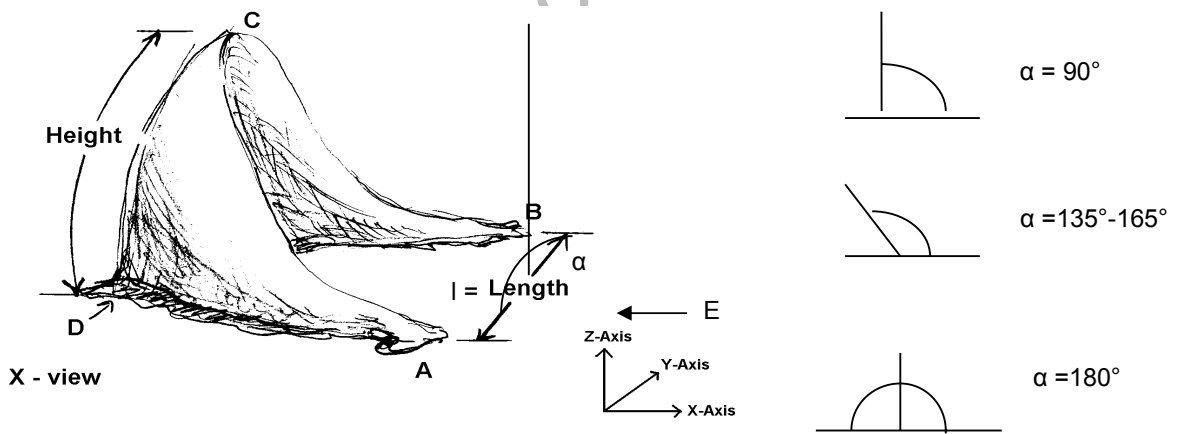


Figure 2(i) (Auxiliary View)

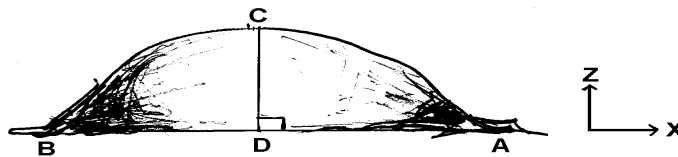


Figure 2(ii) Arial View



### **1.3.5 edible-birdnest (EBN)**

Produced by, edible-birdnest swiftlets from their salivary glands and this high value secretion is called edible-birdnest which is consumed or used by humans.

### **1.3.6 EBN natural colour**

The EBN in its natural form without any colour adulteration. Natural colour of raw-unclean EBN are mostly white, with some percentage of other colour such as black, yellow/gold, red, pink, orange and other hue.

### **1.3.7 EBN fine grain**

The tiny pieces of grainy, broken EBN acquired during harvesting, sorting or pre-cleaning.

### **1.3.8 EBN fragment**

Broken or chipped pieces of EBN.

### **1.3.9 EBN grading**

Categorisation of EBN geometrical shape on the size and angle of deviation.

### **1.3.10 Good Animal Husbandry Practice (GAHP)**

A set of guidelines relating to the establishment of husbandry practices for continuous improvement and sustainable production of safe quality food and non-food products while ensuring health, safety and comfort to both the operators and the birds, with no degradation to the environment.

### **1.3.11 Good Manufacturing Practice (GMP)**

A set of regulations, codes and guidelines that control the operational conditions for raw-unclean EBN premise.

### **1.3.12 irregular EBN crescent-shape**

EBN shape other than the **crescent**-and corner piece.

### **1.3.13 pre-clean**

The removal of soil, grass, twigs, sticks, egg shells, dirt or other objectionable matter.

### **1.3.14 premise**

A registered building where the raw-unclean EBN from caves or ranches are received, and may include but not limiting to sorting, pre-cleaning, drying, weighing, packing and labelling activities is carried out for the production of quality and safe raw-unclean EBN.

### **1.3.15 ranch EBN**

These nests are produced by edible-birdnest swiftlets in premises where the parameters are similar to the natural cave dwelling of edible-birdnest swiftlets.

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### 1.3.16 raw-unclean EBN

EBN harvested from caves and ranches which may include but not limiting to sorting, drying, grading, trimming, weighing and packing but without any cleaning process.

### 1.3.17 types of EBN crescent-shape (“ $\alpha$ ”)

The EBN crescent-shape also consists of the following:

#### 1.3.17.1 $\alpha 180$

EBN with contact planes of about  $180^\circ$  produced by the edible-birdnest swiftlet in its natural form. The degree of angle is based on the angle shown in Figure 2 (i) and Figure 2 (ii).

#### 1.3.17.2 $\alpha 135$ to $\alpha 165$

EBN with contact planes of about  $135^\circ$  to  $165^\circ$  produced by the edible-birdnest swiftlet in its natural form. The degree of angle is based on the angle shown in Figure 2 (i) and Figure 2 (ii).

#### 1.3.17.3 $\alpha 90$

EBN with **contact planes of** about  $90^\circ$  produced by the edible-birdnest swiftlet in its natural form. The degree of angle is based on the angle shown in Figure 2 (i) and Figure 2 (ii).

## SECTION 2: GOOD MANUFACTURING PRACTICE

### 2.1 Design and facilities

#### 2.1.1 Registration

The premise shall be registered with competent authorities.

#### 2.1.2 Design and layout of premise

2.1.2.1 The design and layout of the premise are listed below:

- a) The premise shall be designed to provide adequate space and in a manner to minimise contamination.
- b) The flow of the activities during processing shall be uni-directional.
- c) The design shall provide appropriate temperature conditions for the process and storage of the product.
- d) There shall be a clear separation before and after the pre-clean production area.
- e) The buildings and facilities shall be designed to prevent the entrance and harbouring of pests as well as minimise the entry of environmental contamination such as smoke, dust, etc.
- f) Sites where activities such as sorting, pre-clean, drying, weighing, packing and labelling of raw-unclean EBN shall be kept tidy accordingly.

- g) Areas where raw-unclean EBN that has undergone pre-clean may include but not limiting to sorting, pre-clean, drying, weighing, packing and labelling shall have:
- i) floors of durable, impervious, non-slip, so constructed and kept as to enable them to be cleaned and disinfected as and when necessary.
  - ii) interior wall surfaces which shall be durable, so constructed and kept in such good conditions as to enable them to be cleaned and disinfected as and when necessary;
  - iii) ceilings and, where there are no ceilings, the interior surfaces of roofs shall be so constructed and finished as to minimise dust, mould development, flaking and lodged dirt and shall be kept in such good conditions as to enable them to be thoroughly cleaned;
  - iv) adequate ventilation shall be provided; windows and other openings shall be fitted with screens or netting, so constructed and kept as to enable them to be cleaned as and when necessary ;
  - v) adequate natural or artificial lighting, which does not distort colours capable of attaining an intensity within the range of 200 lux to 240 lux.
  - vi) exit and entrance doors shall be of durable material, where appropriate and close fitting;
  - vii) stairs and other auxilliary structures which shall be so situated and constructed as not to cause contamination to the products; and
  - viii) water and waste-water pipes shall be separated in order to avoid cross contamination.
- h) Aisles or working space shall be provided between equipment and walls and be adequately unobstructed and of adequate width to permit employees to perform their duties.

**2.1.2.2** An example of a pre-clean raw-unclean EBN layout centre is as shown in Annex A.

### **2.1.3 Equipment**

**2.1.3.1** All implements and equipment used in the raw-unclean EBN pre-clean activities shall be made of durable, impervious material, non-corrosive, non-toxic, non-carcinogenic and also facilitate cleaning and disinfection.

**2.1.3.2** All equipment and utensils used in the preparation of raw-unclean EBN activities shall be cleaned and disinfected as necessary during each working day and the end of each shift or each working day and before being used again if they have been contaminated.

### **2.1.4 Facilities**

#### **2.1.4.1 Water supply**

Sufficient potable water supply from an approved source shall be available for use. Non-potable water shall be identified and treated before used.

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#### **2.1.4.2 Drainage and waste disposal**

Adequate drainage and waste disposal systems and facilities shall be provided. They shall be designed and constructed separately so as to avoid contaminating EBN or potable water supply.

Drainage facilities shall be adequate for the purpose intended. They shall be designed and constructed to avoid the risk of contamination. Where drainage channels are fully or partially open, they shall be so designed as to ensure that waste does not flow from a contaminated area towards or into a clean area, in particular an area where EBN is likely to present a high risk to the final consumer.

#### **2.1.4.3 Material for cleaning premise and equipment**

Appropriate cleaning agent and equipment shall be provided as listed below:

- a) proper tools, suitably designated, shall be provided for cleaning utensils and equipment;
- b) all chemicals, detergents and disinfectants shall be of approved by the relevant authorities for use in the premise, in such a manner as not to affect the quality of raw-unclean EBN intended for use.

#### **2.1.4.4 Personnel hygiene facilities**

Personnel hygiene facilities shall be available to ensure that an appropriate degree of personal hygiene can be maintained and to avoid contaminating raw-unclean EBN source. Where appropriate, facilities shall include:

- a) hand-washing facilities
  - i ) shall be adequate, easily accessible and be furnished with running water and hand wash liquid-soap;
  - ii ) devices or fixtures, such as water faucets, so designed and constructed to protect against contamination of clean, washed hands and dried using either disposable paper towel/roller-towel or hand dryer.
- b) locker room shall be allocated suitable and adequately designed for workers from before and after the pre-clean production area
- c) lavatories
  - i) shall be well maintained and shall not open directly into production area;
  - ii) facilities shall be well maintained in a sanitary condition and in good repair at all times;
  - iii) shall be totally enclosed with exhaust fan in place to allow the air-flow from inside to outside of the premise; and
  - iii) provide properly shut doors that do not open into areas where EBN is exposed to airborne contamination

#### 2.1.4.5 Ventilation and air quality

Adequate means of natural or mechanical ventilation shall be provided. Ventilation systems shall be designed and constructed so that air does not flow from before pre-clean raw-unclean EBN to after pre-clean raw-unclean EBN areas.

#### 2.1.4.6 Lighting

Adequate natural or artificial lighting shall be made available, where distortion of colours is avoided and the intensity shall range of 200 lux to 240 lux. Lighting fixtures shall be protected to ensure that EBN is not contaminated by breakages.

### 2.2 Storage

**2.2.1** Where necessary control measures shall be in place, adequate facilities for storage of raw-unclean EBN, raw-unclean EBN after pre-clean, packaging materials and chemical such as cleaning material and hazardous substances shall be provided separately

**2.2.2** All materials and products shall be stored at least 150 mm above floor on racks or shelves or pallets and shall have no contact with the wall in a well-ventilated room.

**2.2.3** For raw-unclean EBN after pre-clean, it is recommended to store at temperature below 10°C unless the product is vacuum-pack or moisture content is less than 15%.

**2.2.4** Hazardous substances shall be stored under lock and key, used only for the intended purpose and dispensed and handled only by authorised and properly trained personnel. Log books shall be used for recording.

### 2.3 Control of operation

**2.3.1** EBN business operators shall control hazards in accordance to MS 1514 requirements including and not limiting to the following:

- a) identify raw materials and the process steps in their operations which are critical to the safety ;
- b) implement effective control procedures at those steps;
- c) monitor control procedures to ensure their continuing effectiveness; and
- d) review control procedures periodically and whenever the operations change.

Control procedures may be simple, e.g. raw-unclean EBN after pre-clean shall be stored under appropriate temperatures and calibration of equipment. In some cases, a system based on expert advice and involving documentation, may be provided.

#### 2.3.2 Key aspects of operational control systems

##### 2.3.2.1 Time and temperature control

The operational procedure of raw-unclean EBN before and after pre-clean shall be carried out in a well-ventilated area.

##### 2.3.2.2 Contaminant control (biological, chemical, physical)

The premises and operational procedure shall be planned to prevent any possibilities of cross-contamination between before and after pre-clean raw-unclean EBN.

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### **2.3.2.3 Raw-unclean EBN raw materials**

Raw-unclean EBN shall comply to the following:

- a) Raw-unclean EBN to be used in the operational procedure shall be from:
  - i) registered cave or ranch EBN premises; and
  - ii) other countries which shall comply to the import requirement by competent authority and indicating the country of origin.
- b) Any raw-unclean EBN received shall be recorded.

### **2.3.3 Packaging material**

The packaging materials shall be non-toxic or non-carcinogenic, stored in dry and clean conditions.

### **2.3.4 Operational procedure**

#### **2.3.4.1 General**

Cleanliness shall be maintained throughout the premises and in particular, the operation of the premises shall be conducted in such a manner as to ensure that:

- a) operational procedure shall be supervised by competent personnel;
- b) this site shall be used for the purpose of preparation of the product 'Raw-Unclean EBN' only;
- c) containers used during operational procedure of raw-unclean EBN shall be placed or handled as not to come in direct contact with the floor or grounds which might cause contamination;
- d) all materials and equipment for maintenance and cleaning, when not in use, shall be kept in rooms provided for the purpose;
- f) working table shall be made from non-toxic, non-corrosive impervious and easy-to-clean materials; and
- g) sites for operational procedure product 'Raw-Unclean EBN' shall be carried out in a well-ventilated and lighting intensity within the range of 200 lux to 240 lux.

#### **2.3.4.2 Receiving of raw materials**

Receiving of raw material shall follow the requirement as specified in 2.2.

#### **2.3.4.3 Sorting**

The raw-unclean EBN shall undergo sorting and grading according Table 3.

#### **2.3.4.4 Packaging and weighing**

Packaging and weighing shall be done in a clean designated area.

#### 2.3.4.5 Records and documents

Records including raw-materials, operational procedure, non-food chemicals, storage and distribution shall be maintained and made available for auditing purposes.

#### 2.3.4.6 Transportation

Raw-unclean EBN product pack, shall be transported in suitable containers.

#### 2.3.4.7 Traceability

Information such as the date of production, batch number, source of raw-unclean EBN, name and address of processor and shall be provided for traceability purpose.

### 2.4 Product safety control procedures

The operational procedure for raw-unclean EBN shall follow safety procedures as follows:

- a) Processors shall comply to product safety control in accordance to this CoVP.
- b) Tests for product safety shall be required as follows:
  - i) microbiology (Total Plate Count, *Salmonella enteritidis*, *Salmonella typhimurium*, *Salmonella pullorum*, *Salmonella galinarum*, yeast and mold); and
  - ii) heavy metal (lead, arsenic, mercury and cadmium).
- c) Test for product safety may be required by competent authority for moisture level.

### 2.5 Maintenance and cleaning

The premises for before pre-clean and after pre-clean raw-unclean EBN shall be maintained as follows:

- a) The premise, equipment and all other physical facilities of premise including drains, shall be maintained in good repair and in orderly condition.
- b) Cleaning procedure and maintenance of premise facilities and equipment shall be documented and maintained.
- c) Cleaning and disinfection schedule shall be drawn up for each premise to ensure that all areas appropriately cleaned.

All personnel shall be well trained in cleaning techniques and hygienic practices.

### 2.6 Pest control

Pest infestations and preventive measures shall be taken as follows:

- a) There shall be an effective and continuous programme for the control of pests.
- b) Premises and surrounding areas shall be regularly examined for evidence of infestation.
- c) Pesticides used shall be in accordance with the Pesticide Act 1974.

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- d) Doors and windows shall be close fitting and opening windows shall be screened where appropriate.

## 2.7 Personnel hygiene

Persons engaged in the handling of raw-unclean EBN shall:

- a) put on clean working attire, footwear which are washable or disposable;
- b) wash and disinfect hands each time work is started and resumed and whenever their hands have been soiled and particularly after using a water closet; and
- c) wear protective gloves during sorting, pre-clean, drying, weighing, packaging and labelling of raw-unclean EBN. Protective gloves shall be replaced when necessary and adhere to the following practices:
  - i) persons engaged in the handling of before pre-clean raw-unclean EBN shall have their attire changed before handling after pre-clean raw-unclean EBN;
  - ii) no person may eat, drink, chew or smoke during, sorting, packing, storing or in any part of the operational procedure;
  - iii) no person suffering from or known to be a carrier of a disease transmissible by food may work in the premises, which are liable to cause contamination of raw-unclean EBN;
  - iv) no person may handle before pre-clean or after pre-clean raw-unclean EBN, if he or she has any sore, cut or abrasion unless it is not purulent and is effectively covered with a waterproof dressing.

## SECTION 3: SPECIFICATION

### 3.1 Chemical and microbiological requirements

The chemical and microbiological requirements of raw-unclean EBN after pre-clean shall be as specified in Table 1.



**Table 1. Chemical and microbiological requirements of raw-unclean EBN after pre-clean**

| Category     | Parameters  | Tolerance level  | Methods of tests<br>(all test shall be done by the accredited laboratory) |
|--------------|---|--|---|
| Microbiology | Total plate count (TPC)<br>Coliform count<br><i>Salmonella enteritidis</i><br><i>Salmonella typhimurium</i><br><i>Salmonella pullorum</i><br><i>Salmonella galinarum</i><br>Yeast and mold count <sup>1</sup> | ≤ 2.5 x 10 <sup>6</sup> cfu/g<br>≤ 100 cfu/g<br>Nil<br>≤ 1.0 x 10 <sup>4</sup> cfu/g | Bacteriological Analytical Manual (BAM) Method or equivalent method       |
| Moisture     | Moisture content<br>Water activity (a <sub>w</sub> )  | ≤ 25 %<br>≤ 1.0  | AOAC hot air oven method  |
| Heavy metal  | Lead (Pb)<br>Arsenic (As)<br>Mercury (Hg)<br>Cadmium (Cd)   | ≤ 2 mg/kg<br>≤ 1 mg/kg<br>≤ 0.05 mg/kg<br>≤ 1 mg/kg                                  | AOAC Atomic Absorption Spectrophotometer (AAS) method/ ICPMS              |
| Colouring    | Iodine<br>Karaya gum  | No added colouring substance   | Starch test   |

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### 3.2 Physical requirements

The physical requirements of raw-unclean EBN after pre-clean shall be as specified in Table 2.

**Table 2. Physical requirements of raw-unclean EBN after pre-clean**

| Category                | Parameters   | Maximum permitted proportion | Methods of tests<br>(all test shall be done by the accredited laboratory) |
|-------------------------|--|------------------------------|---|
| Foreign matter          | Paint<br>Wood<br>Twig<br>Cement<br>Sand<br>Soil<br>Dead nestling | Reasonably clean             | Visual  |
| Ectoparasite (Zoonotic) | Mites<br>Lice  | Not present                  | Visual<br>(stereomicroscopy for confirmation if present)                  |

### 3.3 Grading

**3.3.1** Raw-unclean EBN shall be graded according to the curve height of raw-unclean EBN as shown in Table 3. The grading is based on  $\alpha 180$ ,  $\alpha 135$  to  $\alpha 165$ ,  $\alpha 90$  and others (mix) where  $\alpha$  is reference for angle. Annex B shows the top view and side view of different grades of EBN.

**Table 3. Size grading of raw-unclean EBN**

| $\alpha$  | $\alpha 180$ | $\alpha 135$ to $\alpha 165$ | $\alpha 90$ |
|-----------|--------------|------------------------------|-------------|
| > 4.5 cm  | Large        | Large                        | Large       |
| 3 - 4.5cm | Medium       | Medium                       | Medium      |
| <3 cm     | Small        | Small                        | Small       |

**3.3.2** Other grades of EBN consists of filament, fragment, fine grain or horn.

### 3.4 Labelling

The package shall be labelled with the following particulars:

- premise ID
- establishment registration number;

- c) name of product; e.g. raw-unclean EBN from house or raw-unclean EBN from cave;
- b) batch number/barcode/QRC;
- c) date of packing;
- d) name and address of exporters;
- e) name and address of importers;
- e) country of origin, e.g. (Malaysia);
- g) size and grade, e.g. 180° (large) or mix;
- h) net weight (in metrics system); and
- i) brand/logo (optional)

### **3.5 Sampling**

The method of sampling to test the conformity of product to this standard shall be as per OIE and GMP scheme.

### **3.6 Compliance with CoVP**

Each product which is inspected by a competent authority and found conforming to the requirements of this CoVP at the time of inspection shall be deemed to comply with code.

### **3.7 Certification mark**

Each container, may by arrangement with a recognised certification body, be marked with the certification mark of that body, provided that the product conforms to the requirements of this CoVP.

### **3.8 Premise requirements**

The premises that produce raw-unclean EBN shall practise the requirements described in CoVP.

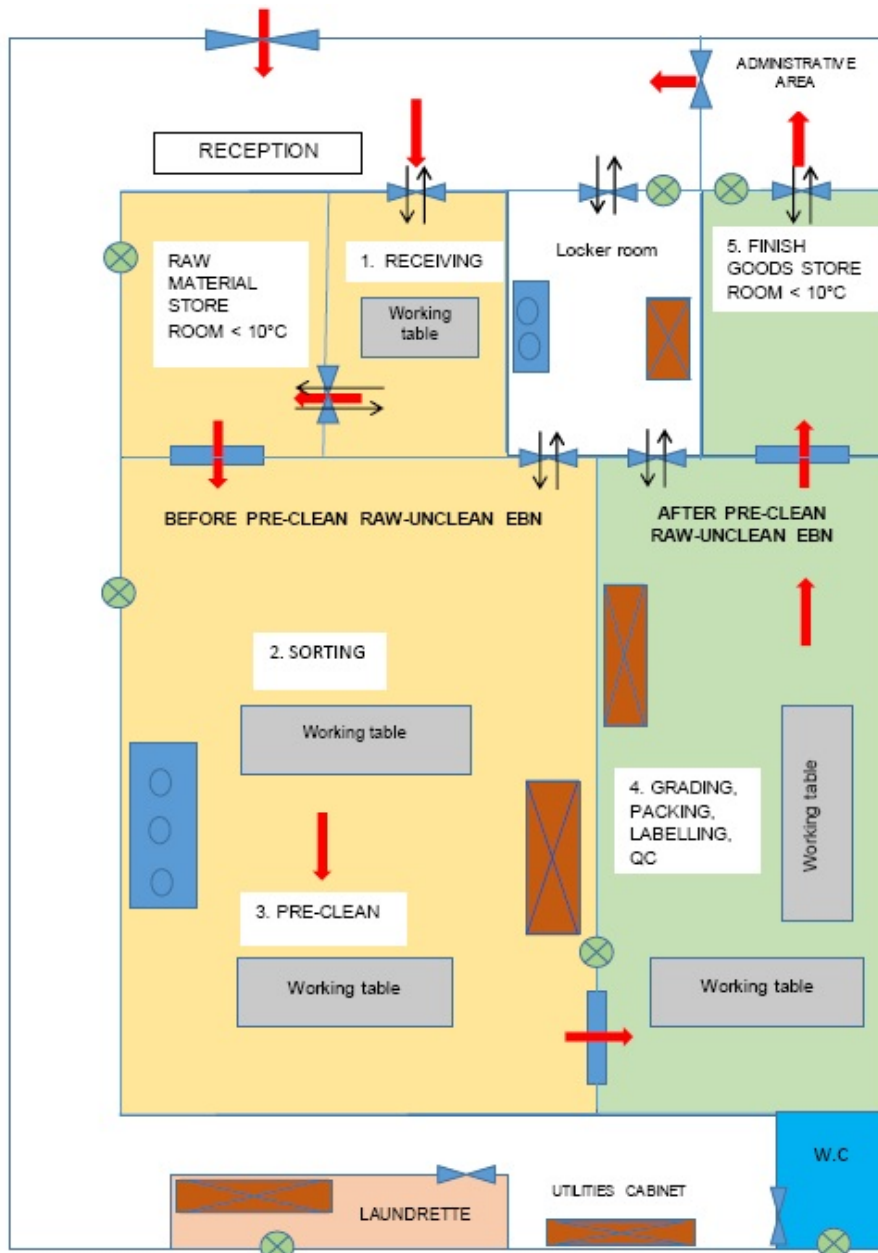
### **3.9 Legal requirements**

The product in all other aspects shall comply with the requirements of the legislations currently in force in Malaysia.

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### Annex A (informative)

#### Example of a pre-clean raw-unclean EBN layout centre



- Flow of staff
- Flow of product
- Ventilator

**Annex B**  
(informative)

**Characterisation of EBN**

**B1 Types of EBN according to grade**



**Figure B1. From top view of  $\alpha$  90**



**Figure B2. From side view of  $\alpha$  90**

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Figure B3. From top view of  $\alpha$  135



Figure B4. From side view of  $\alpha$  135



Figure B5. From top view of  $\alpha$  165



Figure B6. From side view of  $\alpha$  165



Figure B7. From top view of  $\alpha$  180



Figure B6. From side view of  $\alpha$  165

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- [9] *1 Garis panduan burung walit*
- [10] *Code of Good Veterinary Hygienic Practice (GVHP for EBN) Processing of Raw-clean Edible-birdnest (EBN)*



## Acknowledgements

**Project Committee on Raw-Unclean Edible-Birdnest comprise representatives from the following organisations or agencies:**

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| Ms Calsline Lee  | Swallows House Ent  |
| Prof Dr Saleha Abdul Aziz  | Veterinary Medical Faculty,<br>Universiti Putra Malaysia                            |