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TECHNICAL SESSION ON REGULATORY MEASURES AND IDENTIFICATION OF REQUIREMENTS WITHIN PREREQUISITE PROGRAMS

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Deliverable 1.3.6 on:

Technical session on regulatory measures and identification of requirements within prerequisite programs

Work Package 74, Sub-activity 3.6

Develop a coordination mechanism between different ministries and develop a system for systematic collection and recording of information related to food safety incidence with reference to relevant products

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Abbreviations and Acronyms

AMI	Ante Mortem Inspection
AMR	Antimicrobial resistance
BFSA	Bangladesh Food Safety Authority
BSTI	Bangladesh Standards and Testing Institute
CAC	Codex Alimentaria Commission
CA	Competent Authority
CC	City Corporations
DYD	Department of Youth Development
DLO	District Livestock Officer
DLS	Department of Livestock Services
GAHP	Good Animal Husbandry Practices
GHP	Good Hygiene Practices
HACCP	Hazard Analysis Critical Control Point
LDDP	Livestock and Dairy Development Project
MoFL	Ministry of Fisheries and Livestock
MRL	Maximum Residue Level
MO	Market Operator
PPE	Personal Protective Equipment
PMI	Post Mortem Inspection
SoP	Standard Operational Procedure
THI	Temperature Humidity Index
UNIDO	United Nations Industrial Development Organization
WOAH/OIE	World Organization for Animal Health (formerly the Organization Internationale des Epizooties)

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PREFACE

The following is a report of the Technical Session on Regulatory Measures and Identification of Requirements within Prerequisite Programmes, organized by UNIDO. This report should be considered alongside a number of other related reports compiled by UNIDO and outlined here.

As per deliverable 1.5, “Support the establishment of quality assurance schemes for the livestock sector (GAHP, GHP)”, UNIDO designed the manual for the protocol of GAHP and GHP. It organized a validation workshop with experts which ran from 24 May to 01 June 2023. The expert opinions from the workshop have been summarized in this report. This report describes how to use Good Animal Husbandry Practices (GAHP) to improve the ungulate (ovine and bovine) husbandry practice, animal health, and animal welfare standards from when the young animals arrive at the farm to when they are transported to the market and then slaughtered for human consumption.

Workshops for stakeholders in meat and milk value chains were organized on 2-3 October 2023 with participation from DLS high officials, experts from private and public sectors, entrepreneurs, and facilitated by UNIDO national and international experts. These workshops incorporated the related reports thus aligning all related reports for stakeholders. These included the reports 1.4.2, “Inspection protocol for farms, markets, abattoirs and butchers developed”, 1.5.1, “Establishments mapped of milk & meat value chain” and 1.5.2, “Survey designed, gap assessment conducted and upgrading plan developed”;

The workshop mapping the different stages of the milk and meat value chain considered the existing and ideal food safety measures of different actors along the food chain to identify food safety gaps. Gaps or weaknesses of activities were identified relative to international standards and practices i.e., World Organization for Animal Health (WOAH), Codex Alimentarius Commission (CAC) and Hazard Analysis Critical Control Point (HACCP).

At the the above events, several sciences-based measures were discussed to identify how to mitigate the food born health risks along entire the meat and milk value chain and in line with the deliverable ***“Technical session on regulatory measures and identification of requirements within prerequisite programs”***.

Technical sessions for the workshops on the Good Animal Husbandry Practices (GAHP) and Good Hygiene Practices (GHP) of farms, transport, market and slaughter practice were accomplished under three different segments, i.e.,

Two days’ workshop were delivered for GAHP and GHP of poultry farms, transportation and Live bird Market;

Three days’ workshop were followed for ruminant farm, transportation, and live animal market;

Two days’ workshop were followed for GAHP in the lairage, GHP during slaughter, and AMI and PMI protocol.

Workshop participants were comprised of regulatory agencies including MoFL, DLS, BFSA, DYD and the private sector. The outline of the Technical Sessions are set out in Annex-1(A), Annex-1(B) and Annex-1(C).

TECHNICAL SESSION FOR GAHP & GHP OF POULTRY AND RUMINANT FARMS, TRANSPORTATION AND LIVE ANIMAL MARKET

This session focused on GAHP and GHP in animal farms, animal transportation and live animal market. Its objective was to describe how to use Good Animal Husbandry Practices (GAHP) to improve animal (beef cattle/sheep/goat/hens/broilers) husbandry practice, improve animal health outcomes and improve animal welfare standards from when animals or birds arrive on the farm to when they are transported to the live animal market and sold for human consumption. The purpose is to improve meat production, its quality, safety and hygiene along the value of the chain [Annex -1(A&B) program schedule].

The GAHP and GHP outlined comply with the World Animal Health Organization (OIE/WOAH) standards. These focus on individual practices and are based on the Five Freedoms of Animal Welfare as follows:

- 1) Freedom from Hunger and Thirst;
- 2) Freedom from Discomfort;
- 3) Freedom from Pain, Injury and Disease;
- 4) Freedom to Express Normal Behavior;
- 5) Freedom from Fear and Distress.

The long-term goal of the practice is to revitalize the whole meat chain, thereby improving the operators income, from the farms to the final step in the value chain, and consequently improving food safety. This needs to go through the strengthening of the famers/birds'/ animals' handlers' better practices and techniques, linking them to the control of the zoonosis, endemic animals' diseases.

The short-term goal of the practice is to introduce modern practices and techniques for farming quality, safety and productivity, improve the actors' awareness that in this way can generate additional incomes by selling their animals/birds or safer meat products, consequently adding value to the Bangladesh meat chain in high-end markets. In this event, farms, live animal markets and live animal transport were discussed in relation to the following:

- a. Infrastructures and their maintenance

- b. Biosecurity and pest control
- c. Facility's cleaning and good hygiene practices (GHP)
- d. Farm waste management
- e. Good animal husbandry procedures (GAHP)
- f. Animal identification (ID)

Each of the contents contained four columns with guidelines for easier comprehension. The first column in each focused on the OIE/WOAH standards or the international guidelines. The second column explains which were the basic minimum requirements and the standards which they should be applied in the farms, during transport and in the markets. The third and fourth columns were the higher standards which the actors could refer and achieved for the future, if international or export standards wanted to be reached. Those contents/practices were also discussed in compliance with international standards as well as existing local acts, rules, and policies.

Poultry and ruminant farm facilities

- a. Farm infrastructures and their maintenance:** The key objectives of the session were to improve the facilities' standards of commercial and semi-commercial farms, design of handling facilities and farm equipment to reduce the animals' stress, provision of a safe environment in order to improve the animal quality and licensing requirements and comply with existing Acts and Legislations. It lists how farmers can comply with the basic and higher standards on the farm infrastructures, facilities and equipment in order to meet the licensing and Laws' requirements.

The following technical measures were discussed based on OIE/WOAH requirements and/or international standards.

- i. Providing required documented records, which reflect compliance to present law, licensing regulation and the related applicable by-laws and decisions of the authorities
- ii. Farm shall be located in a suitable location, kept clean and maintained in good conditions at all the times. The location shall be away from polluted and industrial areas and the area shall not be prone to pests and rodents.
- iii. The new farm location should be chosen in order to protect the animals from any kind of health risk and welfare issues which can make the animal sick and the final products (meat and eggs) unfit for human consumption.
- iv. Farms production site should be of a suitable size, location, and construction, and be maintained to reduce the risk of diseases and facilitate the production of healthy animals
- v. The layout and the animal facilities size of the farm should be proportional to the species and the number of animals in order to breed them in a healthy and stressless manner.

- vi. Materials used for the internal structure of sheds should be durable, prevent build-up of dirt, be easy to clean and maintain and safe for staff
- vii. The farm structure should protect the animals from any health and welfare issues
- viii. Feeding facilities design and maintenance
- ix. Provide a reliable supply of electricity
- x. Adequate personal hygiene and sanitary facilities must be provided in the farm.
- xi. The premises must have good lighting
- xii. There must be adequate natural or mechanical ventilation

b. Farm biosecurity and pest control: The key objectives of the session were to improve the biosecurity protocols of commercial and semi-commercial farms, design of disinfection facilities and farm biosecurity standards to reduce the risk to bring in/out any animal disease, provision of a salubrious environment in order to improve the animal health and procedures on how to manage and control any farm pests which can affect the animals' health.

The following technical measures were discussed according to OIE/WOAH requirements and/or international standards.

- i. Adequate personnels and visitors' hygiene protocol should be in place. The farmer should provide the correct PPEs and make aware of Biosecurity protocol to any person entering in the farm.
- ii. Adequate vehicle and equipment hygiene and disinfection protocol should be in place to avoid spreading disease and pest inside and outside the farm
- iii. Adequate procedures must be in place to control pests and prevent wild and domestic animals from having access to places where the animals are kept.
- iv. Buildings must be kept in good repair and condition to prevent pest access and eliminate potential infestation sites
- v. Procedure before accommodating new livestock or new-born animals

c. Farm GHP, cleaning and disinfection: The key objectives of this session were to improve the cleaning of commercial and semi-commercial farms; design of cleaning and disinfection standards operational procedures, provision of a clean environment in order to improve the animal health and practical procedures on how to keep the farm and the birds' facilities clean and free from any possible hazard.

This session incorporated the requirements of the World Animal Health Organization (OIE/ WOAH) standards throughout all the individual points as of OIE/WOAH Terrestrial Animal Health Code Chapter 4.1, 4.14 & 4.16 discussed as below.

- i. Maintaining all facilities, equipment vehicles used in connection with primary production and associated operation in clean conditions and, where necessary, disinfect them after cleaning in an appropriate manner.
- ii. Farms shall be provided with appropriate facilities and procedures in place to ensure that any necessary cleaning and maintenance is carried out effectively and to an appropriate degree.
- iii. Establish cleaning and disinfection programs to ensure the correct hygiene standards are met for the animals' facilities
- iv. This refers more on the good animal cleaning procedures. It should be done in order to minimize the risk of diseases spreading, to reduce the animal welfare issues and to decrease the risk for the animals being exposed to transmittable diseases.
- v. Any container containing feed shall be covered all the time with a tight-fitting cover, lid or gauze in order to protect it.
- vi. Provide potable water for cleaning and disinfection procedures.
- vii. The farm must have reliable water services to allow thorough cleaning

d. Farm waste management: The key objectives of the session were to improve the waste management of commercial and semi-commercial farms, design of waste management standards operational procedures, provision of an environment free of any waste (organic and inorganic) to improve the animal health, practical procedures on how to keep the farm and the animals' facilities clean and free from any possible waste.

It lists how farmers can comply with the basic and higher standards on the farm waste management procedures in order to improve the animals' health and meet the exporting international standards. These practices were discussed to incorporate the requirements with the existing legal framework and international standards mentioned below.

The farm should have appropriate containers and a suitable waste storage area. Farmers should establish adequate procedures for the storage and removal of any waste. All waste shall be eliminated in a hygienic and environmentally friendly way.

e. Good Animal Husbandry procedures: The key objectives of the session were to consider using the natural behavior of livestock to move and draft livestock in appropriate groups; low-stress animal handling ; improve the animal welfare, identify and manage sick animals (drugs); effective use of the talker to move stock; provision of food, water and a safe environment ; preparation of livestock for transport to the abattoir and loading with minimum stress; and veterinary drugs and medicate feed control.

All of requirements were discussed / covered according to OIE/WOAH requirements and/or international standards/ existing country's acts/rules and policies.

- i. Ensure good fitness and cleanliness of the animals. This practice ensures always cleaned and healthy animals in the farm and also reduce any welfare and health issue.

- II. Veterinarian drug protocol. Ensure a good protection from the disease to the animals. Rethinking the livestock system by implementing farming practices that prevent the introduction and spread of disease
- III. General animal husbandry practices
- IV. Animal husbandry procedures for new day-old chicks or new-born birds/animal in the farm.
- V. Animal husbandry and production purpose. It is one of the key points in a farm with a good livestock management. Good quality and enough feed and water need to be provided in order to improve the quality and the production according to the final purpose. This is crucial for the business balance and its take in consideration the costs and the benefits
- VI. Management and treatment of sick and injured animals
- VII. Management during extreme environmental conditions. climate can be an important consideration when managing livestock in a farm. Extremes of weather may impact on animal welfare by causing heat or cold stress. Low temperatures with wind and rain may cause the animals to become chilled, while a heatwave may result in severe heat stress. The impact of extreme weather can be severe on animals

f. Animal Identification: The key objectives of the session was to focus on animal identification systems; improve the animal traceability; and relevant animals' identification documents. It covered how a farmer could comply with the basic and higher standards on the farm animal identification. This SOP covered the new livestock animal identification systems and veterinary drug treatments record in the flock/shed document (passport). It explained as important was to identify each flock/shed in the farm and how to achieved it. It is important that farmer understands what milestone could be having a solid ID system in place and how it could be used for the animals' health and the public health (chemical residues in meat and eggs).

These practices incorporate the requirements of the OIE/WOAH Terrestrial Animal Health Code Article 4.2, 4.3 mentioned in bellow.

Flock identification is crucial during the farm inspection. It can be the milestone for stopping the black market and have a proper eggs and meat traceability system in place. The "flock passport" should state the following: a) the birds' identity (passport unique number) b) DOB (date of born) c) Breed d) Initial number of birds and percentage of dead. e) farm(s) of origin (since they were born) f) breeding system (free range, caged etc.) g) any medicated feed provided (when, what, why and for how long) h) any veterinary drug treatments (when, what, why, for how long and withdrawal period).

The "owner declaration" should state the following: a) the birds' identity (passport unique number) b) Age in days c) Breed d) farm of origin e) breeding system (free range, caged etc.) f) any veterinary drug treatments administrated in the last 15 days (when, what, why, for how long and withdrawal period).

Transport facilities, equipment and GAHP

The key objectives of the discussion were to improve the standards of animal transportation; design and maintenance of loading equipment to improve the animals' welfare; use and maintenance of loading and unloading facilities and equipment to prevent injuries; animals' physical checks and animals' documents control; placing livestock in appropriate groups for transportation; and preparation of livestock, unloading and uploading with minimum stress at the market.

The requirements were discussed/covered according to international standards/ existing country's acts/rules and policies.

Loading and transport procedures and linked facilities

Transport equipment, facilities and documents must be maintained in good order and checked before being used. Animal transport should take place only if the animals' facilities, equipment, vehicle, loading/unloading procedures, documents and licenses are in perfect order and well organized to reduce at the minimum the animal stress and the risk of injuries.

GAHP during loading, unloading and transport

- i. Loading birds into trucks and transport.
- ii. Most injuries and stress occur during loading and unloading.
- iii. Unloading animal from trucks.
- iv. Inspection of animals and management of the livestock during transport and loading procedures
- v. Handling escaped animals during the unloading
- vi. Cleaning and disinfection of vehicle& transport

Live Birds' Market/Animal market

Markets infrastructures and their maintenance

The key objectives of this discussion were to improve the standards' facilities linked with a progressive improvement of the markets' infrastructures; design of handling facilities and equipment to reduce the animals' stress; provision of a safe environment during the market time to reduce the animals' stress; licensing requirements and comply with existing Acts and Legislations. The following technical measures were discussed.

- i. Providing required documented records, which reflect compliance to present and future laws, licensing regulation and the related applicable bylaws and decisions of the authorities.

- ii. The market should be of a suitable size, location and construction, and be maintained to reduce the risk of disease and facilitate the animals trade without spreading pathologies around the country.
- iii. The layout and the animal facilities size of the lairage should be proportional to the species and the number of animals in order to keep them in a healthy manner. This is crucial for the control of notifiable and zoonosis disease
- iv. Materials used for the internal structure of buildings should be durable, prevent build-up of dirt, be easy to clean/maintain and safe for staff/animals
- v. The lairage structure should protect the animals from any health and welfare issues
- vi. Feeding and drinking facilities design and maintenance in the shed (if applicable). Food should be provided to the animals if the animals stay overnight or they have been in fast for more than 8-12 hours
- vii. Every feed container or storage area shall be covered all the time with a tight-fitting cover or lid to protect the animals' feed.
- viii. Provide a reliable supply of electricity
- ix. The market/promises must have good lighting
- x. There must be adequate natural or mechanical ventilation
- xi. Measures shall be exercised to eliminate any possible effect of sudden windstorm, dust storm and hazardous rain storm.

Market biosecurity and pest control

Key objectives of the session were to improve the biosecurity protocols of the live animals' markets; design of disinfection facilities and biosecurity standards to reduce the risk to spread any animal disease; provision of an environment to protect the animal health; and procedures on how to manage and control any pests which can affect the animals' health. In this session legal issues were also discussed in relation to current

- i. Adequate personnels and visitors' hygiene protocol should be in place. The Market Operator (MO) should provide the correct PPEs and make aware of Biosecurity protocol to any person entering in the Market.
- ii. Adequate vehicle and equipment hygiene and disinfection protocol should be in place to avoid spreading disease and pest inside and outside the market
- iii. Adequate personal hygiene and sanitary facilities must be provided in the Live Animals Market.
- iv. Adequate procedures must be in place to control pests and prevent domestic and wild

animals from having access to places where the animals are kept.

- v. Buildings must be kept in good repair and condition to prevent pest access and eliminate potential infestation sites
- vi. Procedure before accommodating new livestock or new-born animals.

Market GHP, cleaning and disinfection:

The key objectives of the session were to discuss about improve the cleaning and disinfection in the market; design of cleaning and disinfection standards and operation procedures; provision of a clean environment in order to protect animal health. In this session legal issues were discussed in relation to current practice.

- i. Maintaining all facilities, equipment and vehicle used in connection with the market and associated operations, in clean conditions and disinfect them after use.
- ii. Markets shall be provided with appropriate facilities and procedures in place to ensure that any necessary cleaning and maintenance is carried out effectively and to an appropriate degree
- iii. A solid cleaning and disinfection program ensures the correct hygiene standards for the animals. This minimizes the risk of disease spreading and decrease the animal exposure to transmittable notifiable diseases
- iv. Provide potable water for cleaning, disinfection and handwashing. The lairage must have reliable services to allow thorough cleaning
- v. Regular market surveillance

Market waste management

The key objectives of the session were to improve the waste management in the market; design of waste management standards operational procedures; provision of an environment free of any possible contaminants (organic and inorganic) in order to protect the animal health. In this regards, the following technical measures were discussed.

- i. The Market Operator shall provide appropriate containers and suitable waste storage area.
- ii. Establish adequate procedures for the storage and removal waste is crucial. All waste shall be eliminated in a hygienic and environmentally friendly way. There must be an adequate system in place to drain and eliminate the waste.

Animal Husbandry procedures

The key objectives of the session were to use the natural behavior of livestock to

accommodate them in the market animals' area; to low-stress bird handling; to improve animal welfare, identify and manage sick birds; and provision food, water and a safe environment. In this session legal issues were also discussed in relation to current practice.

- i. Animal movement: Moving and drafting livestock
- ii. Animal health and general animal husbandry practice: Ensure the fitness and the cleanliness of the birds is always kept good to protect the animals' health and reduce any possible disease spread through fomites.
- iii. General birds' management practices in the live animals' market.
- iv. Procedure before accommodating new livestock
- v. Animal husbandry procedures for new livestock.
- vi. Good quality, enough feed and fresh water need to be provided in order to make the animals comfortable as soon as possible. It is one of the key points in a market with a good livestock management.
- vii. Management and treatment of sick and injured animals
- viii. Management during extreme environmental conditions

Climate can be an important consideration when managing livestock in a market. Extremes of weather may impact on animal welfare by causing heat or cold stress. Low temperatures with wind and rain may cause the animals to become chilled, while a heatwave may result in severe heat stress. The impact of extreme weather can be severe on animals especially those ones arrived from other more temperate areas of the country.

Animal Identification

The key objectives of the session were to understand animal traceability; animals' identification and documentary check systems at the market. The flock identification is crucial even in the market during the commercial movements. It can be the milestone for stopping the black market and have a proper animal traceability system in place. Each flock must have an individual "flock passport" and it should be kept in a secure place by the Market Operator (MO) during the time spent by the birds in the market. The "flock passport" should have a unique number to avoid any falsification or not authorized reproduction. The "flock passport" is an official back-up document for the "owner declaration" where it states the animal identity, indicates any veterinary products or other treatments administered, dates of administration and withdrawal periods.

TECHNICAL SESSION FOR GAHP IN THE LAIRAGE, GHP DURING SLAUGHTER, AND AMI & PMI PROTOCOL

The technical workshop as outlined in Annex -1 (C) discussed **GAHP in the lairage, GHP during slaughter, and AMI & PMI protocol** under the following headings.

- a. Infrastructures and their maintenance
- b. Biosecurity and pest control
- c. Facility's cleaning and good hygiene cleaning (GHP)
- d. Waste management
- e. Good animal husbandry procedures (GAHP)
- f. Animal identification (ID)

Lairage infrastructures, facilities and equipment.

In this session, the basic and higher standards on the lairage infrastructures, facilities and equipment were discussed.

- a) Improve the standards of the slaughterhouses' lairages.
- b) Design and maintenance of handling facilities and lairage equipment to improve the animals' welfare and the meat quality.
- c) Preparation of facilities for the arrival of new livestock.
- d) Provision of a safe environment, water and food (if needed) in order to improve the meat quality
- e) Cleaning procedures, waste management and pests' control.
- f) Use and maintenance of loading and unloading facilities and equipment to prevent injuries.
- g) Animals' physical checks and animals' documents control.

Good Animals Husbandry Procedures in the lairage

In this session, the basic and higher standards on [Good Animals Husbandry Procedures in the lairage were discussed](#).

- a) Using the natural behavior of livestock to move and draft livestock in appropriate groups
- b) Low-stress animal handling
- c) Improve the animal welfare; identify and manage sick animals
- d) Effective use of talkers to move stock
- e) Provision of food, water and a safe environment

Abattoir infrastructures, facilities and equipment related to the meat production

In this session, the basic and higher standards on [abattoir infrastructures, facilities and equipment related to the meat production](#) were discussed.

- a) Improve the standards of slaughterhouses.
- b) Design and maintenance of facilities and abattoir equipment to increase the hygiene and the animal welfare.
- c) Preparation of facilities for the production.
- d) Provision of a safe environment in order to reduce the risk of infestation and contamination
- e) Waste and ABP management and control.
- f) Abattoir licensing and approval requirements.

Abattoir production system and procedures

In this session, the basic and higher standards on [abattoir production system and procedures](#) were discussed.

- a) Improve the standards of the slaughterhouse 's systems.
- b) Cleaning and disinfection procedures.

- c) Preparation of facilities for the production.
- d) Pest control
- e) Purchase, transport, storage and sale producers.
- f) Traceability

Workers/personnel hygiene and training

In this session, the basic and higher standards on [workers/personnel hygiene and training](#) were discussed.

- a) Workers' hygiene
- b) Sickness and return to work

Discussion about Ante-mortem Inspection

- Veterinarian professional examination of those animals waiting for being slaughtered
- Identify any notifiable/zoonoses diseases and/or welfare issues and/or health issues and/or cleanness (suffering ones should be immediately inspected and then slaughtered as first)
- According to the AMI outcomes, different approaches can be taken for the Post Mortem Inspection (PMI)
- The animals examine physically and behaviorally
- The AMI outcomes should be recorded and reported to the Authorities to create a disease monitoring system in the country
- Health status during the AMI a Vet should look for the following abnormalities: 1) Abnormalities in respiration 2) Abnormalities in behavior 3) Abnormalities in gait and posture 4) Abnormalities in temperature 5) Abnormalities in structure and conformation 6) Abnormal discharges 7) Abnormal color

Categorize the animals after ante-mortem inspection

- Fit for slaughter. • Fit for slaughter under special conditions (tests). • Second AMI and/or more tests to carry on later in the day • Rejected to due notifiable/zoonosis diseases • Emergency slaughter for suffering animals.

Discussion about Post-mortem Inspection

- Veterinarian professional examination of the animals' carcasses and red/green offal once slaughtered
- Identify any notifiable/zoonoses diseases and/or health issues
- According to the AMI outcomes,
- All the relevant parts (head, offal, lymph nodes etc.) must be inspected and if needed some test can be done (residues, BSE, TB etc.)
- The PMI outcomes should be recorded and reported to the Authorities to create a disease monitoring system in the country.
- Post-mortem examination of a carcass should be carried out as soon as possible after and/or during the dressing procedures.
- The correlation between all the animal's part (even feet, skin, horns etc.) must be kept until the Official Veterinarian (OV) has finished to inspect and has given his/her judgment.
- Health status during the PMI a Vet should look for the following abnormalities: 1) Abnormalities in structure and conformation 2) Abnormalities in color 3) Abnormal smell 4) Abnormalities in consistency 5) Abnormal texture 6) Abnormal discharges and excretions.

Steps of Post-mortem Inspection

- Viewing, incision, palpation and olfaction techniques.
- Classifying the lesions into categories: acute, chronic, notifiable, zoonosis
- Establishing whether the condition is localized or generalized, and if other part of the animal is involved.
- Evaluate the AMI and PMI outcomes (tests included) to make a final diagnosis.
- Submitting the samples to the laboratory for diagnostic support and keep the ALL the parts of the animal under detention in a separated chiller.

Categorize the animals after PMI

- Fit for human consumption • Second PMI and/or samples need to be collected for tests.
- Total rejection (any part of the animal) due to notifiable/zoonosis diseases and/or generalized pathologic conditions • Partial rejection due to localized pathologic conditions.
- Under restriction, waiting for the tests' results.

TECHNICAL SESSION FOR MILK VALUE CHAIN

The objectives of the session was to map the different stages of the milk value chain; to look into current and expected measures for the production of safe milk to identify gaps; and to focus on areas of resource investment requirements by different stakeholders to improve food safety compliance. Various technical measures based on international standards and practices including WOH, Codex and HACCP to reduce food safety-derived challenges along the milk value chain.

The following technical issues were discussed in the workshop:

Understanding value chain in Bangladesh

Contribution livestock in National GDP and milk production status, i.e., availability, requirement, demand

Present population and contribution of dairy animals in Bangladesh (Million)

Identifying Food safety hazards in milk

Factors that affected on the quality of milk

- Pathogen contamination and growth
- Chemical additives
- Environmental pollution and
- Nutrient degradation

Microbiological hazards, Chemical hazards, and Physical hazards in the milk

Mapping of milk value chain in Bangladesh and level of food safety risk

Steps to be considered to mitigate food safety gap in dairy Farm facilities (Considering international standards)

- ✓ Biosecurity measures reduce the likelihood of the introduction of hazards
- ✓ Pest control programs
- ✓ Keeping a record of animal movements on and off the farm is not practiced; record of treatment, Good Hygiene Practices (GHP)

- ✓ Soil and water test of pasture fields
- ✓ Control and monitoring of zoonotic diseases
- ✓ Record for sick animals treated by Veterinarian or any para professional
- ✓ Follow Isolation and quarantine area;
- ✓ A written program to control possible heat stress (THI card in the shed)
- ✓ Records keeping for purchasing of feed/feed ingredients
- ✓ Animal identification
- ✓ Welfare of Farm workers (i.e., Training, health checkup, dress code, working hour); Animal welfare

Steps to be considered to mitigate food safety gap in milk transporter/Goyala (covering based on international standards, i.e., CAC, HACCP)

- ✓ Registration with DLS/ Name in the list of DLS
- ✓ An up-to-date listing of milk suppliers and their registration numbers needs to kept
- ✓ Have a system in place for the detection of adulterants an antibiotic
- ✓ Declaration about preservatives while carrying milk and kept the record.
- ✓ Using stainless still container for carrying milk
- ✓ Recording for amount of milk purchase, milk selling and about spoiled milk
- ✓ Recording temperature of milk at collection
- ✓ Hygiene and sanitation measure for milk transporter /Goyala
- ✓ Washing facilities with clean water (cleaning regime exists/transport and others)
- ✓ Implementation of HACCP
- ✓ Maintaining dress code during milking and transport; Health checkup of milk collector
- ✓ Maintain cool chain; Observe and record the information on the temperature of milk during storage, before and after processing
- ✓ Cleaning and disinfectant of premises
- ✓ Having training certificate for cow milking and farm management i.e., providing feed/ water

- ✓ Record milk temperature at time of delivery
- ✓ Maintain standard required time for bringing raw milk from the farm house to the market/chilling point.

Steps to be considered to mitigate food safety gap in sweetmeat shop facilities Goyala (covering based on international standards)

- ✓ Legal permission from competent authorities.
- ✓ Standard precautions before receiving milk by the sweetmeat shop
- ✓ Traceability record
- ✓ Hygiene and sanitation measures for cleaning both manufacturing and outlets areas.
- ✓ Records keeping for water test for quality /safety
- ✓ Storage facilities to keep products in good condition
- ✓ Health checkup of staffs
- ✓ Laboratory tests of value-added products; Record keeping of tested result
- ✓ Plan for rejected products segregation and disposal facilities of spoil milk / milk products
- ✓ Cool chain facilities, record of temperatures
- ✓ Emergency backup electric supply facilities
- ✓ Written record of inspector to check the hygienic status of the premises/sweetmeat shop
- ✓ Dress code of staffs of sweet meat shop and manufacturing unit
- ✓ Training facilities and record keeping for Training of staffs and workers

Steps to be considered to mitigate food safety gap in milk chilling center

- ✓ Keeping records of previous inspections from competent authorities
- ✓ Traceability record (milk comes in and goes out from the facilities)
- ✓ Supply of potable water (supported by testing documentation)
- ✓ Washing facilities (cleaning regime exists)
- ✓ Records of temperature of milk at accepted to facility and when shipped from facility
- ✓ Equipment validation (Service & maintenance, validation, third party audits etc.)

- ✓ Check whether the gate valve, discharge motor, whip pipe is clean
- ✓ Checking of condition of milk on arrival (Temperature, foreign matter, smell, color, Test results, test frequency)
- ✓ Keeping records of treated wastewater that correctly done (Having ETP facility)
- ✓ Testing record of milk for Farm Culling Tank (FCT) (Fat, CLR, Sugar, Oil, Soda etc.)
- ✓ Checking whether SOP of Cleaning in Place (CIP) is being followed
- ✓ Have records of where rejected milk is consigned
- ✓ Health checkup of staffs
- ✓ Having the written record of inspector to check the hygienic status of the premises.
- ✓ Having dress code of workers/staffs
- ✓ Plan for staff development initiatives exist
- ✓ Training records exist for staff

TECHNICAL SESSION FOR MEAT VALUE CHAIN

The objectives of the session were to map the different stages of the meat value chain; to look into current and targeted measures for safe meat production at stages along the value chain to identify gaps; and to focus on areas where resources are needed by different stakeholders to improve food safety compliance. Various technical measures based on international standards and practices were considered to eliminate food safety-derived challenges entire the value chain.

The following technical issues were discussed in the workshop:

- ✓ Describing meat value chain in Bangladesh
- ✓ Present population of livestock (Million)
- ✓ Probable Food safety hazards in meat
- ✓ Mapping of meat value chain in Bangladesh
- ✓ Different steps of meat value chain needs attention for primary production, transport, slaughter, marketing/selling

Primary production: steps to be considered

Principles of meat hygiene applying to primary production

- ✓ Farm biosecurity to reduce the likelihood of introduction of hazards and appropriately contributes to meat being safe
- ✓ System to collect, collate and make available, information on hazards and conditions that may be present in animal populations and that may affect the safety of meat.
- ✓ Control and monitoring of zoonotic agents in animal populations and the environment
- ✓ Good hygienic practice (GHP), records of treatments, feed and feed ingredients and relevant environmental factors.
- ✓ Animal identification practices to allow trace-back to the place of origin to the extent practicable, to allow regulatory investigation

Hygiene of slaughter animals

- ✓ Primary producers should record relevant information to the extent possible on the health status of animals
- ✓ Systems should be in place for return from the abattoir to the primary producer, of information on the safety and suitability of slaughter animals and meat, in order to improve the hygiene on the farm
- ✓ The competent authority should systematically analyse monitoring and surveillance information from primary production so that meat hygiene requirements may be modified if necessary.
- ✓ Should have steps to prevent the introduction of new zoonotic agents;
- ✓ Animals having presence of specific disease conditions or recent administration of veterinary drugs should not be loaded for transport to the abattoir.

Hygiene of the primary production environment

- ✓ Primary production of animals should not be undertaken in areas where the presence of hazards in the environment could lead to an unacceptable level of such hazards in meat.
- ✓ The competent authority should design and administer monitoring and surveillance program appropriate to the circumstances.
- ✓ Places where zoonotic agents and other hazards may accumulate, should have mechanisms to be effectively cleaned, and are maintained in a sanitary condition.
- ✓ Systems for active processing and/or disposal of dead animals and waste should not constitute a possible source of food-borne hazards to human and animal health;

- ✓ Chemical hazards required for technological reasons are stored/disposed in a manner so that they do not contaminate the environment or feed and thereby pose a risk to human health.

Trading and transport of slaughter animals

Slaughter animals require transport facilities to the abattoir that ensure that:

- ✓ Soiling and cross-contamination with fecal material is minimized;
- ✓ New hazards are not introduced during transport;
- ✓ Animal identification as to the place of origin is maintained; and
- ✓ Consideration is given to avoiding undue stress that may adversely impact on the safety of meat.

Transport vehicles should be designed and maintained so that:

- ✓ Animals can be loaded, unloaded and transported easily and with minimal risk of injury;
- ✓ Animals likely to cause injury to one another, are physically separated during transport;
- ✓ Use of floor gratings, crates or similar devices limits soiling and cross-contamination with fecal material;
- ✓ Ventilation is adequate; and
- ✓ Cleaning and sanitizing are readily achieved

Principles of meat hygiene applying to animals presented for slaughter

- Animals presented for slaughter should be sufficiently clean so that they do not compromise hygienic slaughter and dressing.
- The conditions of holding of animals presented for slaughter should minimize cross-contamination with food-borne pathogens
- Slaughter animals should be subjected to risk-based ante-mortem inspection, with the competent authority
- Relevant information should be utilized in process control from primary production where available and including ante-mortem inspection.

Principles of meat hygiene applying to establishments, facilities and equipment of slaughterhouses

- Establishments should be located, designed and constructed so that contamination of meat is minimized to the greatest extent practicable.
- Facilities and equipment should be designed, constructed and maintained so that contamination of meat is minimized to the greatest extent practicable.
- Establishments, facilities and equipment should be designed to allow personnel to carry out their activities in a hygienic manner.
- Facilities and equipment that are in direct contact with edible parts of animals and meat, should be designed and constructed so that they can be effectively cleaned and monitored for their hygiene status.
- Water should be potable except where water of a different standard can be used without leading to contamination.

Design and construction of lairages

Lairages should be designed and constructed so that:

- ✓ animals can be held without overcrowding or injury, and are not exposed to climatic stress;
- ✓ there are appropriate layout and facilities for cleaning and/or drying of animals;
- ✓ ante-mortem inspection is facilitated;
- ✓ there is an adequate supply of clean water for drinking and cleaning, and facilities are provided for feeding where necessary;
- ✓ there is a physical separation between lairages and areas of an abattoir where edible material may be present;
- ✓ “suspect” animals can be segregated and inspected in separate areas
- ✓ there is an adjacent area with adequate facilities for cleaning and sanitation of transport vehicles and crates, unless there are facilities within close distance that are approved by the competent authority.
- ✓ Special facilities may be required to handle condemned animals.

Design and construction of slaughter areas

- ✓ Slaughtering and bleeding areas should be separated from dressing areas
- ✓ Special facilities may be required to slaughter and dress “suspect” or injured animals.

Design and construction of areas where bodies of animals are dressed or meat may otherwise be present

- ✓ All areas and facilities where bodies of animals are dressed or meat may be present should be designed and constructed so that they facilitate GHP, and contamination of meat is minimized to the greatest extent practicable

Design and construction of equipment where bodies of animals are dressed

- ✓ All equipment used should facilitate good hygienic practices (GHP)
- ✓ Contamination is minimized
- ✓ Meat should not be allowed to contact the floor and walls,
- ✓ Fixed structures should be designed to allow for effective cleaning and sanitization of the particular equipment;

Water supply

- ✓ Adequate facilities should be provided for monitoring and maintaining potability, storage, temperature control, distribution of water and for the disposal of waste water.

Facilities and equipment for personal hygiene

- ✓ Changing rooms, showers, flush toilets, hand-washing and hand-drying facilities in the appropriate locations, and separate areas for eating;
- ✓ Protective clothing that can be effectively cleaned and minimizes accumulation of contaminants.

Supply water at an appropriate temperature, and are fitted with dispensers for liquid soap or other hand cleansing agents

Process control systems

- ✓ Effective process control requires design and implementation of appropriate systems.

A documented process control system should describe the meat hygiene activities applied (including any sampling procedures), performance objectives or performance criteria (if set), verification activities, and corrective and preventative actions.

HACCP

- ✓ HACCP systems/principle for production of meat are a proactive means of process control

for food safety purposes.

- ✓ Microbiological testing for verification of HACCP systems, e.g., for verification.

Regulatory system

- ✓ Establish regulatory systems (e.g., recall, traceback, product tracing, etc., as appropriate) and requirements, e.g., training, knowledge, skills and ability of personnel (generally at a national level).
- ✓ Undertake specified meat hygiene controls e.g., official sampling program, those aspects of ante and post-mortem activities specified by the competent authority, or official certification.
- ✓ Verify that process control systems implemented by the establishment operator meet regulatory requirements e.g., GHP, SOPs, HACCP, as appropriate.
- ✓ Carry out enforcement actions as necessary.

Principles of meat hygiene applying to animals presented for slaughter

- Animals presented for slaughter should be sufficiently clean so that they do not compromise hygienic slaughter and dressing.
- The conditions of holding of animals presented for slaughter should minimize cross-contamination with food-borne pathogens
- Slaughter animals should be subjected to science- and risk-based ante-mortem inspection, with the competent authority

Hygiene requirements for slaughter and dressing

- ✓ Only live animals intended for slaughter should be brought into an abattoir, with the exception of animals that have undergone emergency slaughter outside the slaughterhouse and have appropriate veterinary documentation.
- ✓ No animal other than an animal intended for slaughter should enter an abattoir

An animal should only be slaughtered or dressed in an abattoir if a competent person is available to undertake ante- and post-mortem inspection.

Post-mortem inspection

- ✓ Post-mortem inspection should occur as soon as is practicable after slaughter of animals. Inspection should take into account all relevant information from the level of primary production and ante-mortem inspection.

- ✓ The competent authority should determine: how post-mortem inspection is to be implemented, the training, knowledge, skills and ability required of personnel involved
- ✓ Carcasses and other relevant parts condemned by the competent person undertaking post-mortem inspection, as unsafe or unsuitable for human consumption should be identified as appropriate and handled in a manner that does not result in cross-contamination of meat from other carcasses and relevant parts.

The reason for condemnation should be recorded, and confirmatory laboratory tests may be taken if deemed necessary.

Hygiene requirements for process control after post-mortem inspection

Meat passed as safe and suitable for human consumption should be:

- ✓ Removed without delay from the dressing area;
- ✓ Handled, stored and transported in a manner that will protect it from contamination and deterioration;
- ✓ Held under conditions that reduce its temperature and/or water activity as quickly as possible, unless cut up or de-boned pre-rigor; and held at temperatures that achieve safety and suitability objectives.

MEAT SHOP

Structure - premises and equipment

- the layout of the food premises permits good food hygiene practices, including protection against cross contamination, pest access and infestation;
- Materials used for the internal structure of buildings are durable, prevent buildup of dirt, easy to clean and maintain and safe for staff;
- Working Surfaces in food contact area are made of washable corrosion resistant and non-toxic material and maintained in a sound condition, durable and allow for easy cleaning and disinfection; and
- Provide Potable water for cleaning, disinfection and handwashing;
- Adequate personal hygiene and sanitary facilities are provided in the food premises
- Foods are maintained at correct temperatures The premise have reliable services to ...

support the cold chain;

- all wrappers, containers and packaging material are of food grade material which will not contaminate food
- machinery [and equipment] comply with sanitary design standards.

System sanitation

- Proper cleaning and disinfection of food preparation areas;
- Correct cleaning and disinfection (where necessary) of equipment, machinery and utensils used in food preparation and sale;

Pest control

- Adequate procedures are in place to control pests
- the layout of the food premises permits good food hygiene practices, including protection against cross contamination, pest access and infestation

Purchase/transport/storage/sale

- Appropriate food safety measures are applied during handling, storage and transportation
- Transport of food are carried out in such a way to prevent any contamination of the food, maintain its integrity and at appropriate temperatures;
- Conveyances and any form of transport protect the food from any contamination, including dust and fumes
- Containers and conveyances are kept clean and are able to be effectively cleaned and where necessary disinfected between batches
- Temperature throughout the food chain is monitored and verified to ensure that the food is safe and being maintained at the correct temperatures

Traceability

- Have effective recall procedures to stop the delivery, sale and consumption of suspect products
- An appropriate product identification system is implemented, connected to the animal identification system used by slaughter houses and farms

Personnel

- Food Handlers maintain a high degree of personal cleanliness

- Food handlers wear suitable clean and protective clothing while handling food
- Food Handlers refrain from any behavior that may risk contamination of the food
- Food handlers are medically fit to work and provide a medical fitness certificate

Training

- all food handlers are trained as applicable to their assigned tasks and have the necessary skills to enable them to handle food hygienically;
- Those who handle strong cleaning chemicals or other potentially hazardous chemicals are instructed in safe handling techniques;
- Casual workers or temporarily employed staff also receive relevant training on food hygiene

RECOMMENDATIONS

Recommendations from the workshop are set out as follows:

i. Follow Good Animal Husbandry Practice (GAHP) in farm level for:

- ✓ Ensuring food safety and quality;
- ✓ protecting and promote the welfare of animals;
- ✓ promoting health and safety of farm workers
- ✓ supporting environmental management

ii. Apply Good Hygiene Practice to entire milk and meat value chain

iii. Necessity of a clear legal framework

- ✓ DLS has to take initiative to include a dedicated food safety regulatory body within its jurisdiction
- ✓ SOPs/guidelines need to be developed, such as farm biosecurity, Food safety guidelines, etc. comply to existing acts/rules/policy.
- ✓ Expertise, resource mobilization, policy level motivation is needed to implement and enforce food safety regulations
- ✓ Regulatory support needs to be initiated to enforce animal identification and traceability and specialized animal transportation facility

- ✓ Registration and licensing, animal identification and traceability are to be given priority

iv. Necessity of Multi-stakeholders' involvement in Food safety of animal origin

- ✓ Coordinated approach with local government and private sector are to be initiated to establish and operate slaughter houses
- ✓ Activities to be undertaken are to divide into short, mid and long term to for a rational planning



GAHP session, May 202



Participants of Milk and Meat Value Chain workshop, October 2023

ANNEX - 1(A) PROGRAM SCHEDULE

Validation workshop on GAHP & GHP at a poultry farm, transport, and live animal market

From 24 May to 25 May, 2023

Time : 9.30 AM- 3.00 PM

Day	Time	Hrs.	Subject
Wed 24 (Day-One)	9.30-10.45	1.15	Opening and GAHP & GHP poultry farms – Presentation
	10.45-11.00	0.15	Tea break
	11.00-12.00	1.00	GAHP & GHP poultry farms – Presentation
	12.00-1.15	1.15	Lunch and prayer Break
	1.15-3.00	1.45	Case study, discussion, proposals and validation
Thu 25 (Day-Two)	9.30-10.45	1.15	GAHP & GHP poultry transportation and Live Animal Market - Presentation
	10.45-11.00	0.15	Tea break
	11.00-12.00	1.00	GAHP & GHP poultry transportation and Live Animal Market - Presentation
	12.00-1.15	1.15	Lunch and prayer Break
	1.15-3.00	1.15	Case study, discussion, proposals and validation

ANNEX - 1(B) PROGRAM SCHEDULE

Validation workshop on GAHP & GHP at a ruminant farm, transport, and live animal market

From 28th – 30th May

Time : 9.30 AM- 3.00 PM

Venue: Hotel Pan Pacific Sonargaon, Dhaka-1215

Sun 28 (Day -One)	9.30-10.45	1.15	Opening and GAHP & GHP ruminants' farms – Presentation
	10.45-11.00	0.15	Tea break

	11.00-12.00	1.00	GAHP & GHP ruminants' farms – Presentation
	12.00-1.15	1.15	Lunch and Prayer Break
	1.15-3.00	1.45	Case study, discussion, proposals and validation
Mon 29 (Day -Two)	9.30-10.45	1.15	GAHP & GHP ruminants' transportation - Presentation
	10.45-11.00	0.15	Break for lunch and prayer
	11.00-12.00	1.00	GAHP & GHP ruminants' transportation - Presentation
	12.00-1.15	1.15	Lunch and prayer break
	1.15-3.00	1.45	Case study, discussion, proposals and validation
Tue 30 (Day -Three)	9.30-10.45	1.15	GAHP & GHP ruminants' Live Animals Markets - Presentation
	10.45-11.00	0.15	Tea break
	11.00-12.00	1.00	GAHP & GHP ruminants' Live Animals Markets - Presentation
	12.00-1.15	1.15	Break
	1.15-3.00	1.45	Case study, discussion, proposals, validation, and closing

ANNEX - 1(C) PROGRAM SCHEDULE

Validation workshop on GAHP in the lairage, GHP during slaughter, and AMI & PMI protocol

Venue: Hotel Pan Pacific Sonargaon, Karwan Bazar, Dhaka-1215

Date: 31May-01 June

Time : 9.30 AM- 3.00 PM

Group- 3, Slaughter practice			
Wed May 31 (Day-One)	9.30-10.45	1.15	Opening and Presentation on GHP during slaughter and GAHP in the lairage
	10.45-11.00	0.15	Tea break
	11.00-12.00	1.00	GHP during slaughter and GAHP in the lairage - Presentation
	12.00-1.15	1.15	Lunch and prayer break
	1.15-3.00	1.45	Case study, discussion, proposals and validation

Thu, June 01 (Day -Two)	9.30-10.45	1.15	AMI & PMI practical protocol - Presentation
	10.45-11.00	0.15	Tea break
	11.00-12.00	1.00	AMI & PMI practical protocol - Presentation
	12.00-1.00	1.00	Lunch and prayer break
	1.00-2.30	1.30	discussion, proposals and validation
	2.30-3.00	0.15	Closing

ANNEX - 2 DEVELOPING THE MILK VALUE CHAIN IN BANGLADESH

A public / private sector dialogue facilitated by UNIDO

2 October 2023

Dhaka, Bangladesh

9:30 – 10:00	Welcome and Opening
10:00 – 10:30	Break
10:30 – 11:00	An Overview of the Milk Value Chain in Bangladesh (Rajiur)
11:00 – 11:30	Compliance Challenges within the Milk Value Chain infrastructure in Bangladesh (Michael)
11:30 – 12:15	Regulation and compliance (Group work; Facilitated by Rajiur, Mehedi and Michael)
12:15- 1300	Road map to overcome the challenges to development of the Milk Value Chain (Group work; Facilitated by Rajiur, Mehedi and Michael)
13:00 – 14:30	Prayers & Lunch
14:30 – 15:00	Identifying Priorities to develop the Milk Value Chain in Bangladesh (Group work; Facilitated by Rajiur, Mehedi and Michael)
15:00 – 15:45	International Case Study – Carbery Group Ireland (Michael)
15:45 – 16:15	Developing Key Workshop Takeaways
16:15 – 16:30	Workshop Closure

ANNEX - 3 DEVELOPING THE MEAT VALUE CHAIN IN BANGLADESH

A public / private sector dialogue facilitated by UNIDO

3 October 2023

Dhaka, Bangladesh

9:30 – 10:00	Welcome and Opening
10:00 – 10:30	Break
10:30 – 11:00	An Overview of the Meat Value Chain in Bangladesh (Mehedi)
11:00 – 11:30	Compliance Challenges within the Meat Value Chain infrastructure in Bangladesh (Michael)
11:30 – 12:15	Regulation and compliance (Group work; Facilitated by Rajiur, Mehedi and Michael)
12:15- 1300	Road map to overcome the challenges to development of the Meat Value Chain (Group work; Facilitated by Rajiur, Mehedi and Michael)
13:00 – 14:30	Prayers & Lunch
14:30 – 15:00	International Case Study – Kepak Ireland (Michael)
15:00 – 15:45	Identifying Priorities to develop the Meat Value Chain in Bangladesh (Panel Discussion; Mehedi and Rajiur)
15:45 – 16:15	Developing Key Workshop Takeaways
16:15 – 16:30	Workshop Closure



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