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REPORT ON ACTOR-BASED SURVEYS AND DATA COLLECTION

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Actor-based surveys and data collection

Work Package 74, Sub-activity 1.5

Sub-activity 1.5. Conduct in-depth interviews with all animal origin food value chain actors (input producers, animal farmers and farm workers, transporters, whole sale and retailers, slaughterers and processors, end users etc.) to identify the most problematic areas of food safety regulation and food safety assurance systems from the private sector point of view; evaluate how the food safety regulatory framework impacts the private sector

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Abbreviations and Acronyms

AMI	Anti Mortem Inspection
AMR	Antimicrobial Resistance
BFSA	Bangladesh Food Safety Authority
BSTI	Bangladesh Standardization and Testing Institute
CAC	Codex Alimentaria Commission
CA	Competent Authority
CC	City Corporations
DLO	District Livestock Officer
DLS	Department of Livestock Services
ETP	Effluent Treatment Plant
FMD	Foot and Mouth Disease
GAHP	Good Animal Husbandry Practices
GHP	Good Hygiene Practices
HACCP	Hazard Analysis Critical Control Point
LDDP	Livestock and Dairy Development Project
LEO	Livestock Extension Officer
LSD	Lumpy skin disease
MoFL	Ministry of Fisheries and Livestock
MO	Market Operator
ODK	Open Data Kit
PPE	Personal Protective Equipment
PMI	Post Mortem Inspection
SoP	Standard Operational Procedure
UNIDO	United Nations Industrial Development Organization
ULO	Upazila Livestock Officer
UMS	Uria Molasses Straw
WOAH/OIE	World Organization for Animal Health (formerly the Organization Internationale des Epizooties)

CONTENTS

Executive summary	1
Introduction	2
Objectives of data collecting	3
Methodology	3
Phase I	4
Phase II	6
Phase III	7
Results	8
Beef meat value chain	8
Table-4: Food safety practices of Butchery shop/ slaughter house	12
Poultry meat value chain	18
Table-6: Food safety practices of Sonali chicken farming	21
Milk value chain	37
Recommendations	60
Conclusion	62
Acknowledgement	63
Annex 1	64
Annex 2	73

EXECUTIVE SUMMARY

The Livestock industry in Bangladesh is growing day by day and has made significant progress during the two decades achieving near self-sufficiency in food production. However there are structural challenges in the sector, with risks associated with farm practices, that impact the production of safe milk, meat, and egg production. As part of UNIDO's contribution to the overall achievement of the LLDP, it has focused on three major livestock value chains to identify the gaps in existing food safety systems and practices. Within the meat value chain, beef fattening farmers and butcher shops are included. The focus within the poultry sector were broiler farmers, sonali chicken farmers, live bird markets and wet markets, feed processors and sellers, and secondary processors. Within the milk value chain, dairy farmers, milk chilling centers, milk collectors, and sweetmeat shops were included.

UNIDO rolled out a nationwide survey using the Kobo Tool Box to assess current on-farm and food processing practices in terms of food safety in the three sectors identified. Before the data collection by Kobo Tool Box, a debriefing session was organized with Livestock Extension Officers (LEOs) to clarify the data collection methods. In addition to this debriefing session, a zoom meeting with experts was held, followed by a stakeholders meeting to validate and harmonize the collected data on food safety practices. The area selection and the number of respondents could not be considered statistically due to unavailable resources and time constant, therefore UNIDO's focus was the food safety conditions in the livestock value chain, but not represented in the national database.

DLS manages the farm registration process which includes details of different livestock species. The percentage of registered farms per activity are beef farms 20%, broiler farms 20%, Sonali farms 5.25%, and dairy cattle farms 24%. There are no DLS registered dairy buffalo farms.

The findings of the survey found deficiencies in animal housing including a lack of separate dedicated houses with sufficient space to allow for birds and animals, and many with inadequate ventilation. Many farms lacked biosecurity measures such as foot baths, gates, and adequate fencing. The level of record keeping on the farm was low to absent with a lack of detail on factors such as number of birds, origin and use of animal feed, health regimes, vaccination schedule, and anthelmintic usage. Very few farmers were aware of withholding periods for animal slaughter and milk retention.

In the case of formulated animal feed, feed additives are used, with little evidence of the use of growth promoters at farm level, however testing of bought-in feeds for chemical / pesticide / and other contaminants is not conducted. Of the surveyed farmers, manure management was poor with little segregation from areas where birds/animals were kept and feed was stored.

There is a low level of certification of sweetmeat shops, butcher houses, live bird shop and milk collectors by competent authorities.

Many farmers are of the view that they should be subsidised by Government, when using antibiotics and veterinary drugs to compensate for withdrawal periods of milk and meat. While there are laws and regulations in Bangladesh to cover some areas of food safety in foods of animal-origin, the regulatory framework is weak with poor levels of enforcement. The relevant

legislative acts should be updated from time to time to address the field-based need. UNIDO under the Livestock and Dairy Development Project (LDDP) has developed Guides to Good Animal Husbandry to mitigate risks associated with antimicrobial resistance (AMR).

INTRODUCTION

In Bangladesh, the safety of animal-origin foods is a crucial challenge due to risks of contamination, a lack of proper food storage and handling, and inadequate regulatory oversight. Without an environment that supports the production of safe food, Bangladesh will struggle to achieve the Sustainable Development Goals (SDGs). These are important to address the various challenges in the livestock value chain and to give focus to the several SDGs including, SDG 2 Zero Hunger; SDG 3 Good Health and Well-being; SDG 12 Responsible Consumption; SDG 15: Life on land and SDG 17: Partnership. It is therefore important to reduce the contamination of food, and ensure safe and environmentally friendly production processes across the entire the livestock value chain.

As the economy of Bangladesh is growing faster, the demand for high-value proteins like milk, meat, and eggs is also growing. The industrialization of animal production is taking place in a much more rapid way. To support this opportunity, Government of Bangladesh has undertaken the Livestock and Dairy Development Project (LDDP) with World Bank support. As the sustainability of production needs the assurance of good quality and safety of the products, UNIDO has developed a 'Gap analysis of existing legislation, drafting legal amendments, development of baseline data of food safety, establishment of animal origin food inspection program and quality assurance scheme' with the objective to improve the regulatory framework and to enhance the food safety situation in foods of animal origin.

In accordance with Outcome 1 of the LDDP project "Improved food safety practices among public and private sector stakeholders in livestock value chains" this report "Actor-based surveys and data collection" further develops the findings of the initial GAP Assessment of the regulatory environment in Bangladesh under sub-activity 1.1. In this context, several meetings with National and International experts were held and 18 areas were identified as problematic in relation to food safety of animal origin. Of these, 12 areas were finally selected for food safety data collection using the mobile based tools "Kobo Toolbox". The PMU-LDDP team, National Experts and H/Q management identified the type of participants in the value chain, the number of participants, the study areas to collect actor based food safety data. The UNIDO-LDDP team decided to focus on three (03) major problematic livestock product-based value chains to identify the gaps in existing food safety systems and practices. These are described as below:

Beef Value Chain: Beef fattening farmers and butcher shops were interviewed and considered for stakeholders meeting on food safety practices. Of these, two actors were identified for collecting food safety related information.

Poultry Value Chain: Broiler farmers, Sonali chicken farmers, live bird market/wet market, feed trader/feed sellers, and further processors were interviewed and considered for stakeholders meeting on food safety practices under poultry value chain. Of these, five actors were selected for collecting food safety related information.

Milk Value Chain: Dairy cattle farmers, Dairy buffalo farmers, Chilling centers, Milk collectors (Goyala, milking man) and sweetmeat shop were interviewed and considered for stakeholders meeting on food safety practices under dairy value chain. Of these, three actors were selected for collecting food safety related information.

OBJECTIVES OF DATA COLLECTING

1. To gauge the level of understanding and the current practices of different livestock value chain actors.
2. To inform the process of developing training and guidelines to help value chain actors to become more compliant with good standards of practice in the future.

METHODOLOGY

This study was conducted with several activities under three different phases which are illustrated below diagram (Figure 1).

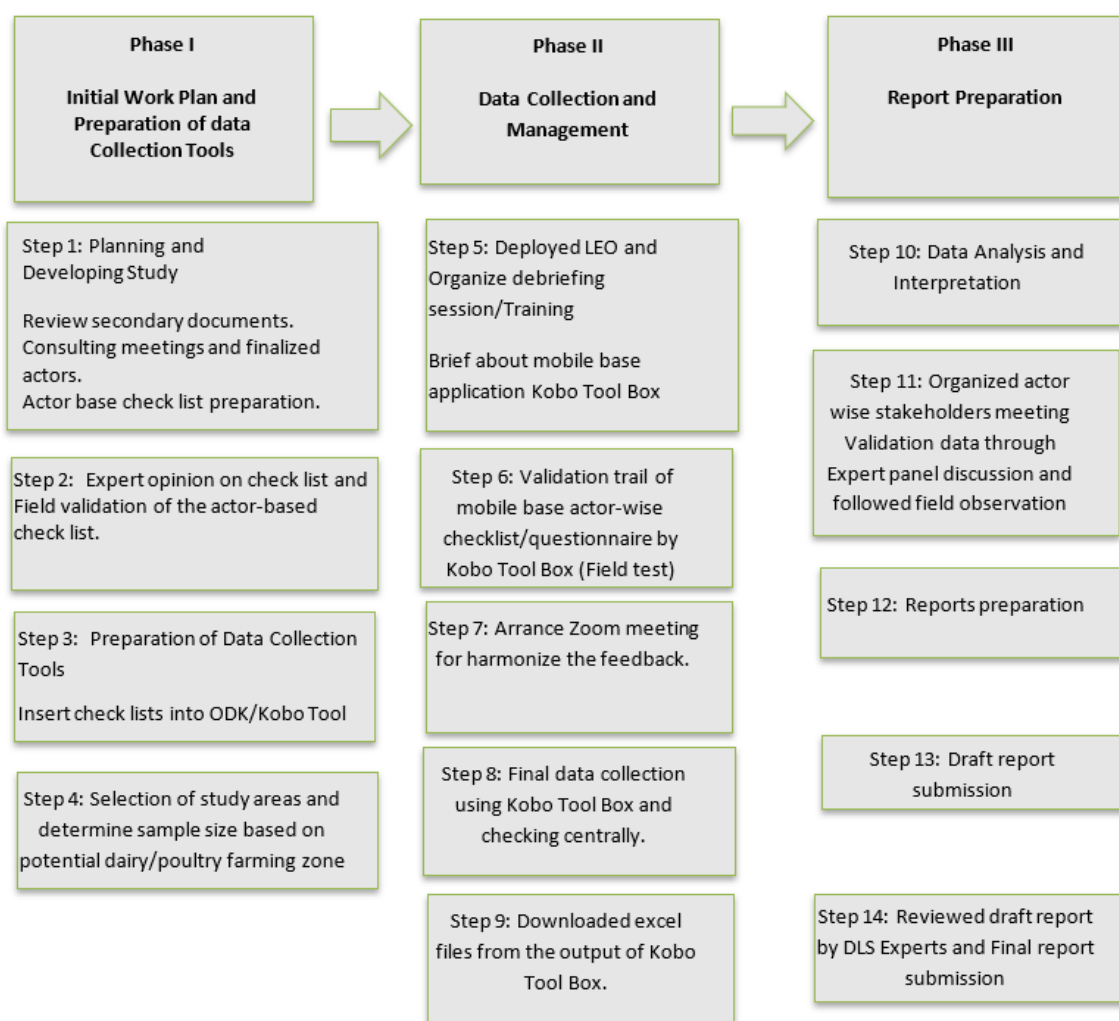


Figure 1: Flow diagram illustrating three phases of the methodology

Phase I

The Initial Work Plan and Preparation of Data Collection Tools were developed. Initially several documents were reviewed including research articles, Legislative Acts, Rules, International Standards from WOH and Codex Alimentarius, and guidelines and practices reviewed including GAHP and HACCP. Consulting meetings with UNIDO and PMU-LDDP were organized for selected actors participating in the study. Actor-based check lists were then prepared. Different actors such as beef fattening farmers, butcher shops, broiler farmers, sonali chicken farmers, live bird market/wet market, feed trader/feed sellers, further processors, dairy cattle farmers, dairy buffalo farmers, chilling centers, milk collectors/Goyala and sweetmeat shops were selected for interview. The objective was to establish the understanding of current food safety practices along the meat and milk value chain.

Characteristics of the responded actors for meat and milk value chain has been given in Table 1.

Table 1: Characteristics of the responded actors for meat (beef & poultry) and milk value chain

<i>Beef meat value chain</i>	<i>Beef fattening farmers</i>	<i>Butcher shops</i>			
Characteristics of the operator	More than 5 (>5) cattle fattened in a phase. Intensive system	Permanent stall of butchery shop with walls. At least one cattle slaughter in a day in same place.			
<i>Poultry meat value chain</i>	<i>Broiler farmers,</i>	<i>Sonali chicken farmers,</i>	<i>Live bird market/wet market,</i>	<i>Feed trader/feed sellers</i>	<i>Further processor</i>
Characteristics of the operator	More than 1,000 (>1,000) broiler reared in a phase	More than 1,000 (>1,000) Sonali chicken reared in a phase	Permanent stall of live birds with walls 50-150 live birds slaughtered in a day.	Feed shop in District or Upazilla level. Selling ready feed or individual feed ingredients to farmers. Purchase ready feed from processor company.	Commercial outlet located at city corporation areas. Facilities for slaughtered birds, keeping dressed meat in a refrigerator/chilling room for further processing.

<i>Milk value chain</i>	<i>Dairy cattle farmers</i>	<i>Dairy buffalo farmers</i>	<i>Chilling centers</i>	<i>Milk collectors (Goyala/ milking man)</i>	<i>Sweetmeat shop</i>
Characteristics of the operators	More than 5 (>5) dairy cattle reared. Intensive system/Semi extensive.	More than 5 (>2) dairy buffalo reared. Semi extensive system.	Chilling plant under the management of milk processing companies, chilling more than 1,000-liter milk in a day. Local private chilling plant selling chilled package milk in local market.	Milk purchased from dairy farms and sold in local market or/ sweetmeat shop or/ chilling Centre. Main business for milk buying and selling (milk trading).	District and Upazilas level outlet. At least 300-liters of raw milk purchase in a day and manufactures and sells several added value products.

Expert opinion on the check lists were also taken and Field validation of the actor-based check lists were followed. After getting expert opinion on the check lists, those were inserted into the check list of ODK/Kobo Tool box: a mobile base application. Study areas i.e., Upazilla, District were selected based on the potential farming practices; for example: dairy farming was considered from Shajahadpur, Shatkhira, Dinajpur, and Chottogram; Sonali chicken farming from Joypurhat, Broiler farm from Savar and Gajipur.

However, different actors in the study areas shown in Table-2 and Map-1.

Table2: Different actors in the study areas

SI	Districts	Upazilla	Actor-1	Actor-2	Actor-3	Actor-4
1	Dinajpur	Chirirbandar Dinajpur	Dairy cattle farmer	Sweetmeat shop	Milk chilling plant	--
2	Rangpur	Kaunia	Dairy cattle farmer			
3	Bhola	Charfassion	Dairy buffalo	Sweat meat shop		
	Mymensingh	Trishal	Dairy buffalo farmer			
4	Sirajgonj	Shahjadpur	Dairy cattle farmer	Sweet meat shop	Milk chilling plant	Goyala
5	Satkhira	Tala	Dairy cattle farmer	Milk chilling plant	Goyala	
6	Chittagong	Karnaphuli	Dairy cattle farmer	Milk chilling plant		
	Chittagong	Boalkhali	Butchery beef	Live bird		
7	Noakhali	Subarnachar	Dairy buffalo farmer	Sweet meat shop		
8	Kustia	Kustia Sadar	Beef fattening			

SI	Districts	Upazilla	Actor-1	Actor-2	Actor-3	Actor-4
9	Manikganj	Saturia	Beef fattening			
10	Dhaka	Dhaka City/Savar	Butchery beef	Live bird	Further processor	
		Savar	Broiler farmer			
11	Narayanganj	Narayanganj sadar	Butchery beef	Live bird		
12	Gazipur	kaliakoir	Broiler farmer			
	Gazipur	Gazipur Sadar	Live bird	Feed seller/ Processor	Further processor	
13	Bogra	Sonatola	Sonaly chicken			
	Bogra	Sariakandi	Sonaly chicken			



Map 1: Study areas

In this study 16 LEO under 16 Upazilla from 13 districts (06 divisions) undertook to collect the food safety information. The area selection and number of respondents could not be considered statistically due to unavailable resources and time constraint, but it did provide a good overview of the food safety conditions along the value chain.

Phase II

Data Collection and Management

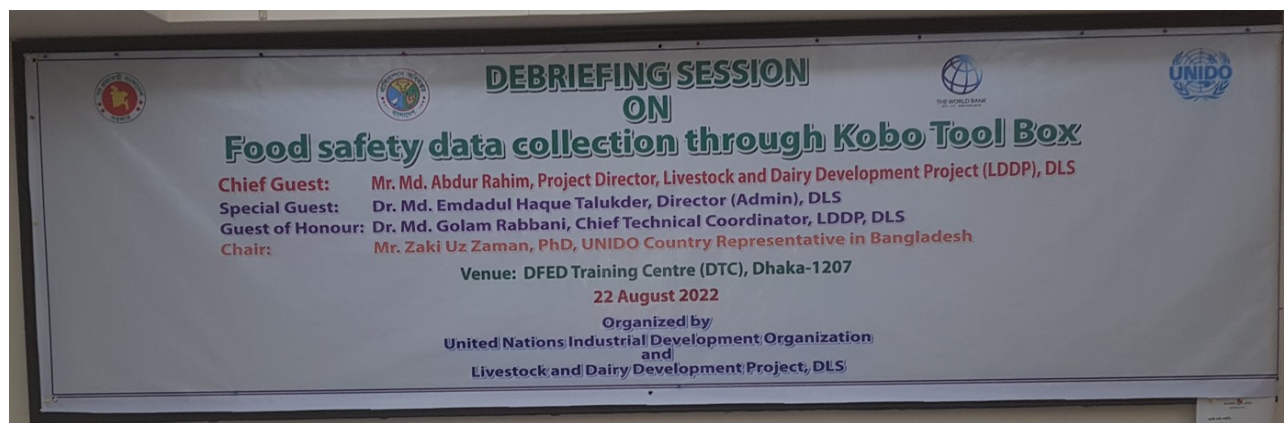
In this stage firstly, a total of 12 Livestock Extension Officers (LEO) were deployed in the data collection team and organized one-day debriefing session on 22 August 2022 (see Agenda and Power point presentation in Annex -1) to present the aim and objectives of the initiative. In this event, participants were trained in data collection methodology using the mobile based application Kobo Tool Box. Following this, 4 days were proposed to validate the Kobo Tool Box checklist/questionnaire in the field. Following this, a zoom meeting was arranged to harmonize the feedback on the checklist. Once completed, 15 days were allocated for final data collection. On completion of data collection, excel files from the output of the Kobo Tool Box were downloaded for further analysis.

Phase III

Report Preparation

The output of the Kobo Tool Box/ODK, was verified and analysed. Several field observations were done for cross checking the food safety information within the database. To validate the information on food safety practices of different livestock value chains, an actor-wise stakeholders' meeting/workshop was organized on 30-31 October 2022 with several expert panel discussions to harmonize the information (see Agenda and Power point presentation in Annex 2).

In this event, the expert teams were presented with the information on the food safety practices of different actors collected through Kobo tool box. This provided an opportunity to clarify any areas or responses within the survey. All of the observations from the meeting were considered in the draft report preparation and submitted to LDDP/DLS; Meanwhile, comments from LDDP/DLS were incorporated into the report and prepared for final submission.



Debriefing session for food safety data collection



Stakeholders meeting on validation of food safety data



Present food safety data on Stakeholders meeting for validation of food safety data

RESULTS

Beef meat value chain

Beef fattening farmers and butcher shops were interviewed by experience enumerators working as Livestock Extension Officer (LEO) under Livestock and Dairy Project (LDDP) using mobile base application “Kobo tool box”. The output of “Kobo tool box” was downloaded (Excel sheet) and analyzed. The analyzed data on food safety practices are represented in tabular form is presented in Table 3 below.

Table-3: Food safety practices of beef fattening farmers

Following analysis of the findings, a stakeholder meeting was organized with relevant experts and related entrepreneur’s and farmers to validate the information. From stakeholder’s meeting, there was disagreement on only 7 questions out of 34 questions. These were resolved through dialogue with an expert panel discussion and recorded in the remark’s column. The analyzed data on food safety practices are represented as below table:

Information collection from the Location: Kushtia and Manikganj				
Attributes	Kobo toolbox Observations (% of practice)	Stakeholders meeting observation		
		Agree	Disagree	Remarks
1. Registered with DLS	20	√		
2. Separate dedicated house for the animal	80	√		
3. Sufficient space to allow animals to move around freely inside the house	70	√		
4. Floor type				
i) RCC	50	√		

ii) Brick	50	√		
iii) Muddy	0	√		
5. Adequately ventilation	90	√		
6. Separate areas for animals of each different age of production	60	√		
7. Measures to prevent the entry of any disease into the farm <ul style="list-style-type: none"> Maintain biosecurity measures considering separate entrance/gate into the farm 				
8. Separate place to isolate a sick animal on the farm	80	√		
9. Use disinfectant / insecticides / fumigation on the farm premises	50	√		
Type of practice <ul style="list-style-type: none"> Disinfectant used 1 time in a week; Use calcium hypochlorite regularly; Bleaching powder; Use Calcium hypochlorite; Virocid, savlon 				
10. Pest control programs	0	√		
11. Source of water using for animal farm				
i) Pond water	0	√		
ii) Supply water	0	√		
iii) Deep tube well water	100	√		
iv) Other	0	√		
12. Records keeping relating to the animal farm	50	√		
If yes, Please tick the records being kept in the list				
(i) Number of animals on the farm	40	√		
ii) Changes to feeding	10	√		
iii) Health regimes	0	√		
iv) Origin and use of feeds	10	√		
v) Drugs	40	√		
vi) Vaccines	40	√		
vii) Disinfectants	10	√		
13. Call person when animal becomes sick				
i) VS from ULO Office	70		√	Near to 20%
ii) Veterinary Assistant from ULO Office	40	√		
iii) Any Person from Local Pharmacy of feed seller Shop	0	√		
iv) Local Quack	70	√		
v) Registered Veterinary	10	√		

vi) Other	0	√		
14. Steps taken to restore the health of your sick / injured animal				
i) Isolated from others	29		√	Near to 80%
ii) Sell to market	0		√	Near to 50%
iii) Call to registered veterinarian	38	√		
iv) Call to local animal health worker	33	√		
v) Others	0	√		
15. Vaccination schedule	80	√		FMD, LSD
16. Name of the vaccines using on animals LSD, FMD, Anthrax				
17. Use anthelmintic on the farm	100	√		
18. Records keeping for any treatments/ vaccinations	50	√		
19. Advise NOT to sell an animal during and after treatment with certain medicines	40		√	Near to 20%
20. Type of advice was given, and comply				
• Maintaining withdrawal period				
21. Storage facilities to keep medicines and vaccines in good condition	50	√		
Existing facilities exist				
• Separate room for storage of medicine and vaccine,				
• Using refrigerator				
22. Dispose of used syringes/needles, a vial of the bottle, rest of the drug/ vet medicine				
i) Burnt	0	√		
ii) Bury	0	√		
iii) Throughout to pit/drain/pond	100	√		
Steps taken to ensure such feed ingredients are safe				
• Produce grass for feeding cattle,				
• Wash feeding area every day;				
• Cultivate grass for feeding cattle,				
• Clean the grass and cut using grass chopper machine before feeding				
• Wash the feeding area regularly;				
• Sun drying feed ingredients (wheat bran, rice polish, oil cake, khesari bran, pulses bran)				
• Ingredients are collected from local farmers				
23. Provide manufactured feed	30	√		
records keeping of the purchased feed	0	√		
24. Purchase feed ingredients for own farm rations	70	√		

Records keeping of purchases feed ingredient	0		√	
25. Using feed additive in the feed	0		√	More than 70 % use vitamin mineral premix
26. Use any growth promoter in the feed (growth promoter/hormone/ steroid) for fattened your calf/bull?	0		√	Less than 5% use
27. Laboratory test of feed for chemical/pesticide/chemical/pesticide/another contaminant	0	√		
28. Properly labelled of feed package for selling feed mix, considering common name of the feed ingredient, chemical composition, the name and address of the company who manufactured, Production date, expire date, and a lot code or other unique identifier to trace the feed.	0	√		
29. Safe water supply	100	√		
30. Water tested for quality / safety	0	√		
31. Clean watering and feeding appliances on a regular basis	100	√		
Method uses for cleaning watering and feeding appliances Cleaning by water & sun dry it				
32. Received any training	20		√	No government training available. Feed and Medicine company provide the training keeping target to sell their product.
content cover/subjects: Feeding and health care				
33. Manure heap well separated from the clean areas where animals are kept and feed is stored	30	√		
34. Distance of waste pit from the farm (Meter)	50-70	√		

Table 3 shows the food safety practices of Beef farms. Registration of beef farms has begun with DLS but it needs greater urgency. Most (80%) had separate dedicated houses with sufficient space (70%) for beef animals but it showed that 30% of animals are not housed in accordance with the code of animal welfare.

A total of 90% sheds were adequately ventilated and floor was usually built by RCC and brick. All farmers had not maintained standard biosecurity preventive measures including biosecurity measures, foot bath, gate, and fencing to prevent the entry of disease onto the farm. Most (80%) farmers kept sick animals in a separate place to isolate on the farm. Fifty percent (50%)

of farmers used disinfectant on the farm premises once a week but pest control program was not evident. All farmers provided deep tubewell water to the beef farm. Record keeping on the farm was not practiced in a satisfactory way (i.e., number of animals, changes to feeding, origin, use of feeds, health regimes, vaccination schedule, using anthelmintic). Only 40% farmers were advised not to sell an animal during and after treatment with certain medicines. About 50% of farmers had no storage facilities to keep medicines and vaccines in good condition. With regard to the disposal of used syringes, residual veterinary medicines, farmer practices were poor with many disposing of these in a pit or drain or pond. Feed additives in the compound feed were used but farmers were not testing their prepared feed from any laboratory to identify any chemical/pesticide/other contaminants.

Table-4: Food safety practices of Butchery shop/ slaughter house

Following analysis of the data, a stakeholder meeting was organized with concerned experts and related entrepreneur's/farmers to validate the information. The stakeholder's meeting disagreed that 19 questions out of the total questions were corrected by following the expert panel discussion and stipulated in the remark's column. The analyzed data on food safety practices are presented in tabular form as below:

Information collection from the Location: Chottogram city, Dhaka city, and Narayanganj city				
Attributes	Kobo toolbox Observations (% of practice)	Stakeholders meeting observation		
		Agree	Disagree	Remarks
1. Licensing for meat shops/butcher shops in case of Village shop/local Hat (weekly bazar)				For Q1-Q5: Meat shopper/ butchery do not get registration from anywhere, however, they get trade licence from Pauroshova/Union Parishad. Sanitary Inspector from Upazilla Health Office visit some time to the meat shop.
i) Upazilla Livestock Office				
ii) Government Upazilla Office				
iii) Other (Name please)				
2. In case of Upazilla central market				
i) Upazilla Livestock Office				
ii) Government Upazilla Office				
iii) Upazilla Health Office				
Other (Name please)				

3. In case of the District level market (Municipal)				
i) Upazilla Livestock Office				
ii) Government Upazilla Office				
iii) Upazilla Health Office				
4. In case of level (City Corporation)				
i) Upazilla Livestock Office				
ii) Government Upazilla Office				
iii) Upazilla Health Office				
iv) Other (Name please)				
If Others, (Name please)				
City Corporation				
5. Please name the authority of Registration for the establishment of the Butchery shop				
i) Upazilla Livestock Office				
ii) Government Upazilla Office				
iii) Upazilla Health Office				
iv) Other (City corporation)				
6. Please mention below a description of the type of shop for butchery (Please tick)				
i) Permanent stall with walls	33.33	√		
ii) No walls	66.67		√	Less than 50%
7. Electricity facility in the Stall	100.00	√		
8. Refrigeration facility in the Stall	26.67	√		
9. Locked facilities in the stall	40.00		√	Less than 30%
10. Stall has piped water (hot and cool water facility)-	0.00	√		
11. Stall has piped water (only normal water facility)-	100.00	√		
12. Drainage facility	46.67	√		
13. Well-functioning effluent treatment plant (ETP) facility available at the slaughter premises	0.00	√		No such type facilities
Healthy of workers				
16. Slaughter facility workers/visitors hold a medical certificate that confirms that they are not suffering from any illness that can be transmitted to humans (Tb, Salmonella/ Guardia etc....)	13.33	√		

17. Facility to allow slaughter facility workers/visitors to prepare themselves before entering the facility – (change clothes, put on clean overalls, wash hands with disinfectant.	6.67	√		
18. Slaughter facility workers obliged to make a signed health declaration on weekly basis	6.67		√	Need to introduce with in a timeframe
19. Water bath with disinfectant added at the only entrance into the slaughter facility	0.00	√		
20. The concentration of the disinfectant being tested on a regular basis	0.00	√		
21. Records to prove that the above precautions are being maintained	0.00	√		
22. Cleaning time of slaughter shop				
i) Early Morning before starting selling meat	13.33	√		
ii) At the Noon during selling/trading	6.67		√	Always maintained
iii) After noon before closing shop.	33.33	√		
iv) Following all times	46.67	√		
23. Wearing aprons and masks of slaughter house worker during working in the shop	0.00	√		
24. Following regular health check-up of slaughter house workers/employee	6.67		√	Nobody follows this
Cleanliness of surrounding areas				
25. In unclean areas, meat could spoil and be negatively affected by dirt, dust, and flies at the point of sale. Is the area immediately surrounding the slaughter facility buildings in a clean and tidy condition?	46.67		√	it might be near to 80%
26. The doors and windows into the slaughter facility have a mesh covering to prevent birds and insects from entering the facility where meat is prepared?	0.00	√		
27. Evidence of vermin control used at the facility	0.00	√		
29. Having suitable place where animals for sale and/or slaughter are kept in clean and comfortable conditions	66.67		√	Near to 30%
30. Time (Hours)for Keeping animals at slaughter house waiting for slaughter/sale				
i. 2-12 hours waiting for slaughter/sale	33.33	√		
ii. 12-24 hours waiting for slaughter/sale	40.00	√		
iii. 24-72 waiting for slaughter/sale	26.67	√		

32. Getting certificate from a registered veterinary doctor before slaughtering the animal (Certificate of suitability for the slaughter of animals or poultry as per Schedule 7 [Rule 5 (3) and 10 (4)] under the Animal Slaughter and Meat Quality Control Act, 2011 and the Animal Slaughter and Meat Quality Control Rules, 2021)				
i. Some time	26.67		√	Less than 10%
ii. Never	66.67	√		
33. Solid waste & inedible meat which have no economic or commercial value. Arrangements should be made for safe storage in a separate room/shed that removes within 6 (six) hours of slaughter. How do you dispose of solid or liquid waste from your premises?				
i) Remove solid or liquid waste and keep to separate storage room/shed within 6 (six) hours of slaughter	0.00	√		
ii) Keeping solid or liquid waste in the same place of slaughtering and removing those in a suitable time.	20.00		√	Near to 25%
iii) Keeping solid or liquid waste in a near pond/municipalities drain.	80.00		√	
34. Based on this act and rules, need to know diseases prevalence record for 30 days (thirty) before in farm area; cattle brought for slaughter. Having health records available from the source of animals presented for slaughter	0.00	√		
35. Slaughter animal on front another live animal				
i. Yes	13.33	√		
ii. Never	53.33	√		
ii. Some time	33.33	√		
36. Inspector inspected and certified the meat as being fit for human consumption	33.33		√	Below 5%
37. Visited by any inspector for checking the hygienic status of premises	46.67		√	Below 5%
38. Records keeping of such inspections and the results of previous inspections	0.00	√		
39. Records keeping of such certificates being given previously	0.00	√		

40. Animal Welfare Act 2019 refers to the standards of the World Organization of Animal Health (WOAH) in identifying the humane ways in which a diseased animal may be put to rest. Existing practice when animal feels sick in slaughter house				
i) The diseased animal should be put to rest	13.33		√	It may less than it
ii) Inform veterinarian	13.33	√		
iii) Not inform veterinarian	6.67		√	May be less than it
iv) Isolate and treatment of the animal	20.00	√		
v) Not isolate but treatment to the animal	0.00	√		
vi) Slaughtered animal	46.67	√		
41. Managed for waste in the shop/yard i.e blood, intestine, offal's				
i) Through near pond	33.33	√		
ii) Drained to waste pit	33.33		√	Near to 70%
iii) Wash and drained away	20.00		√	Near to 30%
iv) Collect and sell	13.33	√		
42. In case of any visible disorder in any part of the intestine/offal's/waste, the owner of slaughterhouse/meat establishment/ meat processing factory/his representative shall immediately inform the veterinarian or veterinary officer of the concerned Upazilla [Animal Slaughter and Meat Quality Control Rules, 2021: 7 (4)] Practice followed in case of visible disorder in the carcass of a slaughtered animal				
i) Sell meat unconsciously without consulting any experts/ veterinarian	66.67		√	Near to 30%
ii) Cut and remove the affected part/organ	33.33		√	Near to 70%
43. Meat quality tests followed after slaughtering animals by a registered veterinarian	0.00	√		
44. Amount (Number) of cattle slaughter in a day				
1 animal	53.33	√		
2 animals	26.67	√		
3 animals	20.00	√		
Transporters				
45. License or registration to transport live animals	6.67		√	Not at all.

46. Maintain any records of the animals that transport	0.00	√		
47. Inspector visit to check whether vehicle and document/record keeping meets the required standards	0.00	√		
48. Wash vehicles with clean water and disinfectant before and after carrying live animals [Animal Slaughter and Meat Quality Control Rules, 2021: 18, 2(1)]	40.00			Cleaning always but not with disinfectant
49. Vehicle comply the regulations (full names, addresses, and telephone numbers of farm owners who bring birds/animals; either those are vaccinated/ or diseased)				
i. Yes	6.67	√		Less than it
ii. Not always	40.00	√		
iii. Never	53.33	√		
50. Purchased live animals/beef from a farm where GAHP is followed (i.e. biosecurity, vaccination, feeding, watering, health of worker)	46.67	√		
51. Available contact name and telephone number of the person (i.e the OWNER of the animal or animal product) who takes full responsibility?	46.67	√		
52. Training received on hygiene & food safety issues for carrying animals or working in butchery	20.00	√		

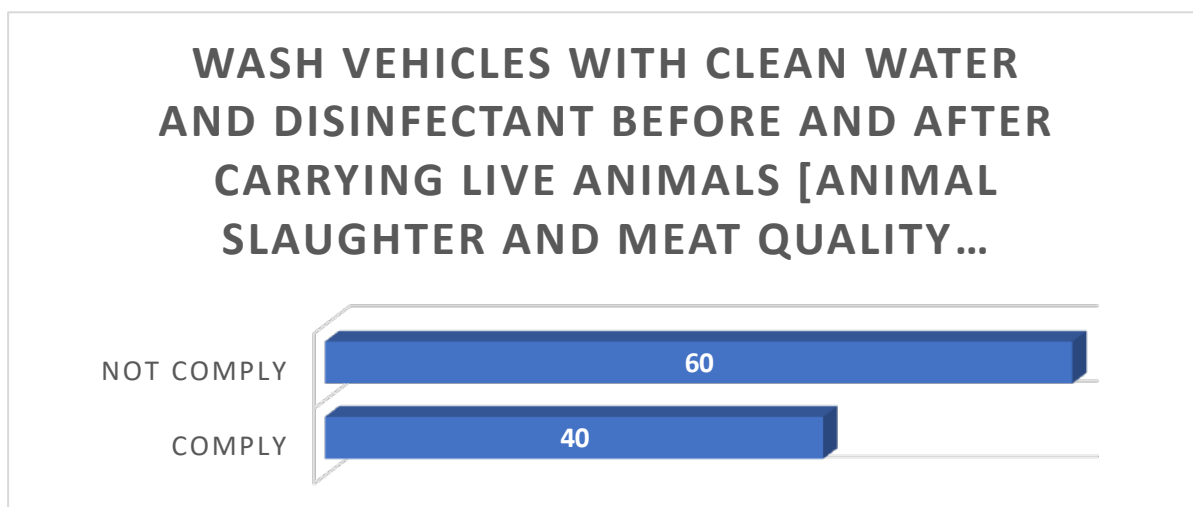
Table 4 shows the food safety practices of butchery shops and slaughter houses. Meat shops and butcheries are unregistered but do hold a commercial trade license from Pauroshova / Union Parishad. Sanitary Inspectors from the Upazilla Health Office visit will occasionally visit the traditional road side meat shop/butchery shop/ market base meat shop.

Just 33% of butchery shop's had permanent stalls with walls with 2/3 of butchers operating with no walls. All reported as having electricity but just 63% operated refrigeration units. Just 60 percent of butcher stalls had no locked facilities; none had piped water (hot and cool water facility) but all stalls reported access to potable water. Fifty-three percent of butchery shops did not have adequate drainage facilities.

Regular health check-ups of slaughterhouse workers/employees are uncommon with just 7% reporting a regular process. 47% butcheries followed cleanliness and tidy conditions in the slaughter facilities, so that meat could not spoil and be negatively affected by dirt, dust, and flies at the point of sale from unclean areas.

Local government organizations are responsible for establishing slaughter houses by law [Local Government (City Corporation Act-2009), Local Government (Municipality Act-2009) and Local Government (Union Parishad Act-2009)]. DLS is solely responsible for meat inspection. Execution of the Animal Slaughter and Meat Quality Control Act, 2011, and the Animal Slaughter

and Meat Quality Control Rules, 2021 should ensure with dual responsibilities of the Department of Livestock Services and Local Government Division/City corporation / Municipalities/Union Parishad.



The above graph demonstrates the execution level of the Animal Slaughter and Meat Quality Control Rules 2021 for washing vehicles used in the transportation of animals. It was seen that forty percent of vehicles were washed with clean water and disinfectant before and after carrying live animals.

Poultry meat value chain

Broiler, Sonali, live bird market and further processors were interviewed by enumerators working as Livestock Extension Officers (LEO) under the Livestock and Dairy Project (LDDP) using the mobile application “Kobo tool box”. The output of “Kobo tool box” was downloaded and analyzed. The analyzed data on food safety practices are represented in tabular form as below:

Table-5: Food safety practices on broiler farms

Following analysis of data collected, a stakeholder meeting was organized with relevant experts and entrepreneur’s/farmers to validate the information. The analyzed data on food safety practices are represented in tabular form as below:

Information collected from Location: Dhaka and Gazipur				
Attributes	Kobo toolbox Observations (% of practice)	Stakeholders meeting observation		
		Agree	Disagree	Remarks
1. No of registered farm with DLS	20	√		
2. Separate dedicated house	100	√		
3. Sufficient space to allow for birds	100	√		
i. Floor type				
ii. Brick and litter	66.67	√		
iii. Muddy and litter	40	√		
iv. RCC and litter	10	√		

4. Adequately ventilated pens/buildings	100		√	Near to 80%
5. Maintain separate pens/areas for different age/ species/ stage of production	100	√		
6. Preventive measure for the entry of any disease into your property <ul style="list-style-type: none"> • Foot bath, fencing is used • Foot bath, gate, fencing is used • Foot bath, gumboot, fencing is used 			√	Fencing near to 80%
7. “all in all out” practice for poultry production	100	√		
8. Having separate place where isolate a sick bird from other birds on the farm	0	√		
9. Use of disinfectant / insecticides / fumigation on the premises	100	√		
Practice: Bleaching powder, PPM, lime, timsen, GPC 8 is used (3 times in a week), hexosol		√		
10. Pest control programs	100	√		
11. Source of water, using for birds				
i) Pond water	0	√		
ii) supply water	0			
iii) deep tube well water	50		√	Near to 20%
12. Record keeping relating to birds on the farm	80		√	Near to 80%
Types of the records being kept in the farm				
i) Number of birds on the farm	70		√	100%
ii) Changes to feeding	0	√		
iii) Health regimes	50	√		
iv) Origin and use of feeds	40	√		
v) Drugs	60	√		
vi) Vaccines	70	√		
vii) Disinfectants	0	√		
13. Call person when bird becomes sick				
i) VS from ULO Office	10		√	Near to 40%
ii) Veterinary Assistant from ULO Office	0		√	Near to 5%
iii) Any Person from Local Pharmacy of feed seller Shop	80	√		
iv) Local Quack	50	√		
v) Registered Veterinarian	0		√	Near to 20%
14. Steps taken to restore the health of sick birds.				
i) Isolated from others	10	√		

ii) sell to market	0		√	Near to 20%
iii) call to registered veterinarian	10	√		
iv) call to local animal health worker	0		√	Near to 20%
15. Maintain a vaccination schedule	90	√		
16. Type of vaccines used to the birds: Ranikhet and Gumboro vaccine		√		100%
17. Use anthelmintic on your farm birds	0	√		
18. Maintain records of any treatments/ vaccinations	70	√		
19. Advise NOT to sell bird/eggs produced during and after treatment with certain medicines	40	√		
If yes, Type of advice was given and comply those <ul style="list-style-type: none"> • Birds have to be sold after 7 days of treatment for some medicines • Birds have to be sold after 2-3 days of treatment for some medicine • Birds have to be sold after 7-10 days of treatment for some medicine 				7 days
20. Storage facilities to keep medicines and vaccines in good condition	80		√	Near to 65%
Available existed facilities to keep medicines and vaccines in good condition: Kept in the Freeze				
21. Dispose of used syringes/needles, a vial of the bottle, rest of the drug/ vet medicine				
i) Burnt	40	√		
ii) Bury	10	√		
iii) Throughout to pit/drain/pond	50	√		
22. Feed home-produced feed ingredients to the birds	0		√	Near to 20%
23. Used manufactured feed to the birds	100	√		
Record keeping of the purchased feed	50	√		
24. Making ration by purchasing raw feed ingredients to the own farm	0	√		
25. Use of additive in the feed	0	√		
26. Use any growth promoter in the feed (growth promoter/hormone/ steroid)	0	√		
27. Submitted samples of feed for laboratory test for chemical/pesticide/ chemical/pesticide/ another contaminant	0	√		
28. Properly labelled of feed package for selling feed mix, considering common name of the feed ingredient, chemical composition, the name and address of the company who manufactured, Production date, expire date, and a lot code or other unique identifier to trace the feed.	100	√		
29. Safe water supply	100	√		

30. Water tested for quality / safety	0		√	Near to 30% for big private farm
31. Clean watering and feeding appliances on a regular basis	20		√	All farmer practice this, 100%
Method uses for cleaning watering and feeding appliances: Only the water bowl is cleaned 3 times a day.				
32. Have you received any training?	100			
If yes, what subjects----- Brooding, feeding vaccination, biosecurity				Need to focus food safety issues
33. Is your manure heap well separated from the clean areas where animals are kept and feed is stored?				50 % follow for small and medium type farm, in case of 100% of commercial farms follow this practice.
35. How far waste pit from your farm? (Meter)				It is near to 50-60 meters.

Table-5 illustrated that all farmers had dedicated poultry houses (100%) with sufficient space for birds. About 20% of sheds are not adequately ventilated. A total of 20% of farmers do not implement standard preventive measures such as biosecurity controls; foot baths, gates, and fencing to restrict entry onto the farm property. A total of 80% of farmers kept records (i.e., number of birds, changes to feeding, origin, use of feeds, health regimes). Only 40% of farmers are advised not to sell birds during and after treatment with certain medicines. Maintaining a vaccination schedule, using anthelmintic, and its record-keeping are 90, 0, and 70 percent, respectively. There were no reported use of feed additives or growth promoters in animal feed but testing of prepared feed at laboratories to identify any chemical/pesticide/other contaminants is not undertaken. There was poor adherence to the disposal of used syringes/needles, vials of medicine, and of drug/vet medicine in an appropriate manner. A total 50 % of small and medium farms stored manure adjacent to where birds and feed was stored but in commercial farm this changed to full compliance (100%).

Table-6: Food safety practices of Sonali chicken farming

After analysis a, a stakeholder meeting was organized with concerned experts and related entrepreneur's/farmers to validate the information collected. The analyzed data on food safety practices are represented in tabular form as below:

Information collected from Location: Bogra and Joypurhat

Attributes	Kobo toolbox Observations (% of practice)	Stakeholders meeting observation		
		Agree	Disagree	Remarks
1. No of registered farm with DLS	5.26	√		
2. Separate dedicated house	68.42	√		
3. Sufficient space to allow for birds.	84.21	√		
Floor type				
i. RCC and litter	31.58	√		
ii. Brick and litter	15.79		√	Near to 60%
iii. Muddy and litter	57.89		√	Near to 10%
iv. Slat	31.58		√	Near to 35%
v. Cage	15.79		√	Nobody follow this(0%)
5. Adequately ventilated pens/buildings	78.95		√	Near to 90%
6. Maintain separate pens/areas for different age/species/stage of production	73.68		√	Near to 85%
7. Preventive measure for the entry of any disease into your property. (e.g., biosecurity measures; foot bath, gate, fencing, etc.)	63.16		√	Near to 20%; lack of awareness
8. "All in all out" practice for poultry production	100.00	√		
9. Having separate place where isolate a sick bird from other birds on the farm	36.84		√	Near to 22%
10. Use of disinfectant / insecticides / fumigation on the premises	31.58		√	Near to 90%
Practice: Bio clean plus, Timson				
11. Pest control programs	15.79	√		
If Yes i) Monthly				
12. Source of water using for birds				
i) Pond water	0.00	√		
ii) Supply water	21.05	√		
iii) Deep tube well water	78.95		√	Near to 95%
13. Record keeping in the farm	42.11	√		
Type of record				
i) Number of birds on the farm	100.00	√		
ii) Changes to feeding	0.00	√		
iii) Health regimes	0.00	√		

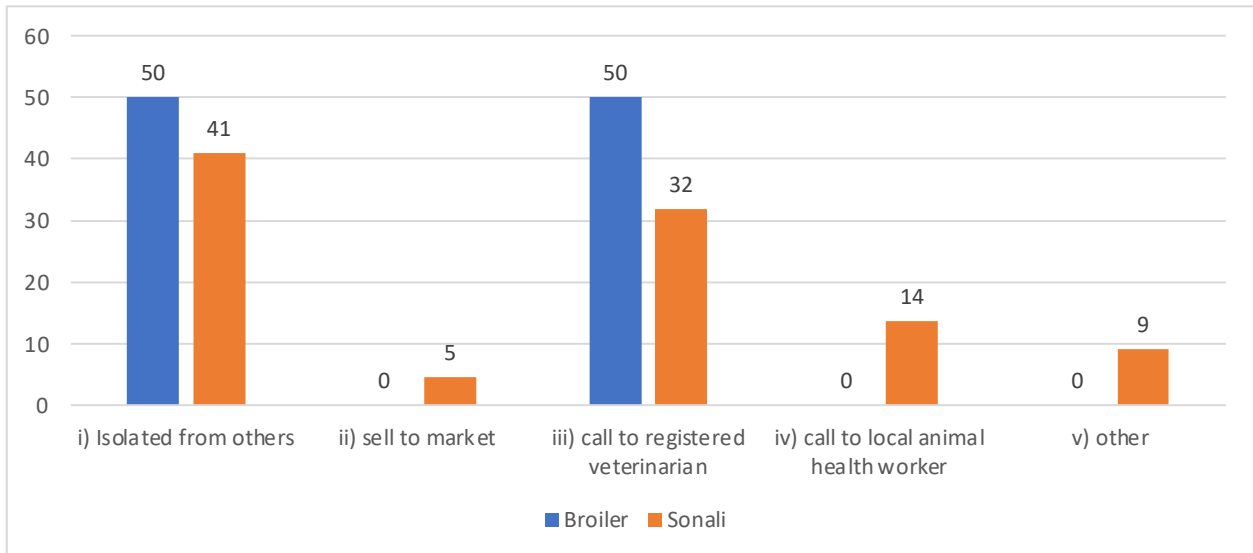
iv) Origin and use of feeds	0.00	√		
v) Drugs	0.00		√	Near to 10%
vi) Vaccines	100.00	√		
vii) Disinfectants	0.00	√		
14. Call person when bird becomes sick				
i. VS from ULO Office	36.84		√	Near to 25%
ii. Veterinary Assistant from ULO Office	0.00	√		
iii. Any Person from Local Pharmacy of feed seller Shop	42.11		√	Near to 55%
iv. Local Quack	10	√		
v. Registered Veterinarian	26.32	√		
vi. Other (self/commercial shop)	10.53	√		
If Others, Specify				
15. Steps taken to restore the health of sick/ injured birds.				
i) Isolated from others	47.37		√	Near to 25%
ii) Sell to market	5.26		√	Near to 15%
iii) call to registered veterinarian	36.84		√	Near to 50%
iv) call to local animal health worker	15.79	√		
v) others	10.53	√		See to other farm and own experiences
16. Maintain a vaccination schedule	78.95		√	Near to 95 %
17. Type of vaccines used to the birds BCRDV, RDV, Marek's Gumboro etc				
18. Use anthelmintic on your farm birds	68.42	√		
19. Maintain records of any treatments/ vaccinations?	26.32	√		
20. Advise NOT to sell a bird/egg produced during and after treatment with certain medicines	21.05	√		
If Yes, Type of advice was given, and comply those				
Vaccinated birds not to sell, Not sell when treatment is given				
21. Storage facilities to keep medicines and vaccines in good condition	36.84	√		Keep only vaccine
Available existed facilities to keep medicines and vaccines in good condition				
Refrigerator, Almira				

22. Dispose of used syringes/needles, a vial of the bottle, rest of the drug/ vet medicine				
i) Burnt	100.00		√	Near to 95%
ii) Bury	0.00		√	Near to 20%
iii) Throughout to pit/drain/pond	52.63		√	Near to 80%
23. Feed home-produced feed ingredients to the birds	26.32		√	10% due to shortage of raw materials
24. Used manufactured feed to the birds	0.00		√	Near to 80%
Records for purchases any feed ingredient	0.00	√		
25. Use of feed additive in the feed	0.00	√		
26. Use any growth promoter in the feed (growth promoter)	0.00	√		
27. Feed for Laboratory test for chemical/pesticide/chemical/pesticide/another contaminant.	0.00	√		
28. Properly labelled of feed package for selling feed mix, considering common name of the feed ingredient, chemical composition, the name and address of the company who manufactured, Production date, expire date, and a lot code or other unique identifier to trace the feed.	47.37	√		
29. Safe water supply	52.63	√		
30. Water tested for quality / safety	26.32		√	Below 5%
31. Clean watering and feeding appliances on a regular basis	52.63	√		
Method of cleaning <ul style="list-style-type: none"> • Water trough, Weekly with disinfectant, • Daily with Disinfectant, • Clean by water & dry it Sun 				
32. Received any training?	63.16		√	Near to 15%
If yes, what subjects----- Feeding, biosecurity, vaccination				
33. Manure heap well separated from the clean areas where animals are kept and feed is stored?	42.11	√		
1. Distance of waste pit from the farm (Meter) 100 to 1000	5	√		5% within 100%

Table-6 shows a low level of compliance separate animal houses (32%) with just 16% with sufficient space for birds. Approximately 20% of sheds are not adequately ventilated. A total of 36% of farmers do not implement preventive measures such as biosecurity measures; foot bath, gate, and fencing to restrict entry to the farm property. More than 50% of the farm do not keep

records such as number of birds, changes to feeding, origin, use of feeds, health regimes. Only 19% of farmers are advised not to sell birds during and after treatment with certain medicines. Maintenance of animal remedy records are mixed with vaccination schedule (79%), anthelmintic use (32%), and record-keeping at 74%. There is no reported use of feed additives or growth promoters in feed but testing of prepared feed is not undertaken at laboratories to identify chemicals, pesticides or other contaminants. More than 50 % of farm manure is not separated from the clean areas where birds are kept and feed is stored.

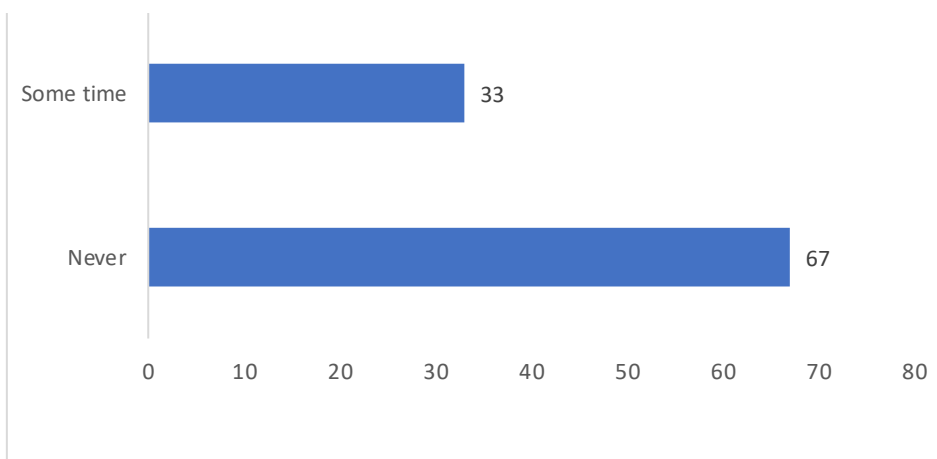
STEPS TAKEN TO RESTORE THE HEALTH OF SICK BIRDS



From the above graph, we can see that in the case of Broiler and Sonali chickens, several steps were taken to restore the health of sick birds; however, both farms followed i) Isolating from others and ii) calling registered veterinarians, but in the case of broiler farming, iii) selling to the market iv) calling to local animal health workers v) others steps were not observed.

Certificate of suitability for the slaughter of animals or poultry as per Schedule 7 [Rule 5 (3) and 10 (4)] under the Animal Slaughter and Meat Quality Control Act, 2011 and the Animal Slaughter and Meat Quality Control Rules, 2021.

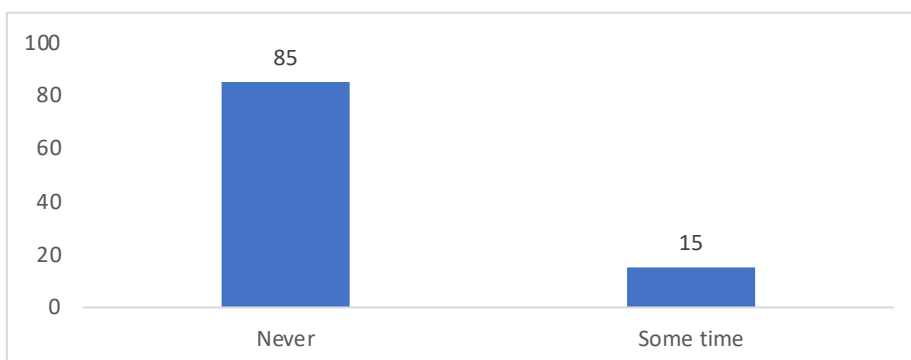
Do you get a certificate from a registered veterinary doctor before slaughtering the animal?



The above graph illustrates compliance with the provisions of the Animal Slaughter and Meat Quality Control Act, 2011 and the Animal Slaughter and Meat Quality Control Rules, 2021. It shows that sixty seven (67%) percent of butcher shops do not get a certificate from a registered veterinary doctor before slaughtering the animal.

Based on this act and rules, need to know diseases prevalence record for 30 days (thirty) before in farm area; cattle brought for slaughter.

Are any health records available from the source of animals/birds being presented for slaughter?



The legislative requirements are for the disease status for the previous 30 days in the farm area from where animal / birds are brought for slaughter is known according to the Animal Slaughter and Meat Quality Control Act, 2011 and the Animal Slaughter and Meat Quality Control Rules, 2021. However the above graph illustrates that eighty-five (85%) percent of live bird shops never comply with this provision of the act. In case of cattle, there was no evidence of this being applied.

Table-7: Food safety practices of Live bird market

After analysis all of the data, a stakeholder meeting was organized with concerned experts and related entrepreneur's/farmers to validate the information. The analyzed data on food safety practices are represented in tabular form as below:

Information collected from location: Dhaka, Gazipur, Narayanganj and Chottogram

Attributes	Kobo toolbox Observations (% of practice)	Stakeholders meeting observation		
		Agree	Disagreed	Remarks
1. Who provides licensing for meat shops/ butcher shops for poultry meat? (Tick please) In case of Village shop/local Hat (weekly bazar) If Others, (Name please)				For Q1-Q5: Meat shopper/ butchery for poultry meat do not get registration from anywhere, however, they get trade licence from Pauroshova/Union Parishad. Sanitary Inspector from Upazilla Health Office visit some time to the meat shop.
2. In case of Upazilla central market i) Upazilla Livestock Office ii) Government Upazilla Office iii) Upazilla Health Office iv) Other (Name please) If Others, (Name please)				
3. In case of the District level market (Municipal) i) Upazilla Livestock Office ii) Government Upazilla Office iii) Upazilla Health Office				
4. In case of the District level market (Municipal)/ Other (Name please) If Others, (Name please)				
5. In case of level (City Corporation) i) Upazilla Livestock Office ii) Government Upazilla Office iii) Upazilla Health Office				
6. Please mention below a description of the type of shop for Live bird/butchery (Please tick)				
i) Permanent stall with walls	40	√		
ii) No walls	40	√		
iii) Temporary wall	20	√		
7. Electricity facility in the Stall	100	√		
8. Refrigeration facility in the Stall	5		√	
9. Locked facility in the Stall	35	√		
10. Stall has piped water (hot and cool water facility)-	30	√		
11. Stall has piped water with normal water facility	85	√		
12. Stall with drainage facility	65	√		
13. Well-functioning effluent treatment plant (ETP) facility available at the slaughter premises?	25		√	No such facilities, Hot water facilities.

14. As per Schedule 6[3] under the Animal Slaughter and Meat Quality Control Act, 2011 and the Animal Slaughter and Meat Quality Control Rules, 2021; Slaughterhouses for slaughtering birds should have at least 3 (three) chambers. Slaughter in the first chamber, skin or feather removal in the second chamber and after removal of viscera from the third chamber, it should be cleaned and washed by clean water and handed over to the customer. Number of chambers in the slaughterhouses for slaughtering birds				
i) One chamber	35		√	Near to 40%
ii) Two chambers	35		√	Near to 5%
iii) Three chambers	30		√	Near to 10%
15. What type of infrastructures have followed in your slaughterhouse?				
i) Only one chamber followed all activities i.e., slaughter, remove of skin or feather, remove of viscera, and handover dress meat to customer.	35		√	Near to 40%
ii) Only two chambers followed all activities i.e., slaughter, remove of skin or feather, remove of viscera, and handover dress meat to customers	35		√	Near to 5%
iii) Followed separate chambers for worked separately.	30		√	Near to 10%
Healthy of Workers				
16. All slaughter facility workers/visitors hold a medical certificate that confirms that they are not suffering from any illness that can be transmitted to humans (Tb, Salmonella/ Guardia etc.)	0	√		Treatment if feel sick
17. Facility to allow slaughter facility workers/visitors to prepare themselves before entering the facility – (change clothes, put on clean overalls, wash hands with disinfectant	25	√		
18. Slaughter facility workers obliged to make a signed health declaration on weekly basis	5	√		
19. Facility of water bath with disinfectant added at the only entrance into the slaughter facility?	15	√		
20. Concentration of the disinfectant being tested on a regular basis	0	√		

21. Records to prove that the above precautions are being maintained	5	√		
22. Cleaning time of slaughter shop				
i) Early Morning before starting selling meat	5		√	Sweeping is done every morning 100%
ii) At the Noon during selling/ trading	0		√	Keeping clean 100% shopper, whatever it is not up to mark.
iii) After noon before closing shop.	65		√	More than 80%
iv) Following all times	35	√		
23. Workers of slaughter house wear aprons and masks during working in the shop	15		√	Near to 30%
24. Follow the regular health check-up of employee	10		√	it is below 1%, but treatment of employee is followed, if sick.
Cleanliness of surrounding areas				
25. In unclean areas, meat could spoil and be negatively affected by dirt, dust, and flies at the point of sale. The area surrounding of slaughter facility buildings immediately in clean and tidy condition	45	√		
26. The doors and windows into the slaughter facility have a mesh covering to prevent birds and insects from entering the facility where meat is prepared	25		√	Such facilities not exist in any shop
27. Having evidence of vermin control being used at the facility	0		√	Near to 5%
28. After slaughtering the bird, dress meat keeps for a long time in the plastic packages to hand over to customers that could lead to spoiling	0	√		
29. Having a suitable place where birds for sale and/or slaughter are kept in clean and comfortable conditions	60		√	Near to 80%
30. Duration of keeping birds waiting for slaughter/sale (Hours)				
i. 0.5-1.00 hour	25		√	
ii. 10.0-12.0 hours	25		√	70 % bird sell within 12 hours
iii. 24-48 hours	35			
iv. 48-72 hours	15			
31. Provide any feed during keeping live birds in the shop	100	√		

Provide any antibiotic in the concentrate mix feed during keeping life birds in the shop				
i. Never	80		√	Near to 90%
ii. Some time	15		√	Near to 10%
iii. Yes	5		√	Nobody uses
32. Certificate of suitability for the slaughter of animals or poultry as per Schedule 7 [Rule 5 (3) and 10 (4)] under the Animal Slaughter and Meat Quality Control Act, 2011 and the Animal Slaughter and Meat Quality Control Rules, 2021. Getting certificate from a registered veterinary doctor before slaughtering the birds				
i. Some time	20		√	0%
ii. Never	80		√	100%
33. Solid waste & inedible meat which have no economic or commercial value. Arrangements should be made for safe storage in a separate room/ shed that removes within 6 (six) hours of slaughter. Dispose of solid or liquid waste from your premises				Not react about the percentage but discussion finding was same
i) Keeping solid or liquid waste in the same place of slaughtering and removing those in a suitable time.	60			
ii) Keeping solid or liquid waste in a near pond/municipalities drain.	25			
iii) Others (if other please write)	15			
if other please write Keeping in a dram, then at noon municipalities vehicle come and take the wastage away, They use the waste as fish feed in their pond. Keep this waste in a waste dram, after that the authority of city corporation take these away twice daily				
Based on this act and rules (3 kha), need to know diseases prevalence record for 30 days (thirty) before in farm area; cattle/ birds brought for slaughter. Having health records available from the source of animals/birds presented for slaughter:				
i. Some time	15		√	
ii. Never	85		√	100%
34. Slaughter birds on front other live bird	60		√	Near to 90%

35. Inspector inspected and certified the meat you are selling as being fit for human consumption	5		√	0%, not followed at all.
36. Any other inspector for checking the hygienic status of the premises	15	√		
37. Record keeping of such inspections and the results of previous inspections	5		√	0% ,not followed at all
38. Records keeping of such certificates being given previously	0	√		
39. Animal Welfare Act 2019 refers to the standards of the World Organisation of Animal Health (OIE) in identifying the humane ways in which a diseased animal may be put to rest. What are you doing when your bird feels sick				
i) The diseased animal should be put to rest	20		√	Nobody follow 0%
ii) Inform veterinarian	0			
iii) Not inform veterinarian	20			
iv) Isolate and treatment of the animal	25		√	Nobody follows 0%
v) Not isolate but treatment to the animal	5			
vi) Slaughtered animal	70			Near to 90%
vii) Other	0			
40. Managed for waste in the shop/yard i.e., blood, intestine, offal's				More than 50% solid waste use it for fish feed
i) Through near pond	30		√	No body do this
ii) Drained to waste pit	15			
iii) Wash and drained away	10		√	Liquid waste near to 90%
iv) Collect and sell	10	√		
41. Number of birds slaughter in a day				
i. 30-50 birds slaughter in a day	25		√	Near to 35%
ii. 51-100 birds slaughter in a day	30		√	Near to 30%
iii. 101-150 birds slaughter in a day	10		√	Near to 25%
iv. More than 150 birds slaughter in a day	25		√	Near to 10%
Transporters				
42. License or registration to transport live animals	0	√		Such system/practice not yet develop
43. Maintain any records of the animals that transport	0	√		Such system/practice not yet develop

44. Inspector visit to check whether vehicle and document/record keeping meets the required standards	0	√		Such system/practice not yet develop
45. Wash vehicles with clean water and disinfectant before and after carrying live animals [Animal Slaughter and Meat Quality Control Rules, 2021: 18, 2(1)]	35		√	Near to 30%
46. Vehicle comply the regulations (full names, addresses, and telephone numbers of farm owners who bring birds/animals; either those are vaccinated/ or diseased)				Such practice not yet develop, however some transporters from company bring such information.
i. Yes	25	√		
ii. Not always	35	√		
iii. Never	40	√		
47. Purchased live birds from a farm where GAHP is followed	65		√	
48. Available contact name and telephone number of the person (i.e the OWNER of the birds or product) who takes full responsibility	40		√	Less than 5%
49. Training received on hygiene & food safety issues for carrying animals or working in butchery	35		√	No formal training provided (0%); however sporadically few training offered.

Table -7 illustrates the food safety practices in Live bird markets. Meat shops and local butcheries for poultry meat are unregistered with authorities except for trade licenses issued from City Corporations / Municipalities / Union Parishad. A Sanitary Inspector from the Upazila Health Office visits meat shops occasionally. Compliance with the Animal Slaughter and Meat Quality Control Act, 2011, and the Animal Slaughter and Meat Quality Control Rules is poor for slaughtering birds in the poultry butchery in the live bird market.

Table-8: Food safety practices of further processor

Following analysis of the data, a stakeholder meeting was organized with concerned experts and food business operators to validate the information. The resultant data on food safety practices are represented below:

Information collected from location: Dhaka and Gazipu

Attributes	Kobo toolbox Observations (% of practice)	Stakeholders meeting observation		
		Agree	Disagree	Remarks
1. All workers had a medical certificate that confirms that they are not suffering from any illness that can be transmitted to humans?	40	√		Routine medical checkup in place on an average 50% agro processing facilities

Attributes	Kobo toolbox Observations (% of practice)	Stakeholders meeting observation		
		Agree	Disagree	Remarks
2. Facility to allow workers to prepare themselves before entering the processing unit – (change clothes, put on clean overall, wash hands with disinfectant)	100	√		Hand washing along with Personal Protective Equipment (Caps, Apron, Mask, shoe cover, gam boot, arm cover), foot bath used before entering processing room. All Jewellery and casual dress removed before entering into ...
3. Workers of the processing unit obliged to make a signed health declaration	0	√		Quality Assurance department decaled the employed as fit for health based on some enlisted health exams
4. Water bath/ water shower with disinfectant added at the only entrance into the processing unit	40		√	Water shower is not in practice at the agro-processing facilities. Regularly briefed to the employed during assembly about the personal hygiene. Air shower in place
5. Workers having wear an apron, mask, and hand glove during working in the unit	100	√		It is in regular practice
6. Recruited healthy workers based on medical reports	66.67		√	It is not in practice to show/ place health certificate during recruitment
7. Regular health check-ups of employee	46.67	√		It is not in place except few external symptoms
8. Receive frozen process birds for the further process	26.67	√		Frozen chicken and chilled both received into further processing

Attributes	Kobo toolbox Observations (% of practice)	Stakeholders meeting observation		
		Agree	Disagree	Remarks
9. Collection of birds from well-known source, where Good Animal Husbandry Practice (GAHP) and Good Hygiene Practice (GHP) and GMP are followed	100.00	√		GAHP, GHP and GMP practice are in place because it is mandatory to obtain ISO certificate.
10. Separate unit for slaughtering bird in the processing unit	60.00	√		Generally, slaughter house and further processing unit are located in a distance place
11. After slaughtering bird, dress meat keeping in a refrigerator/ chilling room for further processing	53.33	√		Chiller and refrigerator both are in practiced but it depends on further finish product
12. Having the doors and windows into the processing unit have a mesh covering to prevent birds and insects from entering the facility where meat is prepared	66.67	√		All doors and windows are well protected with air cutter
13. Any measure for vermin control	33.33	√		Pest controlled by chemical means and hand-made trapped
14. Do you consider diseases prevalence record for 30 days before in farm area for slaughtering birds	20.00	√		Regular disease monitoring/ farm management system in places as all farms are under the ownership of the further processor (100%)
15. Inspector inspected and certified the meat products which are selling as being fit for human consumption	6.67	√		Third party audit done by ISO periodically
16. Inspector visited for checking the hygienic status of the premises	13.33	√		DLS and consumer right, environment authority periodically visited the hygienic status
17. Having records of such inspections and the results of previous inspections	6.67	√		All records and observations are kept for the improvement and follow up of the further processing

Attributes	Kobo toolbox Observations (% of practice)	Stakeholders meeting observation		
		Agree	Disagree	Remarks
18. Having any records of such certificates being given previously	6.67		√	Certificate are provided by Islamic foundation, SGS, ISO,
19. How are you managed for waste in your processing plant i.e., blood, intestine, offal's		√		ETP is in place and every 3 months interval proficiency test/ effectiveness are done. Blood, intestine and offal's are not come in further processing.
i. Through it (blood)	20.00	√		
ii. Drained to waste pit	75.00	√		
iii. Wash and drained away	13.33		√	
iv. Burning and rendering		√		
iv. Collect and sell	6.67			
20. Follow meat quality test after prepared products by any authority	6.67	√		Microbiological examination was done in compliance with FDA/ BRC (British Retail Consortium) protocol as an internal regular process
21. Well-functioning effluent treatment plant (ETP) facility available at the processing premises?	40.00		√	It is fully operationalized (100%)
22. Food package labelled for selling products, considering the common name of the ingredients, chemical composition, the name and address of the company that manufactured it, Production date, expire date, and a lot of code or other unique identifiers to trace the product				BFSA and BSTI labelling and packaging guideline are followed
Not all issues	60.00		√	
Few of them	40.00	√		

Attributes	Kobo toolbox Observations (% of practice)	Stakeholders meeting observation		
		Agree	Disagree	Remarks
23. The vehicle compliant with regulations (license, labeled correctly, full names, addresses, and telephone numbers of farm owner bring birds; either those are vaccinated/ or diseased)?	60.00	√		ISO guideline is followed for cold chain and hygienic measures
24. Transporter/worker either received any training on hygiene & food safety issues for carrying birds; as well as further meat processing	50.00	√		GMP training are in regular at monthly basis by the QA personnel.
Hygiene for Dry Stores				
25. All food stored off the floor-on shelves, racks, or platforms	100.00		√	20-25%; Well-maintained as per ISO/ BSTI guidelines
26. The floor is clean and free from spilled food	90.00	√		Fully cleaned. Regularly cleaned the floor by the dedicated staffs when and where necessary followed by QA guidelines
27. Labelled of shelves	100.00	√		Well maintained
28. Goods covered of package	90.00		√	40-45%; Well packaged
Hygiene for Freezer Storage Checklist				
29. Freezer storage units operate properly	93.33	√		Control panel in place to observe the cooling system
30. All boxes or cabinets having an accurate thermometer	100.00		√	Thermometer is palace in all boxes or cabinets
31. Freezer storage units maintaining an interior temperature of 0 degree Centigrade or lower	100.00		√	Chilled at 0-4°C, and deep freezer at -18 to -20 °C
Hygiene for Refrigerator Storage				
32. Provide for adequate air circulation to shelves spaced where food stored	100.00	√		
33. Paned raw or cooked foods, on shelves, and covered in containers to prevent contamination	100.00	√		Well maintained to prevent cross-contamination

Attributes	Kobo toolbox Observations (% of practice)	Stakeholders meeting observation		
		Agree	Disagree	Remarks
34. Clean refrigerators and free from mold and objectionable odors	90.00	√		Refrigerator are cleaned regularly as per QA protocol
Hygiene for Storage Rooms for Supplies and Equipment				
35. Storage facilities for supplies and types of equipment clean, dry and free of trash and debris	90.91	√		Regularly maintained and well cleaned.
36. Storage facilities free of empty cartons and wrapping which might provide nesting for cockroaches?	60.00		√	40%; Carton are stored in a separate place and pest control is well maintained
37. Evidence of rodents or insects	30.00	√		It is well recoded/ checked
38. Store ingredients separately	60.00		√	40%; Well managed
39. Store chemicals separately	80.00		√	20%; Well managed

Table 8 provides an overview of the food safety practices in further processing companies. Only 40% workers had a medical certificate that confirms that they were not suffering from any illness that could be transmitted to humans. Hand washing along with Personal Protective Equipment (Caps, Apron, Mask, shoe cover, gam boot, arm cover), and foot baths is practiced before entering processing areas. Jewellery and other loose items are removed before entering facilities. Workers of the processing unit are not obliged to make a health declaration. All of the companies complied with the standard requirements in the collection of birds from a well-known source, where GAHP, GHP and GMP were followed which is a requirement for ISO certification. Inspectors check and certify meat products intended for sale as being fit for human consumption. In addition, third-party ISO audits are carried out periodically. All processing companies operate freezer storage units maintaining an interior temperature of 0 degree centigrade or lower. However, several practices still need to be improved in both processing unit as well as outlets.

Milk value chain

Dairy farmers (including both cattle and buffalo), Chilling centres, Milk collectors (Goyala, milking man) and sweetmeat shops were interviewed by experienced enumerators working as Livestock Extension Officers (LEO) under the Livestock and Dairy Project (LDDP) using the mobile application “Kobo tool box”. The output of “Kobo tool box” was downloaded and analyzed.

Table-9: Food safety practices of dairy cattle farmers

After analysis all of the data, a stakeholder meeting was organized with concerned experts and related food business operators to validate the information. The data on food safety practices are represented below:

Information collection from the location: Dinajpur, Rangpur, Sirajgonj, Satkhira and Chottogram.				
Attributes	Kobo toolbox Observations (% of practice)	Stakeholders meeting observation		
		Agree	Disagree	Remarks
1. Registered with DLS	24	√		
2. Separate dedicated house for the animal	76	-	√	100
3. sufficient space to allow animals to move around freely inside the house	76	√		
4. Floor type				
i) RCC	44		√	100 % for commercial
ii) Brick	72			For household / family farming
iii) Muddy	4	√		Extensive system in Shahjadpur
5. Adequately ventilated	87.5		√	Most of them partially ventilated
6. Separate areas for animals of each different age of production	40	√		
7. Measures to prevent the entry of any disease into the farm (e.g., biosecurity measures; foot bath, gate, fencing, etc.)				
Fencing, Gate	32	√		
Foot bath, Gate	20		√	5%
Gate	12		√	6%
No preventive measure	20	√		100% in case of commercial farm
Wall protected area, Biosecurity, Gate	16	√		
9. Separate place to isolate a sick animal on the farm	64	√		
10. Use disinfectant / insecticides / fumigation on the farm premises	76	√		
Type of practice				
11. Pest control programs	28	√		Follow it regularly
12. Source of water using for animal farm				
i) Pond water	0	√		
ii) supply water	0		√	20%
iii) deep tube well water	88	√		
13. Records keeping relating to the animal farm	32	√		
(i) Number of animals on the farm	0		√	100%
ii) changes to feeding	28	√		
iii) health regimes	4	√		

iv) origin and use of feeds	0	√		
v) drugs	12	√		
vi) vaccines	12	√		
vii) disinfectants	24	√		
14. Call person when animal becomes sick				Farmer depends on nature of disease in case treatment of animal, firstly they seek the support from available person who can provide advice.
i) VS from ULO Office	36	√		
ii) Veterinary Assistant from ULO Office	32	√		
iii) Any Person from Local Pharmacy of feed seller Shop	0	√		
iv) Local Quack	80	√		
v) Registered Veterinarian	48	√		
vi) Other	12	√		
15. Steps to be taken to restore health of sick / injured animal				
i) Isolated from others	32	√		
ii) sell to market	5			
iii) call to registered veterinarian	19	√		
iv) call to local animal health worker	43	√		
16. Maintain a vaccination schedule	96	√		
17. Use anthelmintic on farm	96	√		
18. Maintain records keeping treatments/ vaccinations	36	√		
19. Advise NOT to sell milk produced during and after treatment with certain medicines	36		√	No body provide such type of advice
Type of advice was given, and comply <ul style="list-style-type: none"> • Withdrawal period maintain, don't sell after giving Steroid, drug etc; • It is harmful for human body and cause many diseases • Should maintain withdrawal period of medicine but some time unable to comply it; It is harmful for human and child 				
20. Storage facilities to keep medicines and vaccines in good condition	29.16	√		Lack of fully awareness about cool chain i.e., Freezer

If Yes, please explain what facilities exist----- Freeze facility, Shaded and cool place. Freeze facility for vaccines; Clean & room temperature maintain place, Freeze store facility				
21. Dispose of used syringes/needles, a vial of the bottle, rest of the drug/ vet medicine				
i)Burn	20	√		
ii)Bury	0	√		
iii) Throughout to pit/drain/pond	80	√		
22. Do you feed your animals with home-produced feed ingredients	32	√		
Steps taken to ensure such feed ingredients are safe <ul style="list-style-type: none"> • Wheat bran, Rice polish, Soyabean meal etc., Feed ingredients are dried in the sun then feed to the animals, • Feed ingredients are dried in the sun then feed to the animals, • Feed kept in the high places and washing hand before feeding animals, • Try to Keep fungus free; 				Do not store for long term
23. Provide manufactured feed	68	√		
Records keeping of the purchased feed	56	√		
24. Purchase feed ingredients and mix own rations for animals	36	√		
Maintain records of purchases of feed ingredient	64	√		
24. Use of feed additive	44			
Additives used in feed on the farm Nutritional additives: Zinc care, Calcium, Availa four, Vitamin mineral premix, Vitamin mineral premix, prebiotics, probiotics etc, Company feed contain feed additives vitamin and mineral.	80	√		
Advice to use: Learn in training program, Livestock service provide, Doctor advise, Local animal health worker, Local quck, Own decision				
25. Use of growth promoter in the feed (growth promoter/hormone/ steroid)	11.53	√		
permission/advice to use this/these growth promoters VS, Hormone for reproductive treatment purpose				

26. laboratory test for livestock feed (chemical/pesticide/ other contaminant)	0	√		
27. Properly labelled of feed package for selling feed mix, considering common name of the feed ingredient, chemical composition, the name and address of the company who manufactured, Production date, Expire date, and a lot code or other unique identifier to trace the feed.				
i. Yes	32			
ii. Not all issues	64			
28. Safe water supply	20			
29. Water tested for quality / safety	100			Commercial farm only 100%
30. Clean watering and feeding appliances on a regular basis	96			
Method uses for cleaning watering and feeding appliances <ul style="list-style-type: none"> • Use supply water and brush with detergent powder • Brush to clean watering and feeding appliance 				
31. Sufficient water supply to wash the milking platform area each day before milking	96	√		
32. Provide feed/water just after milking	88	√		
33. Precautions to be taken before milking to ensure that the safe and clean milk				Considering weight of this question 100
i) Only Washing and cleaning milking utensils	3			
ii) Only Washing udder with clean water (before and after milking) (For dairy farm only).	35			
iii) Only Washing hands of milkman before milking of every cattle (For dairy farm only)	32			
iv) All of above	30			
34. Training received	76	√		
Subjects covered <ul style="list-style-type: none"> • Vaccination, Deworming, UMS, Feeding management • Farmer's training on dairy and beef cattle deworming • Awareness campaigning programme on Biosecurity. • Management of mastitis, reproductive and metabolic diseases • Beef fattening 				

35. Manure heap well separated from the clean areas where animals are kept and feed is stored	76	√		
36. Distance waste pit from farm (Meter)				
i. within 5 meters	4	√		
ii. 6-10 meter	16	√		
iii. within 11- 20 meter	20	√		
iv. 21-50 meter	40	√		
v. More than 50 meters	16	√		

Table-10: Food safety practices of dairy buffalo farmers

After analysis the data, a stakeholder meeting was organized with concern experts and food business operators to validate the information. The analyzed data on food safety practices are set out below:

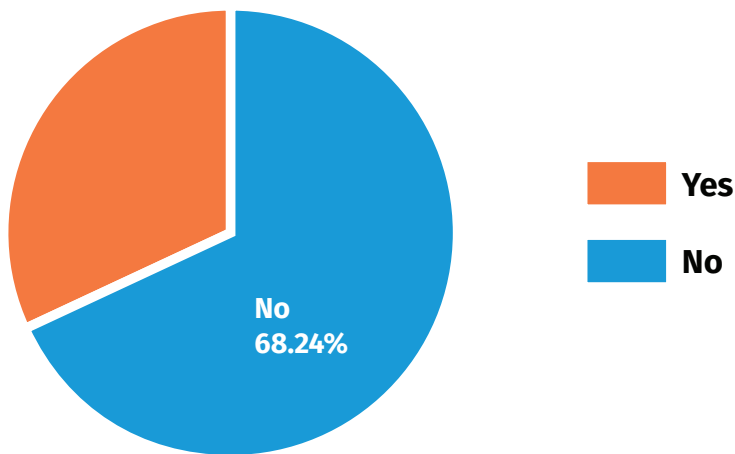
Information collection from the Location: Bhola, Noakhali, Mymensingh				
Attributes	Kobo toolbox Observations (% of practice)	Stakeholders meeting observation		
		Agree	Disagree	Remarks
1. Registered farm with DLS or not	0.00	√		
2. Separate dedicated house	0.00	√		
3. sufficient space to allow animals to move around freely inside the house	0.00	√		
4. Mention floor type (Please tick)				
i) RCC	0.00	√		
ii) Brick	0.00	√		
iii) Muddy	0.00	√		
5. Adequate ventilation	100	√		
6. Separate areas for animals of each different age/species/stage of production	0.00	√		
7. Measures to prevent the entry of any disease into the farm (e.g. biosecurity measures; foot bath, gate, fencing, etc.) Biosecurity measures, gate	46.67	√		
Gate and fencing	40.00		√	it is below 1%
10. Use disinfectant / insecticides on the premises	0.00	√		
11. Having pest control programs	0.00	√		
12. Source of water using for animal				
i) Pond water	60.00	√		

ii) Supply water	6.67			In case of commercial farming
iii) Deep tube well water	40.00	√		
13. Record keeping relating to the animal farm				
(i) Number of animals on the farm	0.00	√		
ii) changes to feeding	0.00	√		
iii) health regimes	0.00	√		
iv) origin and use of feeds	0.00	√		
v) drugs	0.00	√		
vi) vaccines	0.00	√		
vii) disinfectants	0.00	√		
14. Call person when animal becomes sick				
i) VS from ULO Office	60.00	√		
ii) Veterinary Assistant from ULO Office	40.00	√		
iii) Any Person from Local Pharmacy of feed seller Shop	0.00	√		
iv) Local Quack	86.67	√		
v) Registered Veterinarian	93.33	√		
15. steps to be taken to restore the health of sick / injured animal				
i) Isolated from others	13	√		
ii) sell to market	28	√		
iii) call to registered veterinarian	37	√		
iv) call to local animal health worker	22	√		
v) others	0	√		
16. Maintain a vaccination schedule	73.33	√		
17. Name of the vaccines using on buffaloes				
FMD, HS, and Anthrax		√		
18. Use of anthelmintic	93.33	√		
19. Maintain records of any treatments/ vaccinations	6.67	√		
20. Advise NOT to sell an animal during and after treatment with certain medicines	13.33	√		
21. Storage facilities to keep medicines and vaccines in good condition	33.33	√		
existing facilities exist: At home, Store room, fridge		√		
22. Dispose of used syringes/needles, a vial of the bottle, rest of the drug/ vet medicine				
i) Burnt	6.67	√		

ii) Bury	13.33	√		
iii) Throughout to pit/drain/pond	80.00	√		
23. Provide feed with home-produced feed ingredients	33.33		√	It may less than 20%
24. Provide manufactured feed	13.33		√	less than 5%
Record keeping of the purchased feed	13.33	√		
25. Purchase feed ingredients and mix own rations for animals	13.33	√		
Maintain records of purchases of feed ingredient	0.00	√		
26. Use of additive included	0.00	√		
Name of the additives used for animal farm:				
Advice to use				
27. Use growth promoter in the feed (growth promoter/hormone/ steroid)	0.00	√		
Advice to use growth promoter in the feed (growth promoter/hormone/ steroid)				
28. Feed Laboratory test for chemical/pesticide/ chemical/pesticide/ another contaminant	0.00	√		
If yes: How often?				
Record keeping of samples tested?				
29. Properly labelled of feed package for selling feed mix, considering common name of the feed ingredient, chemical composition, the name and address of the company who manufactured, Production date, expire date, and a lot code or other unique identifier to trace the feed.				
i. Yes	6.67	√		
ii. Not at all	93.33	√		
30. Safe water	13.33	√		
31. water tasting for quality/safety	0.00	√		
32. Clean waterer and feeding appliances on a regular basis	86.67	√		
If yes, how often? What method do you use?				
33. sufficient water supply to wash the milking platform area each day before milking	86.67	√		
34. Provide feed/water just after milking	46.67	√		
35. Precautions to be taken before milking to ensure that the milk is clean and fresh				
i) Only Washing and cleaning milking utensils	33.33	√		
ii) Only Washing udder with clean water (before and after milking.	0.00	√		
iii) Only Washing hands of milkman before milking of every animal.	0.00	√		
iv) All of above	66.67	√		

36. Training received	40.00		√	Less than 20%
If yes, what subjects-----Buffalo management; Mastitis, reproductive disease, and metabolic disease				
37. Manure heap well separated from the clean areas where animals are kept and feed is stored	66.67			
38.Distance of waste pit from the farm (Meter)	0.00			
i. 10--20	33.33			
ii. 100-450	20.00	√		
iii. No waste pit	46.67			

Person advises farmer NOT to sell an animal or milk/eggs produced during and after treatment with certain medicines.



During the study period in selected areas, a total of 32% of farmers responded that they got advice NOT to sell an animal or milk/eggs produced during and after treatment with certain medicines.

Precautions to be taken before milking to ensure safe and clean milk

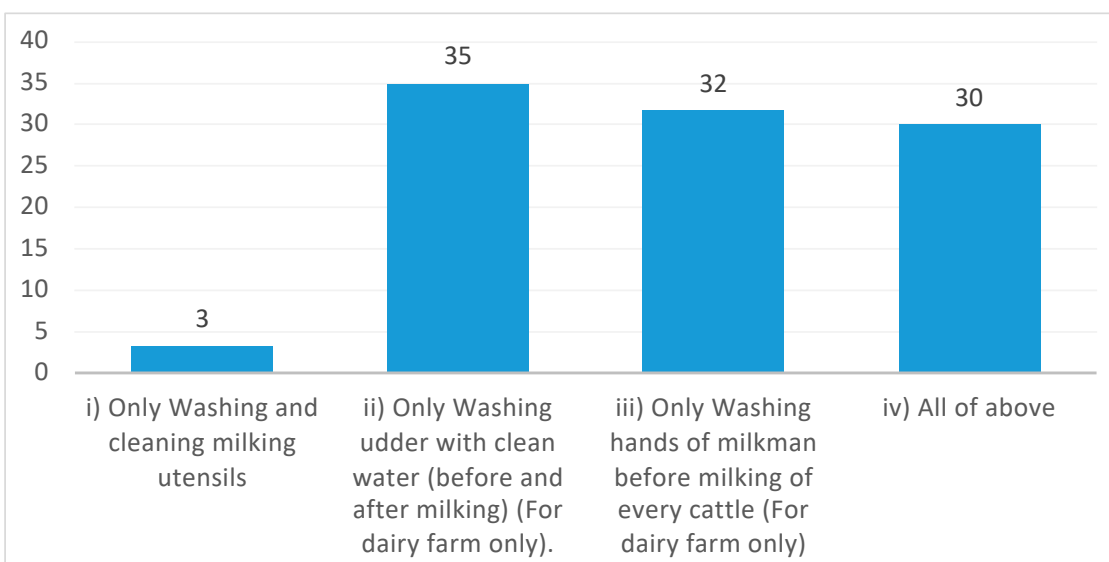


Table 11: Food safety practices of milk collector/Goyala

After analysis of the data, a stakeholder meeting was organized with concern experts and related entrepreneur's/farmers to validate the information. The analyzed data on food safety practices are represented in tabular form as below:

Information collection from the location: Sirajgonj and Satkhira

Attributes	Kobo toolbox Observations (% of practice)	Stakeholders meeting observation		
		Agree	Disagree	Remarks
1. Use any preservatives in raw milk during carrying milk	0		√	Sometime baking powder (Khabar Soda) use
2. What farmer do when a container of milk becomes spoiled before selling				
i) Separate cream from the spoiled milk	25	√		
ii) Throughout to drain	80	√		
3. Precautions taken before milking to ensure that the milk is going to be clean and safe for human consumption				
i) Cleaning milking parlor/platform before milking	-		√	50-60 Wash by antiseptic and clean water
ii) Washing udder with clean water (before and after milking)	50		√	60
iii) Washing and cleaning milking utensils using detergent / hot water	40		√	Wash by antiseptic and clean water
iv) Washing hand of milkman before milking of every cattle	20	√		
v) All above	50	√		
4. Having any cold chain facilities to keep the milk you are selling to retailers in good cool condition?	10	√		
5. Providing feed/water just after milking	80	√		
6. Required time for bringing raw milk from the farmer's home to the market/chilling plant for selling the milk (Hours) Mean 2.4 SD 1.42				

i) within 1 hour	50	√		
ii) within 3-4 hours	50	√		

Table-12: Food safety practices of milk chilling plant

After analysis of the data, a stakeholder meeting was organized with concern experts and food business operators to validate the information. The analyzed data on food safety practices are represented below:

Information collected from the Location: Dinajpur, Sirajgonj, Satkhira and Chottogram

Attributes	Kobo toolbox Observations (% of practice)	Stakeholders/ FGD Findings		
		Agree	Disagree	Remarks/ Comments
1. Do you have any license or permission for milk business operation/ to establish a milk chilling plant?	86.67	√		<ul style="list-style-type: none"> ✓ Civil surgeon-health certificate (1 y) and sanitary license (1yr), Environmental clearance certificate (1 y)- DOE, ✓ Industry license (1yr)- Department of inspection for factories and establishments, ✓ Fire safety license (1yr), ✓ Trade license (1 y) (Union perished), ✓ BSTI certificate for quality control (2 y) (If direct marketing)
2. Can you tell the name of the authority who issued the license/ permission? Please mention, <ul style="list-style-type: none"> • Civil surgeon office, Union parishad, Fire service license service • Department of inspection for factories and establishments, Ministry of Cooperative • Fire service, Department of inspection for factories and establishments, sanitary license • Trade licensee, Sanitary certificate, Environment certificate • Paurashava mayor, civil surgeon office • Health licensee, Industrial licensee, Chemical industry license • Sanitary license 				

3. What are the conditions comply with to get this license or permission from the competent authority?		√		<ul style="list-style-type: none"> ✓ Physical inspection, ✓ health inspector visit, ✓ Health certificate: 350 tk. ✓ Sanitary certificate: 1000 tk. ✓ Trade license: 550 tk ✓ Environment certificate: 1000 tk. ✓ Fire safety certificate: 750 tk. ✓ BSTI certificate: 1650 tk./product/ 2 yr.
4. Is there any regular inspection of your chilling plant by the competent authority? Who are the authority?		√		<ul style="list-style-type: none"> ✓ Sanitary inspector: Week/ bi-weekly, ✓ Civil surgeon: Occasionally/ Rare, ✓ Consumer right: Rare, ✓ Upazilla Administration: Rare ✓ Environment: Once/ twice in a year ✓ Dept. of Inspection and Factories: Once/ twice in a year
5. Do you have any previous inspection records?	40.00	√		<ul style="list-style-type: none"> ✓ No record keeping system of inspection, ✓ No letter of inspection/ observation is issued by the authority, ✓ Oral advice was given by the inspector during the time of inspection.
6. How long does it take to transport the raw milk from the collection point to the chilling plant?				
i. Maximum 20 minutes to 60 minutes (depends on distance)	100.00	√		Within half an hour at morning (8am-10am), evening (5pm-7pm)
ii. 1 hour to 4 hours	100.00			
iii. More than 4 hours				

7. Do you have hot water and disinfectant available to wash the vehicle and utensils used for collecting and storing milk?	100.00	√		<ul style="list-style-type: none"> ✓ Collecting can is cleaned by hot water and caustic soda & detergent at regularly. ✓ Chiller is washed by using brush, hot water, and detergent (Jet powder)
8. Do you use safe and hygienic water to chilling plant?	46.67	√		Arsenic and iron free certified by some NGOs,
9. How could you ensure the safety and purity of water?		√		Only arsenic and iron contamination is tested
10. Records of safety tests that have been conducted on the water supply which used	13.33	√		Only sticker is tagged by the testing authority
11. Washing and cleaning three-wheeled vans/milk pots regularly	93.33	√		<ul style="list-style-type: none"> ✓ Milk tanker is washed regularly with brush, detergent and caustic soda
12. Do you perform any spot test/ rapid test during collection of milk at collecting point?	0.00			N/A
13. What type of test are performed/ adopted during milk collection from the milk collection point (By Individual collectors)				<ul style="list-style-type: none"> ✓ Organoleptic (Taste, sour, color, alcohol test, ✓ SNF by lactometer, ✓ Minimum SNF at 20°C 27 CLR (Correct lactometer reading), and Fat test using Garber method,
14. What are the fate of spoiled milk during transportation or storage before chilling?				
Cream separation	6.67	√		It was sold by half of market price. Chilling point owner collect creams only
Through it to the ground	66.67	√		If more spoilage happens, then thrown into the water/ water
Add it to fresh milk	0.00	√		Not at all

15. What are the milk testing or laboratory facilities in the chilling plant?	100.00			
If yes, please mention name of the tests available.				
<ul style="list-style-type: none"> Formalin, Alcohol, Sugar, Fat, SNF Lactometer reading etc. 		√		Alcohol, Fat, SNF Lacto metre reading
<ul style="list-style-type: none"> Organoleptic test, sugar, glucose, adulteration, acid test, fat test 		√		Organoleptic test, Acid test,
<ul style="list-style-type: none"> Salt, coli form 		√		Salt test and sugar by orally only,
<ul style="list-style-type: none"> Soda test, Hydrogen peroxide test, Sugar test, Salt test, Urea test, Starch test, Acidity test, Color test, Flavors test, CLR test, sour test 		√		CLR and sour test
16. Do you have emergency backup of electricity supply at your chilling plant?	100.00	√		Generator (Auto generation)
17. Do you have any control over the source of the milk which collects from individual farmers?	93.33	√		Incentive support, deworming, vaccine, mask, personal protective, veterinary support, hygienic instruction, training organized by BLRI regional office,
18. Are GAHPs considered at the farm level when collecting milk for chilling?	33.33		√	Moderate GAHPs including poor biosecurity, deworming regularly, vaccination regularly, open grazing, poor housing and sanitation.
19. How have you determined?				
<ul style="list-style-type: none"> By farmer's training; By visiting farm; Follow Hygiene 				
20. Is there any waste disposal system in milk collection centre/ chilling point?	46.67	√		No proper waste management facility, sometimes it thrown it to the water

21. Is there any inspection in place to check the facility at collection/ chilling point?	53.33	√		
22. What are the fate of spoil milk and other waste in milk collection centre/ chilling facility?				
i. Drained to waste pit	80.00	√		
ii. Through anywhere	6.67	√		Thrown to the water
iii. Other, Please specify-----	13.33			
If Other, Please Specify It is rejected; They are not sending spoiling milk to the main plant.				
23. After chilling milk, it goes to the processing plant for pasteurized/ flavored/ UST milk. Time required of chilled milk for going to processing plant from chilling plant		√		
i. 1-4 hours	26.67	√		
ii. 5-8 hours	53.33	√		
iii. Above 8 hours	20.00			
24. Do you perform microbiological and chemical examination of milk at the processing plant?	86.67		No	
25. Does have available facility at chilling plant for waste treatment/ management?	6.67		No	
26. Do you think the waste water treatment plant works well?	6.67		No	
27. Do you preserve records of treated waste water that was done correctly?	6.67		No	
28. Is there any Effluent Treatment Plant (ETP) at the chilling plant?	0.00		No	
29. Does have cold chain facilities to carry the milk from collection point to chilling point?	100.00	√		Milk tanker with cold chain (3-4°C) that support up to 72 hrs of cooling of milk during transportation

30. Do you measure the temperature of the stored milk at the chilling point?	100.00	√		Temperature at was taken per hour
31. Do you have any record keeping system demonstrate that the milk kept at the correct temperature at the chilling point?	93.33		√	No record keeping system
32. Do you use cool van for carrying milk from chilling plant to retailer point?	100.00	√		Milk tanker in place
33. Milk package properly labelled for selling chilled milk, considering chemical composition, name and address of the company who manufactured it, production date, expiration date, and lot of code or other unique identifiers to trace the milk				
i. Yes	13.33	√		
ii. Not all issue	66.67	√		

Respondents were subsequently asked the following questions

What type of Support do you expect from DLS related to chilling plant operation?

Answer from respondents:

Technical training on milk chilling, butter preparation, milk tanker support, incentives, vaccination support and treatment support to the farm animals

Overall Comments about chilling plants:

- Milk from chilling plants is not selling to retailers directly.
- Chilling milk is sent to main processing plant.
- Several chilling centres are currently closed due to pandemic situation.
- There is no packaging or shipment in the chilling plant;
- They have cool chain facilities but they are not selling milk to the retailers.
- They collect the milk for chilling and transport to the main chilling centre at milk processing plant/main processing plants.
- Farmer's himself carry the milk to the chilling point;
-

Table 13: Food safety practices of sweet meat shop

After analysis of the data, a stakeholder meeting was organized with concern experts and related food business operators to validate the information. The analyzed data on food safety practices are represented below:

Information collection from the location: Dinajpur, Bhola, Sirajgonj and Noakhali

Attributes	Kobo toolbox Observations (% of practice)	Stakeholders meeting observation		
		Agree	Disagree	Remarks
1. Sweetmeat shop registered with any competent authority	80	√		
Name the authority: <ul style="list-style-type: none"> Trade license from union porisod Sanitary certificate from Civil surgeon office, BSTI 		√		
2. Considering separate dedicate space for manufacturing products and outlets	90	√		
3. Use of disinfectant for cleaning the premises of shop	85	√		
4. Source of water, using for cleaning utensil in the shop.		√		
i) Pond water	10	√		
ii) Supply water	30	√		
iii) Deep tube well water	60	√		
5. Having storage facilities to keep products in good condition	70	√		
Explain existing facilities:		√		
i) Fridge	64.28	√		
ii) Glass-enclosed area	35.71		√	80
6. Dispose of spoil milk / milk products or any food items		√		
i) Bury	25	√		
ii) drain	90	√		
iii) Pond	45	√		
Other (please specify): Return to the farmers	5			
7. Submitted samples of food products for laboratory tests for chemical/pesticide/ other contaminants	20	√		
If yes: How often		√		
i) Every load	75	-	√	Organoleptic test 100%
ii) Sometime	25	√		
8. Record keeping of tasted samples	20	√		

9. Food package properly labelled for selling products, considering common name of the feed ingredients, chemical composition, the name and address of the company who manufactured, Production date, expire date, and a lot code or other unique identifier to trace the feed.				
i) Few of them	55	√		
ii) Not At All	25	√		
iii) Yes	20	√		
10. Safe water supply	75	√		
11. Water teste for quality / safety	55	-	√	Not more than 15%
12. Cleaning watering and feeding appliances on a regular basis	100	√		
If yes, how often? What method do you use?				
i) Disinfectant and hot water method	10	√		
ii) Every time before using washed by detergent and clean water	90	√		
13. Precautions taken before receive milk to ensure that the milk you purchase is clean and fresh		√		
i) Received milk within 2-3 hours after milking	55	√		
iii) Received milk by any organoleptic taste	10	-	√	Received milk by organoleptic test 90%
iii) Received milk by any Chemical taste	0	√		
iv) Received milk from clean and washed utensil	70	√		
v) All of above	20	√		
14. Having cold chain facilities to keep the milk products that are selling to retailers is in good cool condition?	45	√		
15. Having emergency backup electric supply facilities	73.68	√		
16. Visited by any inspector for checking the hygienic status of the premises/sweetmeat shop	70	√		
17. Workers of sweet meat shop and manufacturing unit wear apron, musk, and hand glove during working in the shop	30	-	√	It not more than 10%
18. Training received on how to improve the quality of products that produce	40	√		Some NGOs offered training and loan. Master chef trained to others or self trained.

Food safety practices along the entire milk value chain are set out in Tables 9 to 13. While DLS has commenced the registration of dairy farms, great compliance amongst all farms is required. Unfortunately the registration of buffalo farms has not yet started.

The requirements for separate, dedicated houses with sufficient space for animals are not followed by farmers as per the code of animal welfare nor enforced by authorities. Sheds used for his purpose were not adequately ventilated in smaller family farms but larger commercial farms do have better facilities.

Farmers are not maintaining standard preventive measures such as biosecurity measures, foot baths, closing gates, and good fencing to prevent the entry of animals onto the farm property.

Record keeping on the farm is poor even for recording basic information such as the number of animals, changes to feeding, origin, use of feeds, health regimes, vaccination schedule, use of anthelmintics. Just sixty four percent of farmers have a separate place to isolate a sick animal on the farm.

Very few farmers are aware that they should not sell an animal during and after treatment with certain medicines. About 70% of farmers had no secure storage facilities for medicines and vaccines with 20% of farmers disposing of used syringes/needles by burning and up to 80% of farmers disposing of medicines in ponds and waste water systems.

In the case of compound animal feed, feed additives are used but farmers do not test their feed to identify any chemical/pesticide/other contaminants. About 30% of dairy farmers take precautions before milking to ensure that they have safe and clean milk i.e., washing and cleaning milking utensils, washing udder with clean water before and after milking, washing the hands of the milkman before milking. Manure management is poor including disposal and storage. According to farmers surveyed, farmers should receive a subsidy from Government, when using antibiotics and veterinary drugs to compensate loss of income due to withdrawal periods being observed.

A lack of certification of milk collectors is evident. Just ten percent of milk collectors/Goyala had cold chain facilities to keep the milk in good condition when selling to retailers. Approximately 80 percent of farmers dispose of spoiled milk into the drain.

87 percent of entrepreneurs surveyed held a range of operating licenses including approval for a milk chilling plant, environmental clearance certificate, Industry license (1yr), Fire safety license, Trade license, and BSTI certificate. Forty percent chilling centres reported to be inspected regularly by competent authorities, but had no record keeping system for inspection, or retained records of the inspection or observations made.

Spot testing or use of rapid tests are not undertaken at collection of milk. Some individual collectors do use organoleptic methods for assessing milk including taste, sour and colour while some operate additional checks for alcohol, SNF and fat test in the collection point during milk collection. All chilling plant do have milk testing laboratory facilities in the chilling plant however.

About 90 % of centres have knowledge about their source of the milk and many are considering applying incentives for individual farmers to implement measures such as deworming, vaccine

use, veterinary support, hygienic instruction, and farmer training. Less than half of the chilling centres had no waste disposal system, or proper waste management facility with the result that many disposed of waste through the common water body. Less than 15% of chilling plants properly labelled packaged milk with details such as composition, name and address of the company who manufactured it, production date, expiration date, and lot of code.

80% of sweet meat shops collected raw milk from village markets and some directly from contract farms (5%). Sweet meat shops produce a range of products including ghee, rossogolla, and yogurt. Most sweetmeat shops are registered with several competent authorities, i.e., trade license from union parishod, sanitary certificate from civil surgeon office, packaged dairy products from BSTI.

90% sweetmeat shops surveyed are considering developing separate dedicated space for the manufacture of dairy products. Most (85%) operators use disinfectant for cleaning their facilities and utensils but not all have access to clean water. 64% sweetmeat shop have refrigerated storage facilities while the remainder have glass-enclosed areas to keep products in good physical condition.

25% of sweetmeat shops surveyed, said that they sometimes submitted samples of food products for laboratory analysis. However 75% of large shops tested the products from every load for chemical, pesticides and other contaminants.

Table-14: Food safety practices of feed processor/seller

After analysis of the data collected, a stakeholder meeting was organized with concerned experts and food business operators to validate the information. The analyzed data on food safety practices are represented below:

Information collection from the Actor: Feed trader (District/upazilla level) for beef, dairy and broiler

Attributes	Kobo toolbox Observations (% of practice)	Stakeholders meeting observation		
		Agree	Disagree	Remarks
Beef				
1. Provide manufactured feed	30	√		
records keeping of the purchased feed	0		√	Commercial farm keeps record 50-80%
2. Purchase feed ingredients for own farm rations	70	√		
Records keeping of purchases feed ingredient	0	√		
3. Using feed additive in the feed	0		√	Near to 30%
4. Use any growth promoter in the feed (growth promoter/hormone/ steroid) for fattened your calf/bull?	0		√	Near to 1-2%

5. Laboratory test of feed for chemical/ pesticide/other contaminant	0	√		
6. Properly labelled of feed package for selling feed mix, considering common name of the feed ingredient, chemical composition, the name and address of the company who manufactured, Production date, expire date, and a lot code or other unique identifier to trace the feed.	0	√		100%
Broiler				
1. Used manufactured feed to the birds	100	√		
2. Record keeping of the purchased feed	50		√	Near to 80-90%
3. Making ration by purchasing raw feed ingredients to the own farm	0	√		
4. Use of additive in the feed	0		√	100%
5. Use any growth promoter in the feed (growth promoter/hormone/ steroid)	0		√	Near to 10% AGP
6. Submitted samples of feed for laboratory test for chemical/pesticide/ chemical/pesticide/ another contaminant	0	√		
7. Properly labelled of feed package for selling feed mix, considering common name of the feed ingredient, chemical composition, the name and address of the company who manufactured, Production date, Expire date, and a lot code or other unique identifier to trace the feed.	100	√		
Dairy				
1. Provide manufactured feed	68	√		
2. Records keeping of the purchased feed	56	√		
3. Purchase feed ingredients and mix own rations for animals	36	√		
4. Maintain records of purchases of feed ingredient	64	√		
5. Use of feed additive	44	√		
6. Additives used in feed on the farm Nutritional additives: Zinc care, Calcium, Availa four, Vitamin mineral premix, Vitamin mineral premix, prebiotics, probiotics etc, Company feed contain feed additives vitamin and mineral.	100			

Advice to use: Learn in training program, Livestock service provide, Doctor advises, Local animal health worker, Local Quack, Own decision				
7. Use of growth promoter in the feed (growth promoter/hormone/ steroid)	11.53	√		
permission/advice to use this/these growth promoters, Hormone for reproductive treatment purpose				90% advice 10% advice own decision
8. laboratory test for livestock feed (chemical/ pesticide/ other contaminant)	0	√		
9. Properly labelled of feed package for selling feed mix, considering common name of the feed ingredient, chemical composition, the name and address of the company who manufactured, Production date, Expire date, and a lot code or other unique identifier to trace the feed.				
i. Yes	32		√	Near to 80%
ii. Not all issues	64			

Actors: Feed processor/commercial companies

This information collected from individual experts worked in animal feed manufactured company through the pre designed checklist (Goole form and KII)

Thematic area	Opinion/Response
1. Who provide the Licensing for livestock business	Feed industry: DLS Urban /Rural feed shop/Feed dealer: District Livestock Officer
2. Authority of Registration for livestock business	Trade licence from: Pouroshova/Union Parishad
3. Any act and rules followed for livestock business	Yes
4. Do you see any inspector from Government agency check your business related to feed quality/ other aspect?	Yes, Upazilla Livestock Officer (ULO) and mobile court
5. Have you kept the inspection record in a registrar book?	Yes
6. Use any growth promoter in the feed	No: in case of antibiotics Yes: In case of NAGP like Probiotic, Prebiotics,

7. Use any growth promoter/hormone/steroid/ AGP	No
8. Use any insecticide near to feed storage	No
9. Use of any antibiotic in feed	No
10. Use records keeping (i.e. origin of feed and name of feed ingredient, inclusion level of feed)	Yes
11. Use of feed from local feed ingredient	Both local and imported
12. Feed test for chemical/pesticide/fungicide. If it is; frequency (every load/ sometime); have any record in register book?	Yes , keep proper record book every load for Ready feed, additives add occasionally.
13. Do you know, acquire feed is followed GMPs in production/ suppliers level ?(Commercial ready feed/ local feed from different ingredient)	Yes
14. Labelled the feed: The common name of the feed ingredient, chemical composition, the name and address of the company who manufactured, Production date, Expire date, and a lot code or other unique identifier to trace the feed.	Yes
15. Use of water for known source having acceptable biological and mineralogical quality in the watering stock.	Yes, have Water Treatment Plant in commercial feed processing company, Biological quality not followed but mineralogical quality follow.
16. Maintain adequate separation between clean and contaminated material (e.g. feed and waste water).	Yes
17. How far waste pit from feed storage.	10 meter
18. Existing any waste treatment plant in livestock manufacturing company (feed mill).	Yes

Food safety practices are essential for both animal feed sellers and animal feed processors to ensure the health and well-being of livestock and, indirectly, the safety of food products derived from these animals. Food safety practices of animal feed sellers and processors are described in Table 14 and Table 15.

70% of farmers surveyed purchased local feed ingredients for their own farm rations and did not retain records of their inputs. Farmers surveyed did not use feed additives or growth promoter in beef feeds. Few farmers sought external laboratory analysis of feeds or feed ingredients.

There is poor compliance with labelling of animal feed so it was difficult to trace the feed. In case of broiler feed 100% farms used compound feed and 50% retained feed records. In this instance, feed was properly labelled including the name of the feed ingredient, nutritional composition, the name and address of the company of manufacture, production date, expiration date, lot code or other unique identifier to trace the feed.

However, in case of dairy ready feed, more than 80% feedstuffs were not labelled sufficiently to ensure traceability. With regard to feed manufacturers, there was a good level of compliance with requirements including application of HACCP, cleanliness and hygiene practices, raw material control, quality control, record keeping, supplier verification, employee training, recall plan, implication policy, and regulation. The adherence to the Fish Feed and Animal Feed Act, 2010, and the Animal Feed Rules, 2013 is higher amongst those surveyed than that of other Acts and rules under the Department of Livestock Services in relation to food safety practices entire livestock value chain.

RECOMMENDATIONS

Improving the food safety practices along the entire livestock value chain can mitigate food safety gaps related to foods of animal origin which are essential to protect public health and ensure the safety of consumers. Here are some recommendations to address this issue:

1. Strengthen Regulatory Framework:
 - DLS should develop a list of sweetmeat shops, butcher houses, live bird shops and milk transporter/collectors that comply with the relevant legislation.
 - Food safety regulations related to foods of animal origin should be enhanced and strictly enforced.
 - Establish a dedicated regulatory body for food safety, inspection, and enforcement.
 - DLS should develop a policy to give farmers subsidies for maintaining the withdrawal period to be implemented, during/after a sickness of animals/birds.
 - Government needs to establish an independent body to support the development of Codes of Practice, GAHP, and GHP, based on existing acts and rules.
 - By developing a Dairy Board, Poultry Board, and Meat Commission, the food safety practices of animal origin could be strengthened.
2. Education and Training:
 - Educate farmers, producers, and food handlers about safe and hygienic practices.
 - Provide training on food safety and hygiene practices to all stakeholders in the meat and milk value chain.

3. Improve Hygiene Practices:
 - Promote the use of safe and sanitary facilities for animal husbandry, slaughter, and food processing.
 - Encourage employees to follow the dress code and the use of personal protective equipment (PPE) by workers during working in the farm as well as the food industry, i.e., value added product manufacturing unit/outlet.
4. Quality Assurance:
 - Implement programs, such as HACCP (Hazard Analysis and Critical Control Points), to identify and mitigate food safety risks.
 - Regularly test and monitor animal-origin food products for contaminants and pathogens.
5. Traceability and Transparency:
 - Develop systems for traceability that can track the origin of all products, making it easier to identify and recall contaminated products.
 - Promote transparency in the supply chain, enabling consumers to make informed choices.
6. Promote Good Animal Husbandry Practices:
 - Encourage responsible animal husbandry practices, including proper animal nutrition, vaccination, and disease control.
 - Guides to good animal husbandry practices (GAHP) and Standard Operating Procedures (SOP's) should be developed for farmers
 - Promote the reduction of antibiotic use in animal agriculture to prevent the development of antibiotic-resistant pathogens.
7. Support Research and Innovation:
 - Invest in research to identify emerging food safety risks and develop innovative solutions.
 - Promote the use of modern technology, such as blockchain and IoT, to improve food safety tracking and monitoring.
8. Market Surveillance and Inspection:
 - Conduct regular inspections of farms, butcher houses, live bird shops and milk transporter/collectors, sweetmeat shops and food processing facilities based on the prescript checklist.
 - Implement strict penalties for non-compliance with food safety regulations.

9. Consumer Awareness:
 - Educate consumers about safe food handling practices and the importance of purchasing animal-origin foods from reputable sources.
10. Collaboration and Partnerships:
 - Foster collaboration between government agencies i.e., DLS, BFSA, BSTI, DGDLS and Local Government Division; the private sector, and non-governmental organizations to address food safety challenges collectively.
 - Seek assistance from international organizations and donors to improve food safety infrastructure and capacity.
11. Emergency Response Plan:
 - Develop a robust plan for responding to food safety emergencies, including outbreaks of foodborne illnesses.

By implementing these recommendations, Bangladesh can work toward improving animal-origin food safety on the entire livestock value chain, which is crucial for public health, consumer trust, and the growth of the food industry. It will require a coordinated effort from government, industry, and consumers to create a safer food environment for all.

CONCLUSION

Identifying food safety gaps related to animal-origin foods in Bangladesh is crucial for ensuring the well-being of its citizens and the overall public health. Bangladesh has laws and regulations to cover most areas of animal-origin food safety, but the regulatory frameworks and implementation are still weak. Stricter regulation and more robust enforcement mechanisms are needed to prevent the sale of adulterated or contaminated animal-origin foods. This includes the need for more rigorous inspections of slaughterhouses and markets. Bangladesh should invest in research and technology to modernize the food supply chain. This includes the development of systems for traceability, cold storage, and efficient transportation to reduce contamination and foodborne illnesses.

In conclusion, addressing the food safety gaps in animal-origin foods in Bangladesh requires several initiatives including a multifaceted approach, improved infrastructure particularly in rural areas that can address storage, transportation, processing facilities which if not better controlled, can lead to contamination and spoilage of animal-origin foods.

Improved monitoring and control of Zoonotic disease and more robust enforcement mechanisms are needed to prevent the sale of adulterated or contaminated animal-origin foods. This will necessitate rigorous inspections of slaughterhouses and markets; encouraging the use of GAHP and GHP, in addition to compliance with international standards that also

reduce the risk of drug residues in meat and dairy products. This will require the involvement of all stakeholders including government initiatives, greater industry compliance, and improved public awareness of food safety.

ACKNOWLEDGEMENT

I must acknowledge all of my colleagues UNIDO National Experts as well as International Experts. The National consultant must thank PMU LDDP for collecting field information through KoBo Tool Box and cooperate to arrange a debriefing session as well as a validation workshop. I would appreciate all of the Livestock Extension Officers (LEOs) of LDDP who cooperate with us in completing the Survey form into the mobile base software KoBo Tool Box.

Special thanks to Dr. Md. Golam Rabbani, Chief Technical Coordinator and Mr. Md. Abdur Rahim, Project Director for their continuous cooperation.

I would like to acknowledge the Director General, Department of Livestock Services (DLS) and DLS officers for providing support throughout the undertaking of this activity.

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Finally, I would like to acknowledge and give my warmest thanks to my UNIDO H/Q colleagues to support me to continue the work and multi-stakeholders who have given up their valuable time and shared knowledge and experience during participated in the workshop.



One of the respondent dairy farms

ANNEX 1

Debriefing session for food safety data collection through Kobo Tool Box

Date: 22 August 2022

Venue: DAM Foundation, H-852, R-14, Baitul Aman Housing Society, Adabar, Dhaka-1207

Organized by: United Nations Industrial Development Organization (UNIDO) and Livestock and Dairy Development Project (LDDP), Department of Livestock Services (DLS)

9.00-9.30	Registration	
9.30-10.30	Opening ceremony	
	Welcome speech	Dr. Ainul Haque, Ex-DG DLS NPC, UNIDO
	Address by the Guest of Honour	Dr. Md. Golam Rabbani, Chief Technical Coordinator, LDDP
	Address by the Special Guest	Dr. Emdadul Haque Talukder, Director(Admin), DLS
	Address by the Chief Guest	Mr. Md. Abdur Rahim (Joint Secretary) Project Director, LDDP
	Address by Chair	Zaki Uz Zaman, Ph.D UNIDO Country Representative
10.30-11.00	Tea and refreshment	
11.00-12.00	Briefing about food safety package in LDDP	Md. Misbahuzzaman Chandan Food Safety Expert, LDDP
12.00-1.00	Briefing about actor-based food safety data collection	Dr. S. M. Rajiur Rahman National Livestock and Dairy Expert UNIDO
1.00-2.00	Prayer and lunch	
2.00-3.00	Demonstration of Kobo Tool Box for food data collection Session -1	Sheikh Mahbub Ahmed ICT Expert, LDDP
3.00-4.00	Hands-on training on food safety data collection through Kobo Tool Box Session -2	Sheikh Mahbub Ahmed ICT Expert, LDDP
4.00-4.40	Hands-on training on food safety data collection through Kobo Tool Box Session -3	Sheikh Mahbub Ahmed ICT Expert, LDDP
4.40-5.00	Closing, Tea, and refreshments	

Debriefing session on

Food safety data collection of different livestock value chain actors through Kobo Tool Box



S. M. Rajiur Rahman, Ph.D
National Livestock and Dairy Expert

United Nations Industrial Development Organization (UNIDO)



Background

- Livestock value chain in Bangladesh is very complex that consist with several actors/stakeholders . All of those actors interrelated to each other's.
- Through the several consulting meeting with National and International experts, 18 actors are identified as a problematic actors related to animal origin food safety issues.
- However 11 actors are considered for food safety data collection using the tools of Kobo Toolbox.

UNIDO/LDDP Team decide to work on three (03) major problematic livestock product-based value chains to identify the gaps in existing food safety systems and practices; those are

- i) **Beef meat:** Beef fattening farmers and butcher shops will be interviewed and considered for stakeholders meeting on food safety practices under beef value chain.
- ii) **Poultry meat:** Broiler farmers, Sonaly chicken farmers, live bird market/wet market, feed processors, feed sellers will be interviewed and considered for stakeholders meeting on food safety practices under poultry value chain.
- iii) **Milk:** Dairy farmers, Chilling centres, Milk collectors (Goyala, milking man) will be interviewed and considered for stakeholders meeting on food safety practices under dairy value chain.

Objectives

- ❑ To know the existing understanding and current practices of different livestock value chain actors.
- ❑ To inform the process of developing training and guidelines to help value chain actors to become more compliant with good standards of practice in the future.

This study will be conducted in four (04) steps:

- i) Debriefing session
- ii) Data collection through Kobo Tool Box
- iii) Stakeholders meeting on food safety practice of livestock value chain
- iv) Field observation

Proposed districts for collecting food safety information using Tobo Tool Box(KTB)

Considering 16-17 Upazilla under 13 Districts



Different actors in the study areas

Total Number of Districts 12;
Number/Type of Actors: 11;

Sl	Districts	Upazilla	Actor-1	Actor-2	Actor-3	Actor-4
1	Dinajpur	ChirirbandarDinajpur	Dairy cattle farmer	Sweetmeat shop	Milk chilling plant	-
2	Rangpur	Kaunia	Dairy cattle farmer			
3	Bhola	Charfassion	Dairy buffalo	Sweat meat shop		
	Mymensingh	Trishal	Dairy buffalo farmer			
4	Sirajgonj	Shahjadpur	Dairy cattle farmer	Sweet meat shop	Milk chilling plant	Goyala
5	Satkhira	Tala	Dairy cattle farmer	Milk chilling plant	Goyala	
6	Chittagong	Karnaphuli	Dairy cattle farmer	Milk chilling plant		
	Chittagong	Boalkhali	Bu tchery beef	Live bird		
7	Noakhali	Subarnachar	Dairy buffalo farmer	Sweet meat shop		
8	Kustia	Kustia Sadar	Beef fattening			
9	Manikganj	Saturia	Beef fattening			
10	Dhaka	Dhaka CitySavar	Bu tchery beef	Live bird	Further processor	
		Savar	Broiler farmer			
11	Narayanganj	Narayanganj sadar	Bu tchery beef	Live bird		
12	Gazipur	kaliakoir	Broiler farmer			
	Gazipur	Gazipur Sadar	Live bird	Feed seller/ Processor	Further processor	
13	Bogra	Sonatala	Sonaly chicken			
	Bogra	Sariakandi	Sonaly chicken			



Thank You
for
Patience

Welcome to presentation on

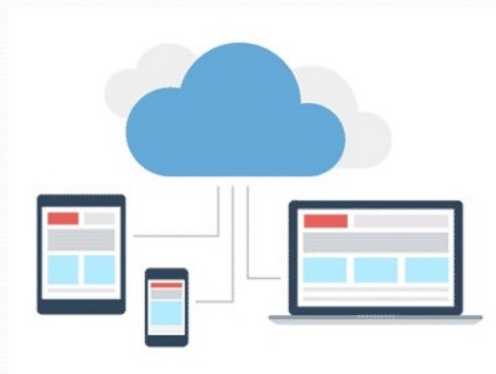
Demonstration of Kobo Toolbox for food safety data collection


Sk. Mahabub Ahmed
ICT Expert
LDDP, DLS

1

KoBo Toolbox

KoBo Toolbox is an open-source tool for mobile data collection. It allows to collect data in the field using mobile devices such as mobile phones or tablets, as well as with computers.






KoBo Toolbox with its offline feature, allows users to collect and store data offline, which comes in handy in challenging environments and demanding contexts.

As the smartphone becomes widely used, Kobo toolbox provides one the best alternative for data collection.

Kobo toolbox can make data collection efficient, reliable, and less energy-consuming.

Kobo tool box overcomes ..

1. Lack of internet infrastructure at the data collection sites
2. Lack of awareness of offline data collection tools
3. Lack of expertise to collect data on specialized tools
4. Lack of resources



It is a ready-to-use all-in-one platform for developing, storing, managing and sharing forms, as well as managing and sharing collected data.

It is based on Open Data Kit (ODK). KoBo Toolbox is fully compatible and interchangeable with ODK Collect and XLS Form, but delivers more functionality such as an easy -to-use form builder, question libraries and integrated data management. It also integrates other open -source ODK-based developments such as Enketo.

Multi-use Tool for M&E, Supervision, & Communications

- **Remote supervision** of implementation
- **Enhanced transparency** and accountability
- **Structured monitoring** of survey data
- **Real-time tracking** compliance
- **Coordination** across projects and partners
- **Communication** and citizen engagement
- **Automatic integration** in centralized M&E system and geo-mapping
- Capacity-building for flexible application

KoBo supports the full data collection cycle



form design

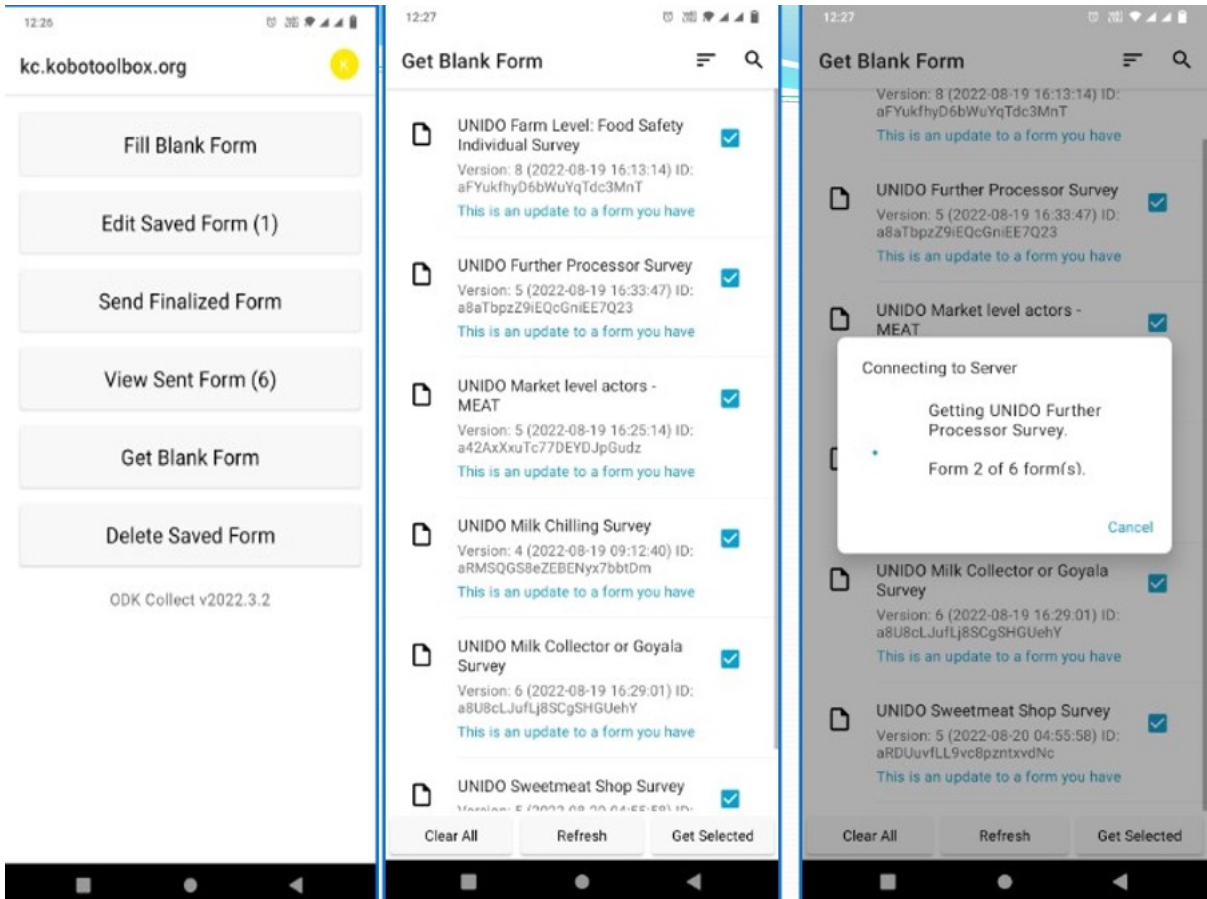
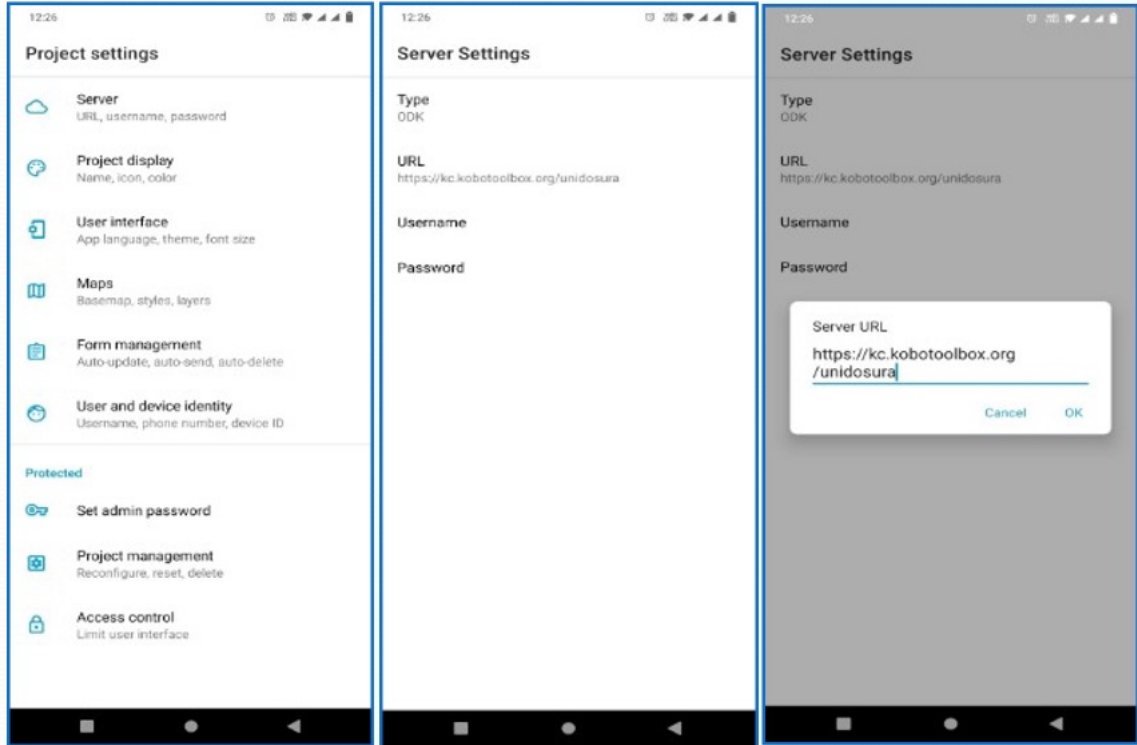


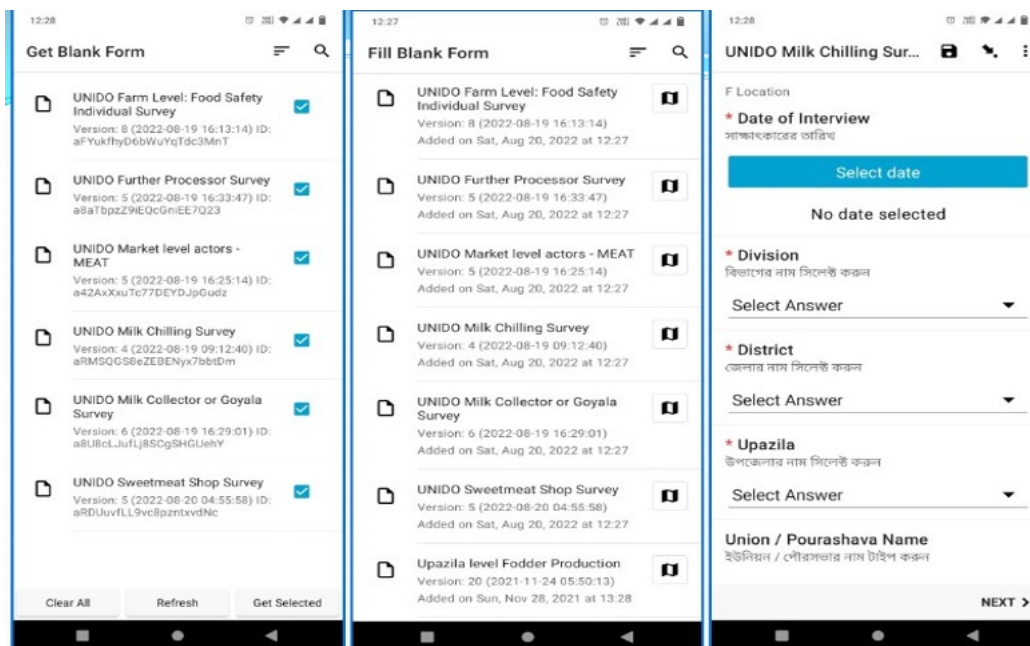
data
collection



analysis

https://kc.kobotoolbox.org/unidosura





- i. Dairy Farmers
- ii. Beef Fattening Farmers
- iii. Broiler (Medium type commercial)
- iv. Sonali chicken (commercial/medium type commercial)
- v. Feed seller/processor
Link: <https://ee.kobotoolbox.org/x/2nklllelq>
- vi. Market level actors – MEAT
Link: <https://ee.kobotoolbox.org/x/7wCIPW5D>
- vii. Transporter/Goyala/Milk man
Link: <https://ee.kobotoolbox.org/x/gFcJdhYc>
- viii. Milk Chilling Centre
Link: <https://ee.kobotoolbox.org/x/YMwBTXG0>
- ix. Sweetmeat shop
Link: <https://ee.kobotoolbox.org/x/1pJNpy96>
- x. Further processor (poultry processing)
Link: <https://ee.kobotoolbox.org/x/oaOyPeRT>

Thank you all

ANNEX 2

Stakeholders meeting on Validation of food safety data collected through Kobo Tool Box for food of animal origin

Date: 30-31 October 2022

Venue: KIB Complex, Khamar Bari Rd, KIBC Training Room 60 & 48 (Level-5), Dhaka 1215

Organized by: United Nations Industrial Development Organization (UNIDO) and Livestock and Dairy Development Project (LDDP), Department of Livestock Services (DLS)

Day-one 30 October 2022

8.30-9.00	Registration	
9.00-10.00	Opening ceremony	
	Welcome speech	Dr. Ainul Haque, Ex-DG DLS NPC, UNIDO
	Address by the Guest of Honour	Dr. Md. Golam Rabbani, Chief Technical Coordinator, LDDP
	Address by the Special Guest	Dr. Md. Emdadul Haque Talukder, Director (Admin), DLS
	Address by the Special Guest	Mr. Md. Abdur Rahim (Joint Secretary) Project Director, LDDP
	Address by the Chief Guest	Dr Monjur Mohammad Shahjada Director General Department of Livestock Services (DLS), Bangladesh
	Address by Chair	Zaki Uz Zaman, Ph.D UNIDO Country Representative
10.00-10.30	Tea and refreshment	
10.30-11.30	Briefing about actor-based food safety data collected from KoBo Tool Box and information validation strategy.	Dr. S. M. Rajiur Rahman National Livestock and Dairy Expert UNIDO
11.30-1.00	Group discussion -1 Seven types of actors sit separately and discuss about collected data from Kobo toolbox.	Facilitators: Dr. Ainul Haque Dr. Mehedi Hossain Dr. Md. Giasuddin Dr. S. M. Rajiur Rahman Dr. Md. Nure Alam Siddiky
1.00-2.00	Prayer and lunch	

2.00-.4.00	Group discussion-2 Seven types of actors (considering milk and beef value chain) sit separately and discuss about collected data from Kobo toolbox.	Facilitators: As above
3.00-4.00	Group presentation	Facilitators: As above
4.00-4.30	Summing up of the day	Dr. Ainul Haque Dr. S. M. Rajiur Rahman
4.30-5.00	Closing, Tea, and refreshments	

Day-Two 31 October 2022

9.00-9.30	Registration	
9.30-9.45	Welcome speech	Dr. Ainul Haque, Ex-DG DLS NPC, UNIDO
	Introductory remarks	Director DLS
9.45-10.30	Briefing about actor-based food safety data collected from KoBo Tool Box and information validation strategy	Dr. S. M. Rajiur Rahman National Livestock and Dairy Expert UNIDO
10.30-11.00	Tea and refreshment	
11.00-1.00	Group discussion -1 Five types of actors (considering poultry meat value chain) sit separately and discuss about collected data from Kobo toolbox.	Facilitators: Dr. Ainul Haque Dr. Mehedi Hossain Dr. Md. Giasuddin Dr. S. M. Rajiur Rahman Dr. Md. Nure Alam Siddiky
1.00-2.00	Prayer and lunch	
2.00-.4.00	Group discussion-2 Five types of actors sit separately and discuss about collected data from Kobo toolbox.	Facilitators: As above
3.00-4.00	Group presentation	Facilitators: As above
4.00-4.30	Summing up of the day	Dr. Ainul Haque Dr. S. M. Rajiur Rahman
4.30-5.00	Closing remarks	Director DLS
	Tea, and refreshments	

Presentation in the Stakeholder meeting



Stakeholders meeting
on

Validation of food safety data collected through Kobo Tool Box for food of animal origin



S. M. Rajiur Rahman, Ph.D
National Livestock and Dairy Expert

United Nations Industrial Development Organization (UNIDO)



Background

- Livestock value chain in Bangladesh is very complex that consist with several actors/stakeholders. All of those actors interrelated to each other's.
- Through the several consulting meeting with National and International experts, 18 actors were identified as a problematic actors related to animal origin food safety issues.
- However 12 actors were considered for food safety data collection using the tools of Kobo Toolbox.



UNIDO/LDDP Team decided to work on three (03) major problematic livestock product-based value chains to identify the gaps in existing food safety systems and practices; those are

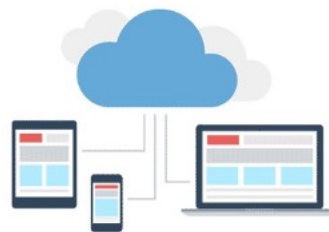
- i) **Beef meat:** Beef fattening farmers and butcher shops were interviewed and considered for stakeholders meeting on food safety practices under beef value chain.
- ii) **Poultry meat:** Broiler farmers, Sonaly chicken farmers, live bird market/wet market, feed processors, feed sellers and further processor were interviewed and considered for stakeholders meeting on food safety practices under poultry value chain.
- iii) **Milk:** Dairy farmers, Chilling centres, Milk collectors (Goyala, milking man) were interviewed and considered for stakeholders meeting on food safety practices under dairy value chain.

Objectives

- ❑ To know the existing understanding and current practices of different livestock value chain actors.
- ❑ To inform the process of developing training and guidelines to help value chain actors to become more compliant with good standards of practice in the future.

This study consist several steps/events	
i)Debriefing session	Completed
ii)Data collection through Kobo Tool Box	Completed
iii) Stakeholders meeting for Validation of food safety data collected through Kobo Tool Box	Today
iv) Field observation	Continue

- Review several secondary documents (Project documents, Publish articles, Acts & rules, and Policies) and consulting meeting with relevant experts/ practitioners to develop food safety check list
- Development of ODK/Kobo Toolbox according to food safety related actor-based checklist
- Field validation of the actor-based checklist
- Feed back through Zoom meeting for Validation trail of mobile base actor wise questioner



Districts considered for collecting food safety information using Tobo Tool Box(KTB)

Considering 17 Upazilla under 12 Districts



Total Number of Districts 12;
Number/Type of Actors: 12;

Different actors in the study areas

Sl	Districts	Upazilla	Actor-1	Actor-2	Actor-3	Actor-4
1	Dinajpur	ChirirbandarDinajpur	Dairy cattle farmer	Sweetmeat's hop	Milk chilling plant	--
2	Rangpur	Kaunia	Dairy cattle farmer			
3	Bhola	Charfassion	Dairy buffalo	Sweet meat shop		
	Mymensingh	Trishal	Dairy buffalo farmer			
4	Sirajgonj	Shahjadpur	Dairy cattle farmer	Sweetmeat shop	Milk chilling plant	Goyala
5	Satkhira	Tala	Dairy cattle farmer	Milk chilling plant	Goyala	
6	Chittagong	Karnaphuli	Dairy cattle farmer	Milk chilling plant		
	Chittagong	Boalkhali	Bu tchery beef	Live bird		
7	Noakhali	Subarnachar	Dairy buffalo farmer	Sweetmeat shop		
8	Kustia	Kustia Sadar	Beef fattening			
9	Manikganj	Sakuria	Beef fattening			
10	Dhaka	Dhaka City Savar	Bu tchery beef	Live bird	Further processor	
		Savar	Broiler farmer			
11	Narayanganj	Narayanganj sadar	Bu tchery beef	Live bird		
12	Gazipur	Kaliakoir	Broiler farmer			
	Gazipur	Gazipur Sadar	Live bird	Feed seller/ Processor	Further processor	
13	Bogra	Sonatala	Sonaly chicken			
	Bogra	Saria kan di	Sonaly chicken			

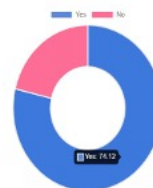
Glimpse of food safety practice collected by Kobo Tool Box

Maintain correct housing – Do you consider a separate dedicated house for your animal/birds?

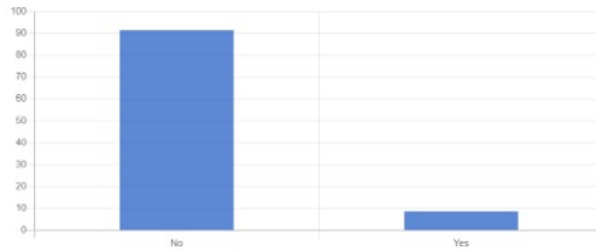
Is this farm registered with DLS or not?



Is there sufficient space to allow animals to move around freely inside pens or cages used to house animals?



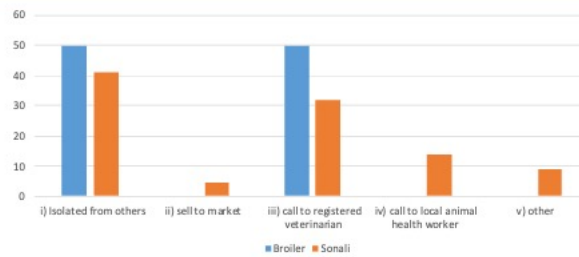
Do you follow the regular health checkup of your employee?



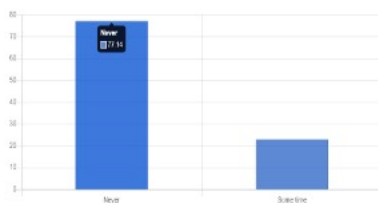
Have workers of slaughter house wear aprons and masks during working in the shop?



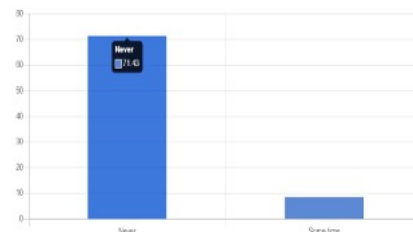
STEPS TAKEN TO RESTORE THE HEALTH OF SICK BIRDS



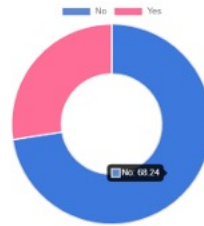
Certificate of suitability for the slaughter of animals or poultry as per Schedule 7 [Rule 5 (3) and 10 (4)] under the Animal Slaughter and Meat Quality Control Act, 2011 and the Animal Slaughter and Meat Quality Control Rules, 2021. **Do you get a certificate from a registered veterinary doctor before slaughtering the animal?**



Based on this act and rules, need to know diseases prevalence record for 30 days (thirty) before in farm area; cattle/birds brought for slaughter. **Are any health records available from the source of animals being presented for slaughter?**



Did any person advise you NOT to sell an animal or milk/eggs produced during and after treatment with certain medicines?



WASH VEHICLES WITH CLEAN WATER AND DISINFECTANT BEFORE AND AFTER CARRYING LIVE ANIMALS [ANIMAL SLAUGHTER AND MEAT QUALITY CONTROL RULES, 2021: 18, 2(1)]



Stakeholders meeting for Validation of food safety data

Day: One

*Group discussion
Seven types of actors sit separately and discuss about collected data from Kobo toolbox.*

i) Beef meat value chain

- 1: Group discussion with beef fattening farmers
- 2: Group discussion with Butchery shop/ slaught

ii) Milk value chain

- 3: Group discussion with dairy cattle farmers
- 4: Group discussion with dairy buffalo farmers
- 5: Group discussion with milk collector/Goyala
- 6: Group discussion with milk chilling plant
- 7: Group discussion with sweet meat shop

Stakeholders meeting for validation of food safety data collected through Kobo Tool Box
Actor: Dairy cattle farmer; Location: Dhalpur, Rangpur, Sirajganj, Serkhita and Chittagong

Attributes	% of profiles (Kobo Tool Box)	Stakeholders meeting observation		
		Agree	Disagree	Remarks
1. Registered with DDO	74			
2. Separate dedicated house for the animal	79			
3. sufficient space for other animals to move around freely inside the house	79			
4. Floor type	88			
5. Bed	72			
6. Milk tank	6			
7. Antiseptic sanitizer	83.3			
8. Separate areas for animals of each different age of production	80			

Day: Two

Group discussion
Five types of actors sit separately and discuss about collected data from Kobo toolbox.

iii) Poultry meat value chain

- 8: Group discussion with broiler farmers
- 9: Group discussion with Sonali farmers
- 10: Group discussion with Live bird market
- 11: Group discussion with further processor
- 12: Group discussion with Feed processor

Stakeholders meeting for validation of food safety data collected through Kobo Tool Box

Actor: Broiler farmer, Location: Dhaka and Gazipur

Attributes	% Of practice (Kobo tool box)	Stakeholders meeting observation		
		Agree	Disagree	Remarks
1. No of registered farm with DLS	20			
2. Separate dedicated house	100			
3. sufficient space to allow for birds	100			
i. Floor type				
ii. Brick and litter	66.67			
iii. Muddy and litter	40			
iv. RCC and litter	10			



Thank You
for
Patience

Official letter: for formal arrangement



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স্মারক নম্বর: ৩৩.০১.০০০০.১০১.২৯.০০৩.১৮.১২৮২

তারিখ: ৩০ শ্রাবণ ১৪২৯

১৪ আগস্ট ২০২২

বিষয়: প্রাণিসম্পদ ও ডেইরী উন্নয়ন প্রকল্পের আওতায় Debriefing Session এর আয়োজন প্রসঙ্গে।

সূত্র: প্রকল্প পরিচালক (যুগ্ম সচিব), প্রাণিসম্পদ ও ডেইরী উন্নয়ন প্রকল্প, ঢাকা এর ০৮/০৮/২০২২ ইং তারিখের ১১৮৬ সংখ্যক পত্র মোতাবেক।

উপর্যুক্ত বিষয় ও সূত্রের আলোকে জানানো যাচ্ছে যে, প্রাণিসম্পদ ও ডেইরী উন্নয়ন প্রকল্প, প্রাণিসম্পদ অধিদপ্তর, ঢাকা এর আওতায় SD-74 প্যাকেজ (Gap analysis of existing legislation, drafting legal amendments, development of baseline data of food safety, establishment of animal origin food inspection program and quality assurance scheme) এর কার্যক্রম বাস্তবায়নের জন্য যথাযথ কর্তৃপক্ষের অনুমোদন সাপেক্ষে UNIDO এর সাথে চুক্তি করা হয়েছে। উক্ত কার্যক্রমের অংশ হিসেবে UNIDO কর্তৃক সংশ্লিষ্ট স্টেকহোল্ডারদের নিকট থেকে Food safety data collection এর জন্য প্রকল্প দপ্তর সহ ডিএলএস হতে অংশীজন নির্বাচন পূর্বক আগামী ২২/০৮/২০২২ খ্রি: ডাম ফাউন্ডেশন (DAM), হাউজ নং-৮৫২, রোড নং-১৪, বায়তুল আমান হাউজিং সোসাইটি, আদাবর, ঢাকায় দিন ব্যাপী Debriefing Session অনুষ্ঠিত হবে। উক্ত ১ (এক) দিনের Debriefing Session-এ অংশগ্রহণের জন্য প্রাণিসম্পদ অধিদপ্তরাধীন নিম্নবর্ণিত কর্মকর্তাদের মনোনয়ন প্রদান করা হলো।

(জ্যেষ্ঠতার ভিত্তিতে নয়)

ক্রমিক নং	কর্মকর্তার নাম ও পদবী	কর্মস্থল	মোবাইল নং	ভেন্যু
১	ডাঃ মোঃ এমদাদুল হক তালুকদার পরিচালক (প্রশাসন)	প্রাণিসম্পদ অধিদপ্তর ফার্মগেট, ঢাকা।	০১৭১১১৩১৬৮৯	ডাম ফাউন্ডেশন (DAM, Foundation), হাউজ নং ৮৫২, রোড নং-১৪, বায়তুল আমান হাউজিং সোসাইটি, আদাবর, ঢাকা ১২০৭।
২	ডাঃ মোঃ শাহীনের আলম উপ পরিচালক (প্রাণি স্বাস্থ্য)	প্রাণিসম্পদ অধিদপ্তর ফার্মগেট, ঢাকা।	০১৭১২৬৩৯৬২২	
৩	ডাঃ মোহাম্মদ সাহাদাত হোসেন ইউ এল ও (এল আর) প্লানিং এন্ড ইভালুয়েশন সেল, ডিএলএস	প্রাণিসম্পদ অধিদপ্তর ফার্মগেট, ঢাকা।	০১৭৯০৯৩২২৬৩	
৪	জনাব মো. আলতাফ হোসেন জেলা প্রাণিসম্পদ কর্মকর্তা	জেলা প্রাণিসম্পদ দপ্তর দিনাজপুর	০১৭১৫৭৪৮৩২৭	
৫	ডাঃ গৌরাজা কুমার তালুকদার জেলা প্রাণিসম্পদ কর্মকর্তা	জেলা প্রাণিসম্পদ দপ্তর সিরাজগঞ্জ	০১৭১২৯৩৩৯০৯	
৬	জনাব শাহেদা আক্তার জেলা প্রাণিসম্পদ কর্মকর্তা (ভাঃ)	জেলা প্রাণিসম্পদ দপ্তর ঢাকা	০১৩২৪২৯০৩৪৪	
৭	জনাব বাসনা আক্তার জেলা প্রাণিসম্পদ কর্মকর্তা	জেলা প্রাণিসম্পদ দপ্তর নারায়ণগঞ্জ	০১৭১৭০৩৩৮৭৩	
৮	ডাঃ কাজী রফিকুজ্জামান জেলা প্রাণিসম্পদ কর্মকর্তা	জেলা প্রাণিসম্পদ দপ্তর নোয়াখালী	০১৩০৮৬৪১১১৭	
৯	ডাঃ মোঃ দেলোয়ার হোসেন জেলা প্রাণিসম্পদ কর্মকর্তা	জেলা প্রাণিসম্পদ দপ্তর চট্টগ্রাম	০১৭১১৪৪৭১৬২	

১০	জনাব ইন্দ্রজিৎ কুমার মন্ডল জেলা প্রাণিসম্পদ কর্মকর্তা, ভোলা	উপজেলা প্রাণিসম্পদ কর্মকর্তা (অঃ দাঃ), চরফ্যাশন, ভোলা	০১৭১২১১৭৭৫২
১১	ডা. মো. আবু সরফরাজ হোসেন উপজেলা প্রাণিসম্পদ কর্মকর্তা	চিরিরবন্দর, দিনাজপুর	০১৭৬৭০৩২৪৪৮
১২	ডাঃ মোঃ আজমল হুদা তপন উপজেলা প্রাণিসম্পদ কর্মকর্তা	বদরগঞ্জ, রংপুর	০১৭২৩২৩০১২৫
১৩	ডাঃ মাহফুজুর রহমান উপজেলা প্রাণিসম্পদ কর্মকর্তা	শাহজাদপুর, সিরাজগঞ্জ	০১৭১৮৬৭৮৮৩৭
১৪	ডাঃ মাসুম বিল্লাহ উপজেলা প্রাণিসম্পদ কর্মকর্তা	তালা, সাতক্ষীরা	০১৭১৬৪০৭৪৭৬
১৫	ডাঃ সেতু ভূষন দাশ উপজেলা প্রাণিসম্পদ কর্মকর্তা	বোয়ালখালী, চট্টগ্রাম	০১৮১৬২৪০৬২৩
১৬	ডাঃ মোঃ মাহবুবুল আলম উপজেলা প্রাণিসম্পদ কর্মকর্তা	কুষ্টিয়া সদর, কুষ্টিয়া	০১৭৯৮৬২৩৪০০
১৭	ডাঃ মোঃ মেহেদী হাসান উপজেলা প্রাণিসম্পদ কর্মকর্তা	সাতুরিয়া, মানিকগঞ্জ	০১৯৫৭৮৯৬৫৪
১৮	ডাঃ রুমন তালুকদার উপজেলা প্রাণিসম্পদ কর্মকর্তা	কর্ণফুলী, চট্টগ্রাম	০১৮১৮১৮৫২২২
১৯	ডাঃ মোঃ সাজেদুল ইসলাম উপজেলা প্রাণিসম্পদ কর্মকর্তা	সাভার, ঢাকা	০১৭১৫১১১৪১৭
২০	ডাঃ রাসেদুজ্জামান মিয়া উপজেলা প্রাণিসম্পদ কর্মকর্তা	কাপাসিয়া, গাজীপুর	০১৭১২৭৪৭২৪৫
২১	ডাঃ মোঃ রাশেদুল ইসলাম উপজেলা প্রাণিসম্পদ কর্মকর্তা	আক্কেলপুর, জয়পুরহাট	০১৭২২৯৬৩২৪
২২	ডাঃ মোঃ আব্দুস সামাদ উপজেলা প্রাণিসম্পদ কর্মকর্তা	বগুড়া সদর, বগুড়া	০১৭৬১৫১১৪৪১
২৩	ডাঃ মোঃ ফকরুল ইসলাম উপজেলা প্রাণিসম্পদ কর্মকর্তা(ভারপ্রাপ্ত)	সুবর্ণচর, নোয়াখালী	০১৭৫৮৮৭৮৩৩৩



১৪-৮-২০২২

ডাঃ পল্লব কুমার দত্ত
উপপরিচালক

প্রকল্প পরিচালক (যুগ্ম সচিব), প্রাণিসম্পদ অধিদপ্তর,
ফার্মগেট, ঢাকা।

স্মারক নম্বর: ৩৩.০১.০০০০.১০১.২৯.০০৩.১৮.১২৮২/১(৫৬৮)

তারিখ: ৩০ শ্রাবণ ১৪২৯
১৪ আগস্ট ২০২২

সদয় অবগতি ও কার্যার্থে প্রেরণ করা হল:

- ১) পরিচালক, প্রশাসন শাখা, প্রাণিসম্পদ অধিদপ্তর
- ২) পরিচালক (চলতি দায়িত্ব), সম্প্রসারণ শাখা, প্রাণিসম্পদ অধিদপ্তর
- ৩) পরিচালক, গবেষণা প্রশিক্ষণ ও মূল্যায়ন,এলআরআই, মহাখালী, ঢাকা।
- ৪) পরিচালক, বিভাগীয় প্রাণিসম্পদ দপ্তর (সংশ্লিষ্ট সকল)
- ৫) জেলা প্রাণিসম্পদ কর্মকর্তা (সংশ্লিষ্ট সকল)



গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
প্রকল্প পরিচালক কার্যালয়
প্রাণিসম্পদ ও ডেইরী উন্নয়ন প্রকল্প
কৃষি খামার সড়ক, ফার্মগেট, ঢাকা-১২১৫
lddp.portal.gov.bd



স্মারক নংঃ ৩৩.০১.০০০০.৮২৮.০৭.০৩৫.২০.২৪৪৫

তারিখঃ ২৫/১০/২০২২ খ্রি.

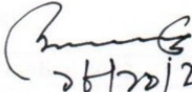
বিষয়ঃ Stakeholders meeting on Validation of Food Safety data collected through Kobo Tool Box of Products of Animal Origin -এ অংশগ্রহণের জন্য মনোনয়ন প্রদান সংক্রান্ত।

Memo: UNIDO/LDDP/CM-01-74/October-10-2022, Date: October 10, 2022

উর্পযুক্ত বিষয় প্রেক্ষিতে সংশ্লিষ্ট সকলের অবগতির জন্য জানানো যাচ্ছে যে, প্রাণিসম্পদ ও ডেইরী উন্নয়ন প্রকল্পের প্যাকেজ SD-74 এর আওতায় Stakeholders meeting for next step of validation of food safety data collected through Kobo Tool Box কার্যক্রমের অংশ হিসেবে UNIDO কর্তৃক সংশ্লিষ্ট স্টেকহোল্ডারদের নিয়ে আগামী ৩০-৩১ অক্টোবর, ২০২২ খ্রি. তারিখে ২ (দুই) দিন ব্যাপী এক স্টেকহোল্ডার মিটিং Venue: Hotel Lake Castle, Plot No. 1A, Road No. 68/A, Gulshan-2, Dhaka. Time 9:00 AM- 4:30PM অনুষ্ঠিত হবে। উক্ত স্টেকহোল্ডার মিটিং -এ অংশগ্রহণের জন্য নিম্নে বর্ণিত কর্মকর্তাগণের মনোনয়ন প্রদান করা হলোঃ

List of participants for the date of 30 October 2022				
S/L No	Name & address	Designation	Mobile	NID
1	Md. Abdur Rahim	PD (Joint Secretary), LDDP, DLS	01711342988	4646537953
2	Dr. Md. Golam Rabbani	CTC, LDDP, DLS, Dhaka	01731243654	8524903106523
3	Dr. Hiranmoy Biswas	DPD, LDDP, DLS, Dhaka	01715275509	1912010657
4	Engr. Partha Pradip Sarkar	DPD, LDDP, DLS, Dhaka	01911577887	2696828809386
5	Dr. A B M Mustanur Rahman	DPD, LDDP, DLS, Dhaka	01711069508	8524912147496
6	Engr. Md. Misbahuzzaman Chandan	FSQC Expert, LDDP, DLS, Dhaka	01711006327	3740733500
7	Jannatul Maua Esha	LEO, Indurkani, Pirojpur	01741627282	1499200887
8	Dr. Kamelia Hasan	LEO, Savar Dhaka	01724021646	19862716425223197

List of participants for the date of 31 October 2022				
S/L No	Name & address	Designation	Mobile	NID
1	Mohamad Shah Alom Biswas	DPD, LDDP, DLS, Dhaka	01711705318	5017975220123
2	Dr. Hiranmoy Biswas	DPD, LDDP, DLS, Dhaka	01715275509	1912010657
3	Dr. Md. Shakif-Ul-Azam	DPD, LDDP, DLS, Dhaka	01712005239	6889522972
4	Engr. Md. Misbahuzzaman Chandan	FSQC Expert, LDDP, DLS, Dhaka	01711006327	3740733500
5	Prof. Dr. Mostafizer Rahman	AMR Surveillance Expert, LDDP, DLS, Dhaka	01711978333	5074091033
6	Dr. Kamrul Alom Choudhury	LEO, Sylhat sadar, Sylhet	01760339402	5532948493
7	Samira Sharine	LEO, Kalai, Joypurhat	01715018397	9103322740
8	Dr. Sonali Khatun	LEO, Sahajadpur	01779736483	2850053709


২৮/১০/২০২২

(মোঃ আব্দুর রহিম)

প্রকল্প পরিচালক (যুগ্ম সচিব)

ফোনঃ ০২-০৫৮১৫৪৯৩

ই-মেইলঃ lddp@dls.gov.bd

প্রাপকঃ

Zaki Uz Zaman
UNIDO Country Representative, Bangladesh
E/8-A, Begum Rokeya Sharani,
Sher-e-Bangla Nagar, Agargoan, Dhaka

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
জেলা প্রাণিসম্পদ কর্মকর্তার কার্যালয়, ঢাকা
প্রাণিপুষ্টি ভবন (৩য় তলা)
প্রাণিসম্পদ অধিদপ্তর, কৃষিখামার সড়ক, ফার্মগেট
ঢাকা-১২১৫।

E-mail: dlodhaka20@gmail.com

স্মারক নং- ৩৩.০১.২৬০০.০০০.১৮.০২১.২২.১০৭০

তারিখ: ২০/১০/২০২২খ্রি:

বরাবর
প্রকল্প পরিচালক
লাইভস্টক এন্ড ডেইরী উন্নয়ন প্রকল্প (এলডিডিপি)
প্রাণিসম্পদ অধিদপ্তর, ঢাকা

বিষয়: বিভিন্ন ক্যাটাগরীতে নামের তালিকা প্রেরণ প্রসঙ্গে।

সূত্র: মেইল এলইও, এলডিডিপি, প্রাণিসম্পদ অধিদপ্তর, ঢাকা তারিখ: ১৭/১০/২০২২ খ্রি: মোতাবেক।

উপর্যুক্ত বিষয় ও সূত্রের প্রেক্ষিতে বিভিন্ন ক্যাটাগরীতে নামের তালিকা প্রেরণ করা হল।

Goyala/Milk collector এর তালিকা

ক্রমিক নং	নাম	ঠিকানা	মোবাইল নম্বর	এন আই ডি
১	রাজিব পাল	বগাবারি, বাইপাইল, ধামসোনা।	০১৬৭৬২৭১৬৬৪	৩২৬৮২০৬১৪৫
২	মো: ওয়াছি উদ্দিন সায়েম	পাটের বাগ, ধনিয়া।	০১৮৩৭৪৩৬৯৫৭	৭৩২৯৯৪৫৭৪০
৩	মো: ইব্রাহিম	ত্রিমোহনী, ঢাকা।	০১৬৩৪৭৪৭৫৫৫	৭৩৩৪৬৭৮৪৭২

Sweet Meat Shop Owner এর তালিকা

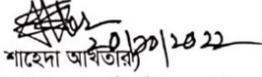
ক্রমিক নং	নাম	ঠিকানা	মোবাইল নম্বর	এন আই ডি	পাসপোর্ট নং
১	তাসলিমা আখতার পিংকি	শহিদ ফারুক রোড, যাত্রাবাড়ী, ঢাকা।	০১৭৪৪৫২৭৫৪২	৪৬৬১৫৩২৭৯৮	
২	মো: আলী জিন্নাহ	তিমোহনী, ঢাকা।	০১৯১১৩৮৮১৪২	৭৩৪৭১৭২২৯৩	
৩	মো: রফিকুল হক	মেট্রো তেজগাঁও, ঢাকা।	০১৮২৪৬৭৪৮১৩	৩২৮১৫৫৩০০২	
৪	মো: খলিলুর রহমান	ধোলাইপাড়, ঢাকা।	০১৮২৪৬৭৪৮১৩	-	১৯৮৪১২১৮৫৪০৯১০২৩৭
৫	মো: ফরহাদ হোসেন ডালিম	মেট্রো তেজগাঁও, ঢাকা।	০১৬৩৭২২৩৮০৫	৭৭৬৯১০৭১৭৩	

Live Bird Market এর Participants তালিকা

মহাখালী এলাকা থেকে নাম পরবর্তীতে দেয়া হবে।

Butcher Participants এর তালিকা

ক্রমিক নং	নাম	ঠিকানা	মোবাইল নম্বর	এন আই ডি
১	মো: শরীফ হোসেন	গ্রাম -ভাতুরিয়া, কাঁচকুড়া, উত্তর খান।	০১৮৮১৪৪৪৯১৯	৮৭০৪৮০৭২৩২
২	মো: মেহেদী হাছান	গ্রাম -ভাতুরিয়া, কাঁচকুড়া, উত্তরখান।	০১৮৮৬৬১১৩০০	৪২০৪৭৪১২০৩
৩	মো; মাসুদুজ্জামান	গ্রাম -দক্ষিণখান, ঢাকা।	০১৬৮৬৬০১৭৭৯	৬৮২৫৪৮৭৫৭৩
৪	মো; শফি উল্লাহ	গ্রাম -দক্ষিণখান, ঢাকা।	০১৭২৭২১১১০৬	১০১৩৮৮৮০৮৪
৫	নাদিম মাহমুদ	গ্রাম -বাউখার, কাঁচকুড়া, উত্তরখান।	০১৮৮৯৭৮৯৩৩২	৫৫৫১৮৫৬০২৩


(শাহেদা আখতার)

জেলা প্রাণিসম্পদ কর্মকর্তা (অঃদাঃ)
জেলা প্রাণিসম্পদ দপ্তর, ঢাকা।



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