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BUILD RELATIONSHIP AMONG RELEVANT PUBLIC HEALTH AND VETERINARY SERVICES TO ENSURE STRUCTURED DATA SHARING AMONG EACH OTHER

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Build Relationship Among Relevant Public Health and Veterinary Services to Ensure Structured Data Sharing Among Each Other

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Technical Report on possible synergies with existing national strategies (e.g. National Strategy and Action Plan on AMR) and followed initiatives undertaken in the country to ensure interconnectivity in the national data ecosystem for AMR and sampling strategy along the risk analysis paradigm

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Abbreviations and Acronyms

ADRM	Adverse Drug Reaction Monitoring
AMC	Antimicrobial Consumption
AMR	Antimicrobial Resistance
AMU	Antimicrobial Use
API	Active Pharmaceutical Ingredient
ARAC	Antimicrobial Resistance Action Centre
AST	Antimicrobial Susceptibility Testing
BARC	Bangladesh Agricultural Research Council
BAU	Bangladesh Agricultural University
BFSA	Bangladesh Food Safety Authority
BLRI	Bangladesh Livestock Research Institute
BSTI	Bangladesh Standards and Testing Institution
BVC	Bangladesh Veterinary Council
CAC	Codex Alimentarius Commission
CDIL	Central Disease Investigation Laboratory
CVASU	Chattogram Veterinary and Animal Sciences University
DCC	Drug Control Committee
DGDA	Directorate General of Drug Administration
DGHS	Directorate General of Health Services
DLS	Department of Livestock Services
DOF	Department of Fisheries
EQA	External Quality Assurance
EUCAST	European Committee on Antimicrobial Susceptibility Testing
FAO	Food and Agriculture Organization of the United Nations
FDIL	Field Disease Investigation Laboratory
IEDCR	Institute of Epidemiology, Disease Control and Research
LDDP	Livestock and Dairy Development Project
LRI	Livestock Research Institute
MIC	Minimum Inhibitory Concentration
MoFL	Ministry of Fisheries and Livestock
MoHFW	Ministry of Health and Family Welfare
MRL	Maximum Residue Limit
NGS	Next-Generation Sequencing
OHS	One Health Secretariat
OTC	Over the Counter
WGS	Whole Genome Sequencing
WHO	World Health Organisation
WOAH	World Organisation for Animal Health

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EXECUTIVE SUMMARY

To develop the relationship between relevant public health and veterinary services, UNIDO first identified the potential stakeholders in Bangladesh and then arranged a series of information sharing meetings with relevant stakeholder organizations. This was followed by five consultation workshops held from January 2022 to March 2023. A considerable number of different stakeholders interacted with UNIDO national and international experts over the course of these workshops.

The aim of the 1st workshop was to disseminate the results of the different analytical assessments held on the domain of food safety management systems and AMR surveillance for food of animal origin as well as the performance of veterinary services in Bangladesh. As an overall outcome, participants gained knowledge on the most recent gaps and understood the needs to ensure a more effective regulatory enabling environment as well as practices related to food safety and AMR surveillance and monitoring of food of animal origin.

The two-day virtual workshop was held to discuss the “Codex guidelines on integrated AMR surveillance and monitoring” to raise stakeholder awareness about the Codex guidelines on integrated AMR surveillance and monitoring. From this workshop, the following information was collected:

- Current sources of Antimicrobial Use (AMU) data in livestock and food production in Bangladesh, and representativeness in relation to the national livestock and food production.
- AMU and AMR data availability, comparability, sharing, and reporting.

A three day workshop was held on “Food Safety and AMR Surveillance of Food of Animal Origin” on 28-30 March 2022 with the participation of 101 people from relevant competent authorities. The workshop focused on sharing national and international best practices on integrated AMR surveillance and monitoring, food safety practices in the livestock sector and food of animal origin, policy and legislation, inspection and monitoring systems.

A 4th workshop on multi-stakeholder policy dialogue, was held from 22 to 24 November 2022 at the Pan Pacific Hotel Sonargaon in Dhaka. The objective of the workshop was to discuss a series of policy papers developed by UNIDO’s International and National experts with key stakeholders. The reports were comprised of an overarching **Proposed Livestock Development Policy Framework and Food Safety of Animal Products Policy** plus four specific documents presenting a series of recommendations for specific actions to achieve the policy objectives outlined in the policy framework namely

- Food Safety Regulatory Landscape Study,
- Policy paper on Operationalization of the Department of Livestock Services’ Regulatory Function and Coordination Mechanisms for Food of Animal Origin,
- Antimicrobial Resistance Containment (AMR) Policy in Animals and Foods of Animal Origin in

Bangladesh

- AMR Surveillance and Monitoring Framework in the Animal Health Sector in Bangladesh.

The 5th workshop facilitated a high-level policy dialogue with DLS on “Strengthening capacities of Department of livestock services’ regulatory function related to safety of food of animal origin and foodborne AMR surveillance in Bangladesh”. The aim of the workshop was to facilitate discussion amongst DLS management and UNIDO national and international experts with the objective being the identification of practical steps towards optimizing food safety regulatory approaches in the context of three thematic areas. It considered how these would need to be anchored within the food safety policy and regulatory framework for food of animal origin which will serve the purpose of developing a position for DLS for an inter-ministerial workshop to address a number of gaps and challenges related to standard-setting, coordination, veterinary regulatory enforcement, and AMR surveillance.

INTRODUCTION

Antimicrobials play a critical role for treatment of bacterial infections in human and veterinary medicine, but the effectiveness of antimicrobials is jeopardized by the occurrence of antimicrobial resistance (AMR). AMR has reached alarming levels in most parts of the world, with dire financial consequences due to increased healthcare costs and considerable production losses. For these reasons, AMR is recognized as a significant threat to public health.

Bangladesh is a densely populated country in relation both to humans and to animals. To achieve the increasing demand of food of animal origin, farming system are becoming more intensified. In industrialized animal production systems, antimicrobials are an integral part of production processes, and are used both for therapeutic purposes and for disease prevention and growth promotion.

The overuse and misuse of antimicrobials in food animal production have two main unintended consequences as they result in the presence of antimicrobial residues and antimicrobial-resistant bacteria in food for human consumption. In recent years, due to increased focus on food safety, the issues of antimicrobial residues and antimicrobial-resistant bacteria in food have attracted much attention in Bangladesh. Antimicrobial residues and antimicrobial-resistant bacteria in animal-derived food represent a socio-economic challenge as they affect both human health and the international trade of animals and animal products.

The Government of Bangladesh imposed a complete ban on use of antimicrobials as growth promoters (AGPs) by approving the Fish feed and Animal Feed Act-2010 followed by framing the Animal Feed Rules-2013, with the aim to produce safe food for consumers by ensuring the quality of animal feed. However, the livestock sector of Bangladesh is very much vulnerable to misuse and overuse of antimicrobials, and there are few and limited rules and regulations to monitor AMU in livestock sector. For example, in Bangladesh like in other low- and middle-income countries (LMICs), the commercial poultry sector is rapidly intensified but comprised mainly of small-scale producers, who are completely dependent on credit from poultry dealers

to buy day-old chicks and poultry feed supplemented with antimicrobials as a package support. This aggravates the AMR problem by circumventing the ban on use of AGPs in animal feed.

The Government of Bangladesh has taken an important initiative to address AMR in animals and food of animal origin due to the global public health consequences as well as food safety concerns linked to AMR. The Livestock and Dairy Development Project (LDDP) engaged UNIDO to provide technical support in conducting a gap analysis and to support the development of policies and strategies to tackle the AMR issue in the country. UNIDO is developing policy guidelines and a framework to address the AMR issue in the livestock sector in alignment with the guidelines developed by WOA and CODEX.

Bangladesh established a national surveillance system to monitor the prevalence and evolving trends of AMR in bacteria using a One Health approach. AMR data sharing across the sector or stakeholders will be fundamental to design measures to control the AMR problem, but it has not been well established yet. Therefore, it is essential to build relationships among stakeholders representing relevant public health and veterinary services to ensure structured data sharing. UNIDO and LDDP / DLS organized and conducted several workshops to develop relationships and foster collaboration among relevant stakeholders.

ACTIVITIES CONDUCTED TO BUILD RELATIONSHIP AMONG RELEVANT PUBLIC HEALTH AND VETERINARY SERVICES

Stakeholder identification

Following the guidelines of WHO and WOA, the national stakeholders involved in foodborne AMR and AMU surveillance were identified including i) Policy makers, ii) Drug regulators, iii) Food Safety Authority, iv) Department of Livestock Services, v) Academia, vi) Researchers, vii) Public & Private practitioners & prescribers, viii) Livestock & poultry farmers association, ix) Livestock/Poultry/Fish feed producers, x) Pharmaceutical industry, xi) Pharmacists & Dispensers, xii) Consumers Association of Bangladesh (CAB), Civil Society and xiii) Media.

Stakeholder consultations were conducted to identify potential synergies and collaborations with the overarching aim to mitigate the risk of AMR in animals and food of animal origin.

Stakeholder consultations meetings

A series of meetings was organized with different stakeholder organizations to identify the existing practices, gaps, data sharing opportunities and any potential synergies to cope with the AMR issues with joint consensus and initiatives. The UNIDO experts collected data, policy documents and relevant information from different organizations during stakeholder consultations. Finally, UNIDO experts reviewed all collected information, facts, and policy documents, and compiled them together. The UNIDO team visited and interacted with the following organizations:

- Department of Livestock Services, Head Office (DLS),
- Central Disease Investigation Laboratory (CDIL-DLS),
- Quality Control Laboratory of DLS (QC-DLS),
- Central Veterinary Hospital (CVH-DLS),
- Bangladesh Livestock Research Institute (BLRI),
- Quality Control Laboratory of DoF (QC-DoF),
- Communicable Diseases Control of Directorate General of Health Services (CDC-DGHS),
- Institute of Epidemiology, Disease Control and Research (IEDCR-DGHS),
- Directorate General of Drug Administration (DGDA),
- Bangladesh Standard and Testing Institute (BSTI),
- Bangladesh Accreditation Board (BAB),
- Fleming Fund Grant of Bangladesh,
- Bangladesh Food Safety Authority (BFSA),
- Consumers Association of Bangladesh (CAB),
- Dhaka South City Corporation (DSCC),
- Antimicrobial manufacturer, feed miller and drug seller,
- Poultry and Dairy Farmers Association of Bangladesh,
- Media (print and electronic),
- Professional Organizations,
- In person communications with relevant professionals, etc.



Meeting with national experts and different stakeholders (IEDCR & DGDA)

WORKSHOP WITH DIFFERENT RELEVANT STAKEHOLDERS

From January 2022 to March 2023, UNIDO and LDDP/DLS organized five consultation workshops with relevant stakeholders in different venues in Dhaka city. A considerable number of participants participated in these workshops and gave their valuable contributions and recommendations.

1st workshop

Strengthening the Legal and Institutional Capacity for the management of Food Safety of Products of Animal Origin

A workshop was organized on “Strengthening the Legal and Institutional Capacity for the management of Food Safety of Products of Animal Origin” on 26-27 January 2022 in Dhaka (Annex-1.a). The objective of the workshop was to engage key stakeholders in the Food Safety ecosystem of Bangladesh, including policymakers, regulators, academics, scientists, legal experts, and industry representatives. The workshop outline was as follows:

- Review of data collected / received from relevant departments and analysis of changes / progress made in the past 5 years, with the objective to verify baseline and preliminary findings of change/progress made since 2011/2015;
- Collect a list of recommendations to further improve current practices related to veterinary services, with the objective to present recommendations based on justifications according to OIE and CODEX standards - reference to best practices in Terrestrial Animal Health Code (Chapters 3.1 & 3.2), Codex Alimentarius and Codex Food Safety Guidelines;

- Present outcomes in collaboration with national experts to Department of Livestock services and other stakeholders involved in veterinary services, with the objective to engage with and obtain consensus of stakeholders on desired outcomes for food safety of animal products.

National and International experts of UNIDO conducted the workshop, in which there were 50 participants including representatives of the Ministry of Fisheries and Livestock, Bangladesh Food Safety Authority, Department of Livestock Services, Department of Fisheries, Dhaka City Corporation, Fleming Fund, National Curriculum & Textbook Board, various Agricultural Universities, Research Institutes and entrepreneurs (Annex-1.b).

Recommendations of the 1st Workshop

The workshop ended up with a considerable set of recommendations which are summarized as follows:

- ✓ Develop a new section within DLS with specific responsibility for animal protection and animal quarantine;
- ✓ Develop a National Inspectorate within DLS as the competent authority and with the involvement of Ministry of Cooperative, Ministry of Commerce, Producer Groups, processors and traders;
- ✓ Develop a Competent Authority in DLS for laboratory networking for food safety testing with the DLS as the Competent Authority and with the involvement of Producer Groups, processors and traders (milk, meat, and eggs);
- ✓ Develop formal training programmes for officers and technicians in country and abroad including modules on Good Laboratory Practices (GLP) and HACCP and within the competency of DLS;
- ✓ Strengthen animal protection and animal quarantine activities by creating an additional District level Position of Deputy Director within DLS;
- ✓ Develop a Dairy Development Policy and establish a Dairy Development Board within the competency of DLS;
- ✓ Enact a veterinary cell of DGDA through deputizing DLS senior veterinarians
- ✓ Deploy separate veterinary inspection teams in the field for monitoring veterinary medicines;
- ✓ Develop a formal stakeholder forum comprised of representatives from the Directorate of national consumer's right protection, CAB, producer's association, BFSA, Institute of Public Health;
- ✓ Review and develop national guidelines, protocols and standards benchmarked against international standards and guidelines;

- ✓ Develop programmes for raising awareness in farmers and consumers regarding safe food production and consumption;
- ✓ Implement the existing Food Safety Act and Rules through interaction with national and international stakeholders to supply safe foods to consumers in Bangladesh and abroad;
- ✓ Update current legislative acts and rules and promulgate new laws in accordance with the national, regional, and international standards following the WOA, CODEX and WHO;
- ✓ Prepare a master SOP and working SOP for proper surveillance testing in laboratories accredited by the Competent Authority, which must comply with international guidelines;
- ✓ Consider the need for increasing the number of laboratory facilities and trained scientists, and provide adequate funding for collaboration with relevant national and international laboratories;
- ✓ Consider an interagency competency mapping to ensure effective detection, monitoring, and surveillance;
- ✓ Develop a comprehensive surveillance plan for meat, milk, eggs and leather, targeting antimicrobials, heavy metals, microbial toxins, veterinary drug residues, dyes, hormones, steroids, drug excipients, food and feed additives;



Opening ceremony of workshop

- ✓ Take effective measures to manage noncompliance including resources for investigation, prevention, awareness and training, and follow-up testing;
- ✓ Take measures to ensure the implementation of laws in collaboration of politicians, administration, and stakeholders;
- ✓ Establish surveillance cells within DLS and DoF to maintain and coordinate the laboratories involved in detection, monitoring, and surveillance;
- ✓ Improve coordination and collaboration among BSTI, Ministry of Industry, Ministry of

Commerce, NBR, BFSa, DoF, DAE, BLRI, and law-enforcing agencies;

- ✓ Develop a common database to support import and export functions;
- ✓ Harmonize the relevant rules and regulations to avoid duplication and ambiguity;
- ✓ Establish a separate Trade Body in DLS, which will control the quarantine stations and Certification and Registration of international trade;
- ✓ Improve coordination and collaboration with primary producers, manufacturers, processors, trade associations, importers and exporters;
- ✓ Develop capacity-building resources for importers and exporters;
- ✓ Set targets for gradual improvement of national standards in accordance with international standards including Codex, OIE and ISO accreditation;
- ✓ Create incentives for compliance with higher standards such as opportunities for the export of products to developed countries;
- ✓ Develop Zoning and Compartmentalization to facilitate international trade

2nd workshop

Antimicrobial Resistance (AMR) in Livestock Sector in Bangladesh

A two-day online session was conducted on 8 and 9 March 2022 focusing on the draft Codex guidelines on integrated monitoring and surveillance of foodborne AMR (Annex-2.a).

The objective of the workshop was to:

- Share experience and update information among participants on international best practices related to AMR integrated monitoring and surveillance systems and the importance of coordination among competent authorities;
- Compile information on existing policies, strategies, laws and capacity building initiatives related to AMR in the livestock sector and food of animal origin;
- Identify gaps in the current practices on collection and management on AMR data related to the livestock and food of animal origin, considering international best practices;
- Foster and strengthen the collaboration among stakeholders involved in AMU and AMR surveillance in the livestock and food of animal origin sectors.

Mrs. Rosa Peran, former Codex chairperson and senior advisor at the Ministry of Health, Welfare and Sports (VWS) of the Netherlands, presented the Codex Guidelines on integrated monitoring and surveillance of foodborne antimicrobial resistance. Ms. Finola McCoy, Senior Programme Manager at Cell Check, Animal Health Ireland, presented the Irish experience on AMR from the

perspective of changing the culture of use of antibiotics and in achieving multi-stakeholder support. Finally, Dr. Valeria Bortolaia, international AMR expert and Prof. Samuel Godefroy, international food regulatory expert, moderated a Q&A session based on the results of an online questionnaire on AMR and AMU in the livestock sector and food of animal origin in Bangladesh. A total of 118 people across governmental bodies as well as academia and private sector participated in the workshop (Annex-2.b).

Recommendations of the 2nd Workshop

The workshop attendees agreed on the following recommendations to establish integrated AMR surveillance and monitoring:

- ✓ Comply with Codex guidelines for the surveillance of foodborne AMR;
- ✓ Develop a policy paper on integrated AMR surveillance and monitoring framework in the livestock sector in Bangladesh;
- ✓ Develop a sustainable sampling strategy for national AMR surveillance in animals and food of animal origin;
- ✓ Conduct AMR risk assessment, risk management and risk communication in compliance with Codex Alimentarius Commission (CAC);
- ✓ CAC guidelines should be followed and adopted during production of food of animal origin;
- ✓ Strengthen multi-sectoral One Health approaches for integrated AMR surveillance and monitoring;
- ✓ Conduct an online questionnaire to gain further insights on current laboratory capacity for surveillance of AMR in livestock and food in Bangladesh.

3rd workshop

Food Safety and AMR Surveillance of Food of Animal Origin

A three-day workshop on “Food Safety and AMR Surveillance of Food of Animal Origin” was held on 28-30 March 2022, at hotel Pan Pacific Sonargaon, Dhaka. The workshop focused on sharing national and international best practices on integrated AMR surveillance and monitoring, food safety practices in livestock sector and food of animal origin, policy and legislation, inspection and monitoring system (Annex-3.a).

The objectives of the workshop were to:

- Disseminate the results of technical assessments conducted by UNIDO experts as part of the Livestock and Dairy Development Project (LDDP) and the proposition of a way forward. The session presented the outcomes of the following UNIDO Report:

- o Gap Analysis of Legal and Policy Framework in the livestock sector and Food Safety Regulatory landscape study;
 - o Performance assessment of veterinary services;
 - o Gap assessment on policy and institutional framework for AMR surveillance and monitoring;
- Stakeholder consultations on Food Safety and Antimicrobial Resistance (AMR) among governmental agencies, development partners, academia and industry (farmers, processors and distributors) of food of animal origin;
 - Capacity building sessions for regulators and stakeholders involved in the safety of food of animal origin:
 - o Training on the pillars of a modern regulatory framework for the milk industry;
 - o Training on the fundamentals of scientific evidence-based food risk analysis principles.

A total of 101 people from relevant competent agencies/organizations participated in the workshop (Annex-3.b). There was a large representation from industry and the farming sector at the third day of the Workshop on Developing a Milk Quality Culture with strong support for developing Guidelines and Codes of Practice to strengthen food safety practices along the dairy supply chain. The workshop received high attention by senior governmental officials, including Secretary of the Ministry of Fisheries and Livestock as well as the Director General of the Department of Livestock Services.



Closing ceremony of Food Safety and AMR Surveillance Workshop

Food Safety and Antimicrobial resistance are a global challenge for Public Health

Category: [बनस्पति](#) Created: Monday, 28 March 2022 15:55 Written by agrilife24

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Agrilife24.com: Food Safety and Antimicrobial resistance are global challenges for Public Health, Fisheries and Livestock Secretary Dr. Mohammad Yamin Chowdhury said this at the inaugural session of a three-day-long workshop on, Food Safety and Antimicrobial Surveillance of Food of Animal Origin organized by the United Nations Industrial Development Organization, World Bank and Department of Livestock Services at a local hotel here today.

He opined that the concerted effort of the national and international experts may find a solution to reduce this threat.

Presided over by United Nations Industrial Development Organization (UNIDO) Country Representative Dr. Zaki Uz

Online news on Technical Workshop

Recommendations of the 3rd Workshop

The workshop produced a considerable number of recommendations by experts and stakeholders, including:

- ✓ Improved compliance with regulations through training and awareness campaigns
- ✓ Improved enforcement of regulations through inspection and monitoring
- ✓ Greater coordination of inspection functions
- ✓ Clearly defined roles and responsibilities of competent authorities
- ✓ Follow GAP across the entire livestock value chain
- ✓ Creation of a dedicated wing/directorate in DLS for food safety
- ✓ Stronger coordination and collaboration among agencies working on food safety
- ✓ Infrastructural development for the transportation of milk
- ✓ Capacity building for all competent authorities
- ✓ Increase testing capacity of laboratories
- ✓ Develop courses and curriculum of Universities related to the safety of foods of animal origin
- ✓ Improve the meat marketing system to assure food safety
- ✓ Competent Authority decisions must be evidence/science based/risk based
- ✓ Develop mitigation plans for managing residues in food products
- ✓ Need real-time data, set up parameters for the safety of foods of animal origin that help

decision making and early warning

- ✓ Need to set local standards of maximum residue level (MRL) based on codex standards
- ✓ Milk marketing facilities need to improve. The milk collection system from remote areas needs to be improved/considered.
- ✓ Portable devices are needed for quality assurance during milk collection in the field
- ✓ Coordination and networking needs to improve along the entire value chain.
- ✓ Breeding policy needs to be updated as cattle breeding policy is not followed properly.
- ✓ Need to support dairy farmers to produce safe milk through good dairy practice. Capacity building programmes for hygienic hand /machine milking.
- ✓ Develop awareness programmes for milk man/ para professional, as the farmers depend on milk man/ para professional who are responsible for safe milk production.
- ✓ Due to absence of milk collection and chilling centers, farmers are not interested to set up more dairy farms in these areas. More milk collection centers are needed to produce more safe milk.
- ✓ Subsidy from government can help to establish more dairy hubs. Emergency response program should be adopted in the policy.
- ✓ Quality culture/practice needs to be strengthened.

Based on the recommendations identified during the gap analysis phase, a separate report is being prepared for submission.

In the workshops conducted, UNIDO invited participants from the competent authorities as well as the private sector to improve cross-sectoral collaboration and enhance communication and food safety advocacy. UNIDO committed to integrate dialogue among stakeholders in its future sessions.

4th Workshop

Policy Dialogue on Food Safety and AMR Surveillance for Food of Animal Origin

UNIDO hosted a 3-day “Policy dialogue workshop on Food Safety and AMR surveillance for food of animal origin” for regulators, policymakers, food business operators and academia in Dhaka from 22 to 24 November 2022, at Hotel Pan Pacific Sonargaon, Dhaka. The objective of the workshop was to discuss the findings and recommendations of a series of policy papers developed by UNIDO’s International and National experts with key stakeholders. The reports included an overarching Proposed Livestock Development Policy Framework and Food Safety of Animal Products Policy and four documents presenting a series of recommendations for specific actions to achieve the policy objectives outlined in the policy framework, namely:

- Food Safety Regulatory Landscape Study;
- Policy Paper on Operationalization of Department of Livestock Services' Regulatory Function and Coordination Mechanisms for Food of Animal Origin;
- Antimicrobial Resistance (AMR) Containment Policy in Animals and Foods of Animal Origin in Bangladesh;
- AMR Surveillance and Monitoring Framework in the Animal Health Sector in Bangladesh.

The main topics presented and discussed during the workshop are summarized below.

A Food Safety Regulatory Prioritization Plan was developed, drawing on the recommendations from these four reports, combining them into four primary areas for targeted investment, namely infrastructural, enforcement capability, regulatory effectiveness, and the food safety capacity of food business operators.

The proposed Livestock Development Policy Framework and Food Safety of Animal Products Policy provide a policy framework building on shortcomings identified in the National Livestock Development Policy (2007). These documents emphasize the need for a shift towards a Policy, which includes the promotion of increased investment in measures to address the risks associated with the production, processing and distribution of animal products destined for human consumption. They recommend strengthening the area of the veterinary domain known as "Veterinary Public Health". Based on the findings of the UNIDO gap analysis, several partner organizations are sharing food safety regulatory functions without always having clearly defined boundaries as to each of their respective roles and responsibilities. The gap analysis calls on the DLS to actively engage with each of its implementing partners, both public and private, in order to clarify their respective roles and responsibilities and thus improve the effectiveness and efficiency of the management of (scarce) resources directed towards food safety management of animal products.

The Food Safety Regulatory Landscape Study builds on the findings of UNIDO's gap Analysis of the Food Legislative and Regulatory Landscape in Bangladesh, which found that while there were sufficient legislative instruments mandating competent authorities in regulating food safety, there is a need to clarify the way certain legislations interact, in areas of shared responsibility, to avoid duplication of enforcement, remove ambiguity of responsibility and provide clarity to food business operators along the food chain. It provides a direction to act on the recommendations stemming from the gap analysis such that they are incorporated in a framework of food safety legislative and regulatory modernization, which strengthens the oversight on food of animal origin in Bangladesh.

The Landscape study recommended greater coordination of interventions of the competent authorities within their respective mandates, to maximize resource utilization, reduce duplication and clarify responsibilities.

The role of food business operators in the food safety infrastructural framework is identified with focus on the development of guidelines and codes of practice, aligned with the strengthened food regulatory policy and institutional framework. The scope of this must extend along supply chains and include all inputs including animal remedies and veterinary medicines.

The policy paper on operationalization of Department of Livestock Services' (DLS) regulatory function and coordination mechanisms for foods of animal origin, considered how the DLS, as the Competent Authority, exercises its food regulatory functions in a more effective manner. It proposed an initial focus on four operational elements namely, responsibility for official controls, delivery of official controls, staff, and review and monitoring. Within this approach the role of a memorandum of understanding (MOU) was considered as an enabling means of achieving enhanced interagency collaboration and as an alternate measure to legislative changes which might take longer time. Internally, there is a value in developing greater clarity of roles and responsibilities of staff and departments supported by more effective communications across and within functions of DLS. Recognizing the competencies of DLS staff in the areas of food safety and related areas, there exists a need for specific training on enforcement activities which do not usually exist within standard academic programmes. The provision of specific training is complementary to the development of a revised enforcement policy and must be aligned with the approach adopted in related agencies to ensure consistency in enforcement. Finally, a process of monitoring and evaluation using pre-determined objectives is necessary to support a culture of continual improvement within the operations of the DLS.

The case study on Ireland's slaughterhouses and dairy processing sector illustrated how the sector evolved over time from a domestic to an export-oriented sector. The dairy business model changed from farmers delivering their milk to processors to processors developing an on-farm collection model, thereby linking farmers directly to the milk processor, applying milk quality standards of the processor including refrigeration and supply of approved farm inputs. The business model of slaughterhouses evolved from the basic function of slaughter of animals on behalf of farmers and butchers, to slaughterhouses adopting a carcass grading scheme enabling better pricing of quality animals thereby incentivizing better practice in cattle finishing. A key factor in enabling this evolution was the direct involvement of regulators, farmers, processors and marketers in developing industry roadmaps supported by Guidelines and Codes of Practice and a strong implementation process supported at the highest government level.

The Antimicrobial Resistance Containment Policy in Animals and Foods of Animal Origin in Bangladesh provided a strategic guidance for the DLS on responsible Antimicrobial Use (AMU) and the control of Antimicrobial Resistance (AMR). Its goal is to promote responsible AMU and to reduce the occurrence and spread of AMR in animals and foods of animal origin in Bangladesh. Increased stakeholder awareness is necessary to improve understanding of AMR and requires the input of all stakeholders. A comprehensive surveillance system encompassing the approval, supply, and use of antimicrobials across the food chain should be developed supported by a programme to promote better and more responsible AMU by food business operators. These actions must take place within an environment of improved governance, formal collaborations, and partnerships amongst stakeholders. A comprehensive monitoring and evaluation framework was presented highlighting specific activities, output indicators, mode of verification and responsibilities.

An AMR Surveillance and Monitoring Framework in Animals and Foods of Animal Origin in Bangladesh was proposed which envisaged the development of a comprehensive and robust national AMR surveillance database for animals and foods of animal origin in Bangladesh. This provided an overview of options for the implementation of a national AMR surveillance and monitoring programme for meat, milk and egg producing animals and food thereof. It proposed a focus on selected bacterial species, which are considered most relevant to AMR monitoring from a public health perspective: the zoonotic bacteria *Salmonella enterica* and *Campylobacter*

spp. (*C. jejuni* and *C. coli*) and the commensal bacteria *Escherichia coli* and *Enterococcus* spp. (*E. faecium* and *E. faecalis*). As discussed, a sampling framework should be preceded by risk assessments on the health and financial burden imposed by chemical and microbial residues occurring in the food chain.

A Food Safety Regulatory Investment Plan was presented that included the recommendations from all 4 reports categorizing investment across 4 primary areas namely:

1. Investing in Food Safety Infrastructure
2. Building Enforcement Capability
3. Strengthening Regulatory Effectiveness
4. Food Safety Capacity Building of Food Business Operators

Within these 4 areas a total of 18 investment areas are identified across the value chain for foods of animal origin and are considered priorities for achieving transformative change in the food safety regulatory landscape in Bangladesh. The Food Safety Regulatory Investment Prioritization Plan can be used as a basis for developing the collaborative framework amongst competent authorities and individual priorities costed and supported by an implementation plan.

Recommendations of the 4th Workshop (related to AMR)

Overall, stakeholders are fully aware of AMU and AMR issues in livestock, and how these are connected to food safety. However, there are still several issues to address before a sustainable nationwide AMU and AMR surveillance system can be implemented in livestock and foods of animal origin. The following recommendations represent the outcome of the AMU and AMR-related discussions held during the workshop:

Overarching recommendations:

- ✓ Specialized acts/laws, which are already existing in the country, should be enforced to ensure rational AMU in food animals;
- ✓ AMR surveillance should be included in national legislation;
- ✓ Regular and sustainable funding is required for AMU and AMR surveillance, which can generate data of public health relevance;
- ✓ Governance for AMU and AMR surveillance in the livestock and food sectors should be strengthened by building on the ongoing One Health initiatives in the country;
- ✓ Coordination among the stakeholders involved in AMU and AMR surveillance should be strengthened to fully leverage on the large amount of information already available;
- ✓ A system for farm/animal and/or market identification, which is critical to ensure sample traceability, should be established;

- ✓ A system for proper storage and sharing of AMU and AMR data should be established.

AMU-specific recommendations:

- ✓ There is need to reach a decision on whether paraveterinarians should be included among the stakeholders for promoting responsible AMU;
- ✓ There is a need to find strategies to ensure that pharmacists and retailers do not sell antimicrobials without prescriptions;
- ✓ There is a need to find strategies to ensure that livestock producers, who are administering antimicrobial to animals, are aware of the principles of prudent AMU;
- ✓ As implementation of strict biosecurity measures does not seem to be currently applicable to each individual livestock facility in the country, mass vaccination programmes should be further developed and implemented.

AMR-specific recommendations:

- ✓ Laboratory capacity for AMR surveillance should be strengthened, and a national network of laboratories should be formed to coordinate AMR surveillance activities;
- ✓ Training for sample collection and transportation, sample processing for bacterial isolation and identification and antimicrobial susceptibility testing should be conducted.

5th Workshop

DLS High-level Policy Dialogue Framework on Strengthening Capacities of Department of Livestock Services' Regulatory Function Related to Safety of Food of Animal Origin and Foodborne AMR Surveillance in Bangladesh

Production of safe food is critical for the safety of domestic consumers as well as an important pre-condition for export. Assuring safety of food of animal origin and prevention and control of foodborne antimicrobial resistance (AMR) in developing countries like Bangladesh is a big challenge. The integrated approach of UNIDO's Food Security and Food Systems Unit aligning the development of a value chain with a food regulatory enhancement agenda was put into application to address challenges associated with the production of foods of animal origin in Bangladesh. Regulatory responsibilities in this area are spread across a number of Ministries and agencies with the Department of Livestock Services (DLS) under the Ministry of Fisheries and Livestock (MoFL), being the primary authority responsible for assuring food safety from production through to the consumption of foods of animal origin. Currently, there are a number of regulations to support the safe practices in the livestock sector nevertheless their implementation is lacking a compliance promotion culture and is considered fragmented with limited coordination among the relevant competent authorities. Therefore, enforcement of such regulations needs capacity enhancement of the primary regulator as well as support from different other relevant regulatory authorities. There are also areas, where overlapping of responsibilities is a crucial issue, which needs dialogue in between regulators to solve the issues and assure smooth service to the producers and consumers.

Even though there are existing coordination mechanisms among competent authorities in Bangladesh, a need for more focused coordination in policy development and implementation is highly recommended. This may be supported by the set-up of specialized working groups from different Ministries and agencies. As an outcome, DLS would be able to optimize resources, maximize knowledge and skills utilization, as well as sharing important information.

UNIDO hosted a 2-day “Policy dialogue on Strengthening Capacities of the Department of Livestock Services’ Regulatory Function related to Safety of Food of Animal Origin and Food borne AMR Surveillance in Bangladesh” on 12-13 March 2023 at Krishibid Institute Bangladesh. The participants were high level DLS officers.

The purpose of this workshop was to clarify roles and responsibilities and develop a plan for active collaboration for AMU and AMR surveillance. The expert working group revisited the recommendations for the development of regulations, organization, and infrastructure for surveillance of AMU in livestock and of foodborne AMR in Bangladesh and discussed some concrete action points on sampling strategies based on the prioritization of risks in terms of AMR. The group also addressed some key questions, which have emerged during previous workshops held by UNIDO related to AMR surveillance for food of animal origin.

Focus areas were:

- Establishment of a regulatory framework for AMR surveillance in animal production system and/or food;
- Enforcement of existing regulations on the use of antimicrobials (e.g. compliance with withdrawal periods, availability as prescription-only medicines, etc.);
- Raising AMR awareness in food sector operators and consumers;
- Development of guidance for antimicrobial stewardship in livestock;
- Set up of training programmes for responsible AMU and AMR surveillance.

Recommendations of the 5th Workshop (related to AMR)

During the workshop, there were very fruitful discussions, which resulted in the following recommendations.

Overarching recommendations:

- ✓ Strong and effective collaboration needs to be developed between DLS, DGDA, BFSa, DGHS and BSTI. This may be achieved by clearly defining the areas of interagency collaboration individually for each stakeholder;
- ✓ Regarding collaboration with DGDA, it is critical to ensure that there is a larger representation of veterinarians compared to the current situation, for decisions regarding AMU in livestock. This could, for example, include the formation of a joint task force including DGDA and DLS to ensure quality assurance in the production of veterinary drugs;

- ✓ Regulatory enforcement should be developed in DLS by deployment of veterinary inspector for the enforcement of laws and regulations;
- ✓ A technical committee should be formed with relevant stakeholders (DLS, DGDA, BFSa, and academia) ideally by leveraging on the sectoral working committee for AMR. DG, DLS is the empowered entity to endorse the technical committee and develop the ToR.

AMU-related recommendations:

- ✓ DLS should take the lead to ensure prudent AMU at the farm level;
- ✓ Standard treatment guidelines (STGs) for poultry and large animals should be developed and owned by DLS;
- ✓ A system for AMU data collection, sharing and storage should be established. At present, there are no such features in BAHIS as the system is under development. It could be considered to allow all BVC-registered veterinarians to report to such system, and to include in the code of conduct of BVC the need to report AMU information.

AMR-related recommendations:

- ✓ Training for capacity development regarding sample management (including collection, storage and analyses) should be conducted regularly;
- ✓ A system for AMR data collection, sharing and storage should be established. At present, there are no such features in BAHIS as the system is under development.

At the end of the workshop, participants were asked to answer four questions to receive feedback in an anonymized way. Questions and answers were as follows:

1. What went well during the workshop?
 - Smart presentation and delivery and group work
 - Excellent mentor and dialogue
 - Good mentor and participants discussion
 - Fruitful dialogue among the participants on AMU and AMR
 - Smart and well-defined presentation on AMU
 - Experienced shared
2. What could have been even better?
 - A bit more day training
 - Need more time

- More time to discuss the issues
 - Allocated more time on AMR
 - Develop a comprehensive work plan
3. Did the workshop meet your expectations?
- Yes
 - If full day 90%, now 70%
 - 70% of the expectations fulfilled
 - Met the expectations
 - Yes, it met the expectations
4. Were there important AMU/AMR topics that were not discussed? If yes, please list them and explain why you deem them important
- All topics were discussed
 - How to control AMU, roadmap needed
 - More discussion is needed on how the output can be materialized
 - All the points were discussed
 - AMU collection methods should be included (that helps to report to WOH)

Most participants answered the question. Overall, it seems that participants were satisfied with the workshop and would have liked to spend even more time for it.

CONCLUSIONS

Each of the five workshops concluded with a series of recommendations from participants on how to develop stronger working relationships between public health and veterinary services supported by structured data sharing amongst partners. The recommendations from individual workshops are detailed above, however the main recommendations are summarized below.

- Government should allocate resources for a sufficiently skilled workforce for AMU and AMR surveillance and laboratory diagnosis;
- DLS should develop a Veterinary Public Health Directorate with specific responsibility for:

- Development of a regulatory enforcement section enacting specific legislative instruments for rational AMU in food animals;
- Deployment of veterinary inspection teams in the field for monitoring the sale and prudent use of veterinary drugs;
- Development of a policy in compliance with Codex guidelines for the foodborne AMU and AMR surveillance;
- Developing an integrated AMR surveillance and monitoring framework in livestock and food.
- In collaboration with other relevant agencies DLS should:
 - Strengthen multi-sectoral One Health approaches for integrated AMR surveillance and monitoring;
 - Develop a laboratory network for food safety and AMR surveillance and testing as the Competent Authority and with the involvement of Producer Groups, processors and traders (milk, meat, and eggs);
 - Coordinate regulatory inspection functions with related organizations;
 - Improve compliance with regulations through training and awareness campaigns with relevant stakeholders;
 - Share AMU and AMR surveillance data with other relevant competent authorities.
- At Departmental level, DLS should seek support for:
 - Clearly definition of roles and responsibilities of all competent authorities;
 - Development of formal collaborative relationships with DGDA, BFSa, and BSTI;

The expert team identified the foremost stakeholders associated to AMU and AMR surveillance in Bangladesh. Bilateral information and data sharing meetings will be arranged by the national and international UNIDO expert team with relevant stakeholder's organizations.

Annex-1.a

Agenda of the workshop on “Strengthening the Legal and Institutional Capacity for the Management of Food Safety of Products of Animal Origin”. 26-27 January 2022, Dhaka, Bangladesh

Location: Hotel Long Beach

Program Schedule: DAY ONE

MORNING

08:30 - 09:15	Registration of Participants
09:15 - 10:00	Inaugural Session by Chief Guest, DG, DLS Monjur Mohammad Shahjada, Special guest PD, LDDP Mr. Abdur Rahim, Chaired by UNIDO Country representative Dr. Zaki Uz Zaman and coordinated by NPC, UNIDO Dr. Md. Ainul Haque
10:00 - 10:30	Tea / Coffee break – ½ hour
10:30 - 11:30	Overview of the Veterinary domain and OIE/ SPS/Codex international standards in relation to Food Safety of PoAO according to the SPS/OIE Terrestrial Animal Health Code/FAO/WHO Codex Overview of Food Safety Regulatory Functions and Criteria of Performance Analysis Discussion / Q&A session (John Woodford / Samuel Godefroy)
11:30 - 13:00	Preliminary Findings on the quality of Veterinary Services in relation to Food Safety of Animal Products with reference to selected PVS Critical Competencies at Baseline (PVS 2011/Gap Analysis 2015) based on OIE Recommendations - and the major changes which have occurred during the past 5 years - (Mehedi Hossain / Rajiur Rahman) – Discussion, Q&A session.
13:00 - 14:30	Lunch / Prayers

14:30 - 16:30

Overview and Gap Analysis of the existing Laws (legal mandates for respective Competent Authorities) (and Regulations) covering Food Safety of Animal Products (Michael Barry / Abu Abdullah/ Mohammad Giasuddin):

- a. Ante- and post-mortem meat inspection and animal/ animal product traceability;
- b. Setting and enforcement of standards of hygiene, food safety management and waste disposal at [establishments processing foods of animal origin](#) (registration, licensing and inspection, food safety inspection/controls of meat, milk, eggs, honey);
- c. Control of registration, licensing and inspection of business operations, including wet markets where live animals and animal products are sold.
- d. Control of the distribution and storage of perishable products of animal origin from processing establishments to retail outlets.
- e. Surveillance, prevention and control of zoonoses which may be transmitted to humans via food products of animal origin;
- f. Veterinary Medicines –registration, importation, manufacture, distribution, storage sale and use of veterinary medicines.
- g. Detection, monitoring and control of microbial and chemical residues in products of animal origin, including setting of MRLs.
- h. Detection and control of AMR in animal production.
- i. International trade of animals, animal products and high risk (with respect to Animal Health) commodities; (Licensing of traders, setting of Sanitary measures for Import permits (in accordance with SPS Agreement standards), Export Certification of animal products destined for human consumption.
- j. Veterinary/Food safety diagnostic Laboratory standards – Quality Assurance of Veterinary/Food Safety Diagnostic Laboratories, setting standards for the use of diagnostic tests and analyses used in food safety.

Program Schedule: DAY TWO

08:45 - 09:30

Summary overview of previous day presentations – Mehedi Hossain/ Rajiur Rahman/John Woodford/Samuel Godefroy/Michael Barry)

09:30 - 09:45	Objectives of Brainstorming exercise (John Woodford/Samuel Godefroy/ Michael Barry)
09:45 - 10:15	Tea Coffee Break
10:15 - 13:00	Brainstorming Session – Part 1 - Themes 1-3
13:00 - 14:30	Lunch break / Prayers
14:30 - 17:00	Brainstorming session Part 2 – Themes 4-6 to reach Desired Outcomes

THEMES

Theme 1	Institutional and Organisational arrangements - Competent Authorities responsible for Food Safety of PoAO/Collaboration/Communication - Desired outcomes
Theme 2	Policies , strategic planning and Regulatory control of food safety of PoAO - Desired Outcomes
Theme 3	Food safety standards (production, processing distribution, hygiene food safety control management systems, laboratories accreditation, residues, AMR) - Desired Outcomes
Theme 4	Compliance Verification, Inspection and Enforcement
Theme 5	Regulatory Enablers and Resources required to ensure food safety of PoAO (Human, financial, physical) – Desired Outcomes
Theme 6	Public awareness , Principal stakeholders/value chain actors - consumer rights, responsibilities of animal producers, food business operators, traders animal product vendors, animal health service providers, others – Desired Outcomes
16:00 - 17:00	Closing ceremony by Chief guest Dr. Nitish Debnath, Ex Vice Chancellor, Chattogram Veterinary & Animal Science University. Special guest PD, LDDP Mr. Abdur Rahim, Chaired by UNIDO Country representative Dr. Zaki Uz Zaman and coordinated by NPC, UNIDO Dr. Md. Ainul Haque

Annex-1.b

Lists of participants in the workshop on “Strengthening the Legal and Institutional Capacity for the Management of Food Safety of Products of Animal Origin”. 26-27 January 2022, Dhaka, Bangladesh

SI #	NAME	Gender	Position and Name of Organization	Location
1.	Dr. Monjur Mohammad Shahjada	Male	Director General, DLS	Dhaka
2.	Md. Abdur Rahim	Male	Project Director, LDDP, DLS and Joint Secretary	Dhaka
3.	Md. Hamidur Rahman	Male	Joint Secretary (Law Section), MoFL, Dhaka	Dhaka
4.	Md Hemayet Hossain	Male	Joint Secretary (Admin-3), MoFL, Dhaka	Dhaka
5.	Dr. Debashis Das	Male	Director, Admin, DLS	Dhaka
6.	Dr. Golam Rabbani	Male	NTC, LDDP, DLS	Dhaka
7.	Mohammad Shah Alom Biswas	Male	DPD, LDDP, DLS	Dhaka
8.	Hiranmoy Biswas	Male	DPD, LDDP, DLS	Dhaka
9.	A B M Mustanur Rahman	Male	DPD, LDDP, DLS	Dhaka
10.	Md. Shakif-Ul-Azam	Male	DPD, LDDP, DLS	Dhaka
11.	Md. Misbahuzzaman Chandan	Male	Food Safety and Quality Control Expert, LDDP, DLS	Dhaka
12.	Md. Zillur Rahman	Male	Communication Consultant. LDDP, DLS	Dhaka
13.	Md. Abu Sufian	Male	PSO, LRI, DLS	Dhaka
14.	Md. Golam Azam Chowdhury	Male	PSO, CDIL, DLS,	Dhaka
15.	Abu Sayeed Md. Abdul Hannan	Male	PSO, QC Lab, DLS, Dhaka	Dhaka
16.	Md. Abdul Hai	Male	Principal, VTI, DLS	Gaibandha
17.	Md. Sorower Hossain Sikder	Male	DD, Legislation and Administration, Registration, Certification, DLS	Dhaka
18.	T.A.B.M Muzaffar Goni Osmani	Male	Epidemiology Unit, DLS	Dhaka
19.	Mohammad Shahadat Hossain	Male	ULO, LR, DLS	Dhaka
20.	Abul Hasnat Md. Shahadat Hossain	Male	ULO, LR, DLS	Dhaka
21.	Dr. Dipti Rani Poul	Female	DLS	Dhaka
22.	Md. Monjur Kadir	Male	Chairman, BVC	Dhaka
23.	Gopal Chandra Biswas	Male	Registrar, BVC	Dhaka
24.	Prof. Dr. Nitish Chandra Debnath	Male	DAI Fleming Fund	Dhaka
25.	Md. Bahanur Rahman	Male	Professor, Bangladesh Agricultural University	Mymensingh

SI #	NAME	Gender	Position and Name of Organization	Location
26.	Dr. Mohammad Al-Mamun	Male	Professor, Bangladesh Agricultural University	Mymensingh
27.	Sharmin Chowdhury	Female	Director, One Health Institute, Chattogram Veterinary and Animal Sciences University	Chattogram
28.	K.B.M. Saiful Islam	Male	Chairman, Dept. of Medicine & Public Health, FAS&VM, Sher-e-Bangla Agricultural University	Dhaka
29.	Mohammad Rafiqul Islam	Male	CSO, BARC	Dhaka
30.	Md. Mustafizur Rahman	Male	Additional GM, Milk Vita	Dhaka
31.	A.B.M Shafiqul Islam	Male	Veterinary Officer, DSCC	Dhaka
32.	Md. Fakhrul Islam	Male	AD, DGDA	Dhaka
33.	Shaorin Islam	Female	SO, BFSA	Dhaka
34.	Nasrin Sultana	Female	BLRI, Savar	Dhaka
35.	Sharmin Samad	Female	Veterinary Officer, DNCC	Dhaka
36.	Md. Tajul Islam	Male	Arham Agrovet	Dhaka
37.	Md. Mahbub Hassan	Male	WPSA-BB-BPICC	Dhaka
38.	Mohammed Abul Khair Bhuiya	Male	NCTBB	Dhaka
39.	MD. Mizanur Rahman	Male	DOF	Dhaka
40.	Dr. S.M. Nazrul Islam	Male	President, BVA	Dhaka
41.	Md. Mostafa Kamal	Male	BTEB	Dhaka
42.	Zaki Uz Zaman <i>PhD</i>	Male	UNIDO Country Representative in Bangladesh	Dhaka
43.	Dr. Md. Ainul Haque	Male	National Project Coordinator, UNIDO, LDDP	Dhaka
44.	Dr. John Wordfood	Male	International Expert, UNIDO	France
45.	Dr. Samuel Godefory	Male	International Expert, UNIDO	Canada
46.	Mr. Michael Barry	Male	International Expert, UNIDO	Ireland
47.	Md. Abu Abdullah	Male	National Legal Expert, UNIDO	Dhaka
48.	Dr. Md. Mehedi Hossain	Male	National Expert on Inspection, UNIDO	Dhaka
49.	Dr. S.M. Rajiur Rahman	Male	National Dairy and Livestock Expert	Dhaka
50.	Dr. Md. Giasuddin	Male	National AMR Surveillance Expert	Dhaka

Annex-2.a

Agenda of the online workshop on “Antimicrobial Resistance (AMR) in Livestock Sector in Bangladesh”. 8-9 March 2022

Location: Zoom platform

Languages: English and Bangla

Day 1: 8 March 2022, Tuesday

14:30-14:40: Introduction to Workshop and its Objectives by Dr. Md. Ainul Haque National Project Coordinator (NPC) UNIDO and Dr. Md. Giasuddin, National AMR Expert, UNIDO.

14:40-14:50: Opening remarks by the Director General of the Department of Livestock Services, Dr. Monjur Mohammad Shahjada.

14:50-15:30: Codex Guidelines on integrated monitoring and surveillance of foodborne antimicrobial resistance by Ms. Rosa M. Peran i Sala, former Codex Chairperson for AMR Codex guidelines and Senior Advisor at the Ministry of Health, Welfare and Sport (VWS) of the Netherlands.

15:30-15:50: Developed country experience: The Irish experience on AMR from the perspective of changing the culture of use of antibiotics and in achieving multi-stakeholder support. Presentation by Ms Finola McCoy, Senior Programme Manager Cell Check, Animal Health Ireland.

15:50-16:30: Q &A

Day 2: 9 March 2022, Wednesday

14:30-14:40: Review of day One activities and Modalities for day Two workshop by Dr. Md. Ainul Haque and Dr. Md. Giasuddin.

14:40-14:50: Sharing expectations regarding AMR surveillance for livestock sector to UNIDO by the Director (Admin) of the Department of Livestock Services, Dr. Debashis Das.

14:50-15:00: Brief introduction of participants

15:00-16:15: Moderated Q&A session by Dr. Valeria Bortolaia, international AMR expert and Prof. Samuel Godefroy, international food regulatory expert.

- Current sources of AMU data in livestock and food thereof in Bangladesh, and representativeness in relation to the national livestock and food production.
- Current sources of AMR data in livestock and food thereof in Bangladesh, and representativeness in relation to the national livestock and food production.
- AMU and AMR data availability, comparability, sharing and reporting.

16:15-16:25: Review of activities and comments from Gabor MOLNR, Project manager, UNIDO-LDDP and Md. Abdur Rahim, Project Director (Joint Secretary), LDDP, DLS.

16:25-16:30: Concluding remarks by Dr. Md. Ainul Haque NPC, UNIDO and Zaki Uz Zaman PhD, UNIDO Country Representative in Bangladesh.

Annex-2.b

List of the participants in the online workshop on “Antimicrobial Resistance (AMR) in Livestock Sector in Bangladesh”. 8-9 March 2022

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Annex-3.a

Agenda of the policy dialogue workshop on “Food Safety and AMR Surveillance for Food of Animal Origin”, organized by UNIDO, LDDP, DLS. 28-30 March 2022, Dhaka, Bangladesh

Location: Pan Pacific Sonargaon Dhaka

DAY ONE – 28 March 2022, Monday

ASSESSMENT OUTCOMES

Objective of the day:

The aim of this workshop to disseminate the results on the different analytical assessments held on the domain of food safety management system and AMR surveillance for food of animal origin as well as performance of veterinary services in Bangladesh. As an overall outcome, participants will gain knowledge on the most recent gaps and needs to ensure a more advanced enabling environment as well as practices related to the food safety and AMR surveillance and monitoring of food of animal origin.

Moderators:

Dr. Md. Ainul Haque, National Project Coordinator and Dr. Gabor Molnar, Associate Industrial Development Expert, UNIDO

09:30 – 10:00

Inaugural session

1. Welcome address by Dr. Md. Ainul Haque, National Project Coordinator
2. Brief presentation of UNIDO and LDDP activities by Dr. Gabor Molnar, Associate Industrial Development Expert, UNIDO
3. Speech by Special guest Md. Abdur Rahim, Project Director, (JS), LDDP, DLS
4. Speech by Special guest Dr. Monjur Mohammad Shahjada, Director General, Department of Livestock Services
5. Inaugural Speech and opening of workshop by Chief guest Dr. Mohammad Yamin Chowdhury, Secretary, MoFL
6. Concluding Statement as chair by Mr. Zaki Uz Zaman, UNIDO Country Representative in Bangladesh

10:00 – 10:30

Tea break

10:30 - 11:30	Performance assessment of veterinary services – An update and a proposed way forward for follow up actions by <i>Dr. John Woodford – International Food Safety Expert, Dr. Mehedi Hossain – National Expert on Inspection, Dr. S.M. Rajiur Rahman – National Livestock and Dairy Expert, UNIDO</i>
11:30 – 13:00	Gap analysis of legal and policy framework in the livestock sector and Food safety regulatory landscape study by <i>Dr. Samuel Godefroy – Senior Expert in Food Regulatory Science, Mr Michael Barry – Specialist in Food Regulatory Framework and Mr. Abu Abdullah – National Legal Expert, UNIDO</i>
13:00 – 14:00	Lunch and prayer break
14:00 – 16:00	Gap assessment on policy and institutional framework for AMR surveillance and monitoring by <i>Dr. Valeria Bortolaia – International AMR Expert and Dr. Md. Giasuddin – National AMR Expert, UNIDO</i>
16:00 - 16:30	Closing remarks of the day and reflection for day two by <i>Dr. Md. Ainul Haque and Dr. Gabor Molnar, UNIDO</i>

DAY TWO – 29 March 2022, Tuesday

FOOD SAFETY AND AMR COORDINATION WORKSHOP

Objective of the day:

The objective of day two is to have a call for more coordinated efforts among stakeholders involved in food safety and AMR related activities, including regulatory enforcement, capacity building, research, inputs and support services.

09:30 – 09:45	Review of day One activities and Modalities for day two workshop by <i>Dr. Md. Ainul Haque – National Project Coordinator and Dr. Gabor Molnar – Associate Industrial Development Expert, UNIDO</i>
09:45 - 10:05	Keynote presentation on Systematic challenges to become a robust food safety system by <i>Dr. Gabor Molnar, Associate Industrial Development Expert, UNIDO</i>
10:05 - 10:15	Q/A
10:15 - 10:30	Introduction to the roundtable discussion
10:30 - 11:00	Tea break

- 11:00 - 12:15** **Roundtable stakeholder discussion on food safety system governing the livestock sector and food of animal origin moderated**
- Breakout sessions based on the following topics:*
- Coordination in food safety regulatory enforcement moderated by *Dr. John Woodford – International Food Safety Expert and Dr. Mehedi Hossain – National Expert on Inspection, UNIDO*
 - Effective Food Safety Systems in Supply Chains moderated by *Mr. Michael Barry – Specialist in Food Regulatory Framework and Dr. S.M. Rajiur Rahman, National Livestock and Dairy Expert, UNIDO*
 - Food safety capacity building efforts moderated by *Dr. Md. Ainul Haque – National Project Coordinator / Dr. Md. Gias Uddin, National AMR Expert and Dr. Gabor Molnar – Associate Industrial Development Expert, UNIDO*
- 12:15 - 13:00** **Presentation of the outcomes from each group and proposals for a way forward**
- 13:00 - 14:00** **Lunch break**
- 14:00 - 15:30** **Roundtable stakeholder discussion on AMR and AMU surveillance and monitoring in the livestock sector and food of animal origin moderated by Dr. Md. Gias Uddin-National AMR Expert, UNIDO**
- Breakout sessions based on the following topics:*
- Discussion around antimicrobial resistance in livestock sector and food of animal origin by *Dr. Md. Gias Uddin, National AMR Expert, Dr. Mehedi Hossain – National Expert on Inspection, UNIDO*
 - Discussion around antimicrobial use (AMU) in livestock sector and food of animal origin moderated by *Dr. John Woodford – International Food Safety Expert and Dr. S.M. Rajiur Rahman, National Livestock and Dairy Expert, UNIDO*
- 15:30 - 16:15** **Presentation of the outcomes from each group and proposals for a way forward**
- 16:15 - 16:30** **Closing remarks of the day and reflection for day three by Dr. Md. Ainul Haque and Dr. Gabor Molnar, UNIDO**

DAY THREE – 30 March 2022, Wednesday

AWARENESS RAISING WORKSHOP

09:30 – 09:40 **Review of day two activities and introduction to day three** by *Dr. Md. Ainul Haque – National Project Coordinator and Dr. Gabor Molnar – Associate Industrial Development Expert, UNIDO*

Parallel sessions

09:40 - 10:30 **Part I of fundamentals of scientific evidence-based food risk analysis principles** held by *Dr. Samuel Godefroy – Senior Expert in Food Regulatory Science, UNIDO (In Zoom)* **Private sector session part I:** Developing a Milk Quality Culture through better regulation, guidelines, consultation and support by *Michael J Barry – Specialist in Food Regulatory Framework*

10:30 - 11:00 Tea break

Parallel sessions

11:00 - 13:00 **Part II of fundamentals of scientific evidence-based food risk analysis principles** held by *Dr. Samuel Godefroy – Senior Expert in Food Regulatory Science, UNIDO (In Zoom), Dr. Gabor, Dr. John, Dr. Gias and Dr. Mehedi* **Private sector session part II:** Developing a Milk Quality Culture through better regulation, guidelines, consultation and support by *Michael J Barry – Specialist in Food Regulatory Framework, Dr. Ainul Haque, Mr. Abdullah and Dr. Rajiur Rahman*

13:00 - 14:00 **Lunch break**

14:00 - 15:00 **Private and public sector consultation:** Developing a Quality Culture through better regulation, guidelines, consultation and support by *Michael J Barry – Specialist in Food Regulatory Framework and Dr. John Woodford–International Food Safety Expert*

15:00 - 15:30 **Feedback session on the workshop by participants**

15:30 - 16:00 **Presentation of lessons-learned and recommendation** by *Michael J Barry – Specialist in Food Regulatory Framework and Dr. John Woodford*

16:00 - 16:30 **Closing session**

Workshop recommendation by rapporteur

1. Remarks by Special guest Director Admin, DLS, Dr. Debashis Das
2. Remarks by Chief guest Dr. Kazi Abdul Fattah, Former Director General, DLS
3. Concluding Statement as chair by Mr. Zaki Uz Zaman, UNIDO Country Representative in Bangladesh

Annex-3.b

List of participants in the policy dialogue workshop on “Food Safety and AMR Surveillance of Food of Animal Origin”, organized by UNIDO, LDDP, DLS. 28-30 March 2022, Dhaka, Bangladesh

Sl.#	Name	Gender	Position and name of Institution	Location
1	Dr. Mohammad Yamin Chowdhury	Male	Secretary, Ministry of Fisheries and Livestock	Dhaka
2	Dr. Monjur Mohammad Shahjada	Male	DG, DLS	Dhaka
3	Mr. Md. Abdur Rahim	Male	PD (JS), LDDP, DLS, Dhaka	Dhaka
4	Mr. Md. Habibur Rahman	Male	Joint Secretary (Fisheries-5 br.), MoFL	Dhaka
5	Ms. Shahina Ferdousi	Female	Joint Secretary (Livestock-1 br.), MoFL,	Dhaka
6	Dr. Debashis Das	Male	Director-Admin, Extension, DLS	Dhaka
7	Dr. Md. Safiul Ahad Sardar	Male	Director, 48, Kazi Alaudin Road, DLS	Dhaka
8	Dr. Amalendu Ghosh	Male	Director, LRI, Mahakhali, DLS	Dhaka
9	Dr. Md. Abu Sufian	Male	Director (CC) Accounts, Budget and Audit Section, DLS	Dhaka
10	Dr. ABM Khaleduzzaman	Male	Director (CC), BCS Livestock Academy, Savar, DLS	Dhaka
11	Mohamad Shah Alom Biswas	Male	DPD, LDDP, DLS	Dhaka
12	Dr. Hiranmoy Biswas	Male	DPD, LDDP, DLS	Dhaka
13	Dr. A B M Mustanur Rahman	Male	DPD, LDDP, DLS	Dhaka
14	Dr. Md. Shakif-Ul-Azam	Male	DPD, LDDP, DLS	Dhaka
15	Engg. Partha Pradip Sarker	Male	LDDP, DLS	Dhaka
16	Dr. Arabinda Kumar Saha	Male	Animal Health Expert (National), LDDP	Dhaka
17	Dr. Abdul Hannan	Male	Animal Reproductive Health Expert, LDDP	Dhaka
18	Md. Zillur Rahman	Male	Communication Consultant. LDDP	Dhaka
19	Md. Misbahuzzaman Chandan	Male	Food Safety and Quality Control Expert, LDDP	Dhaka
20	Md. Jahid Hossain	Male	National Dairy Expert, LDDP	Dhaka
21	Dr. Md. Shahinur Alam	Male	Deputy Director (Animal Health, DLS, Dhaka)	Dhaka
22	Dr. Sk Shaheenur Islam	Male	Deputy Chief Epidemiologist, DLO, Tejgaon	Dhaka
23	Dr. Md. Abdul Mazid	Male	DD, Veterinary Public Health, DLO	Rajshahi
24	Dr. Md. Ashraful Alam Khan	Male	DD, Veterinary Public Health,	Chattogram

Sl.#	Name	Gender	Position and name of Institution	Location
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26	Dr. Mohammad Mufazzal Hossain	Male	PSO, Veterinary Public Health Sub-Section LRI, Mohakhali	Dhaka
27	Dr. Md. Abu Sayeed	Male	DD, Veterinary Public Health, DLO	Rangpur
28	Dr. Helal Ahmed	Male	VO, Dist. Veterinary Hospital,	Gazipur
29	Dr. Md. Shahidul Islam	Male	VO, Dist. Veterinary Hospital	Chattogram
30	Dr. Sayed Md. Nazrul Islam	Male	VO, Dist. Veterinary Hospital	Cumilla
31	Dr. Ashika Akbar Trisha	Female	VO, Dist. Veterinary Hospital	Dinajpur
32	Dr. Md. Jakir Hossain	Male	VO, Dist. Veterinary Hospital	Narayanganj
33	Dr. Md. Nure Alam	Male	ULO, ULO Veterinary Hospital Nasirnagar	B'Baria
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35	Dr. Mohammad Shahadat Hossain	Male	ULO, Planning and evaluation cell, DLS	Dhaka
36	Prof. Dr. Md. Abdul Alim	Male	Member, BFSA	Dhaka
37	Md Bahanur Rahman	Male	Dept. of Microbiology, Bangladesh Agricultural University	Mymensingh
38	Dr. Md. Harun-ur-Rashid	Male	Professor, Dept. of Dairy Science, Bangladesh Agricultural University	Mymensingh
39	Dr. Emdadul Haque Chowdhury	Male	Department of Pathology, Bangladesh Agricultural University	Mymensingh
40	Prof. Dr. K. B. M. Saiful Islam	Male	Chairman, Dept. of Medicine & Public Health, FAS&VM, Sher-e-Bangla Agricultural University	Dhaka
41	Prof. Dr. Sharmin Chowdhury	Female	Director, One Health Institute, Chattogram Veterinary and Animal Sciences University	Chattogram
42	Dr. ASM Alamgir	Male	Principal Scientific Officer, IEDCR	Dhaka
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45	Ms. Nazmun Naher	Female	Bangladesh Standard Testing Institute	Dhaka
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Sl.#	Name	Gender	Position and name of Institution	Location
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51	Mr. Md. Fakhrul Islam	Male	Asst. Director, DGDA	Dhaka
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53	Anjan Majumder	Male	CEO, Organic Hub BD	Dhaka
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70	Md. Nasim Ali Mandal	Male	Dairy Professional. Former consultant, DRMP (LDDP), National Consultant, FAO, Consultant, PKSF. Former Addl. GM, Milk Vita.	Dhaka
71	Md. Nazir Uddin	Male	Sr. Instructor (Livestock) YTC, Savar	Dhaka
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81	Mohammed Mokbul Hossain	Male	Milk Vita	Dhaka
82	Dr. Md. Al Mamun	Male	Professor, BAU	Mymensingh
83	Mr. SMA Samad	Male	National Agree Business Expert, (Trg), AFC/SSIL/LDDP	Dhaka
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85	Mr. Md. Mahbub Hassan	Male	WPSA-BB-BPICC	Dhaka
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89	Mr. Md. Emran Hossain	Male	President, Bangladesh Dairy Farmers Association	Dhaka
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91	Md. Ramzy Ismail	Male	World Health Organization	Dhaka
92	Dr. Sukanta Choudhury	Male	ICDDR'B	Dhaka
93	Dr. Gabor Molnar	Male	UNIDO LDDP Project Manager	Austria
94	Dr. Zaki Uz Zaman	Male	UNIDO Country Representative in Bangladesh	Dhaka
95	Dr. Md. Ainul Haque	Male	National Project Coordinator, UNIDO, Dhaka	Dhaka
96	Dr. John Woodford	Male	International Expert, UNIDO	France
97	Dr. Michael Barry	Male	International Expert, UNIDO	Ireland
98	Dr. Md. Mehedi Hossain	Male	National Expert on Inspection, UNIDO	Dhaka
99	Md. Abu Abdullah	Male	National Legal Expert, UNIDO	Dhaka
100	Dr. Md. Giasuddin	Male	National AMR Surveillance Expert, UNIDO	Dhaka
101	Dr. Md. Rajiur Rahman	Male	National Dairy and Livestock Expert, UNIDO	Dhaka

Annex-4.a

Agenda of the Policy dialogue workshop on “Food Safety and AMR Surveillance for Food of Animal Origin”, organized by UNIDO, LDDP, DLS. 22-24 November 2022, Dhaka, Bangladesh

Venue: Pan Pacific Hotel Sonargaon

Languages: English

DAY ONE – 22 November 2022

FOOD SAFETY POLICY DIALOGUE

Objective of the day:

The aim of this session is to hold consultations with relevant public and private stakeholders to validate principles and objectives set in the *Policy paper on Food Safety Framework for food of animal origin and in the Food Safety Regulatory Landscape Study and Investment Plan*. It will also aim at identifying more streamlined processes for their implementation.

Moderators:

Dr. Md. Ainul Haque National Project Coordinator and Dr. Gabor Molnar – Project Officer, UNIDO

PROGRAMME

08:30 – 09:30	Registration of Participants
10:30 - 11:30	Inaugural session <ol style="list-style-type: none">1. Opening remarks by <i>High-level representative from the Ministry of Fisheries and Livestock</i>2. Statement by <i>Director General of the Department of Livestock Services</i>3. Statement of the <i>Projet Director, LDDP</i>4. Statement by <i>Dr. Zaki Uz Zaman, UNIDO Country Representative in Bangladesh</i>5. Statement by <i>Dr. Gabor Molnar, Project Officer, UNIDO</i>
10:20 – 10:30	Introduction to the workshop and its Objectives by <i>Dr. Md. Ainul Haque, National Project Coordinator and Dr. Gabor Molnar, UNIDO</i>
10:30 - 11:00	Tea break

- 11:00 – 12:45** **Food Safety Regulatory Landscape Study** presented by *Dr. Samuel Godefroy - Senior Expert in Food Regulatory Science*
- Policy paper on Operationalization of DLS’s regulatory function and coordination mechanisms for food of animal origin** presented by *Ms. Madeleine Smith – Senior Expert on Food Safety Inspection*
- Questions and answers**
- 12:45 – 14:00** Lunch and prayer break
- 14:00 – 16:00** **Roundtable dialogue and discussions**
- 16:00 – 16:30** **Closing remarks of the day and reflection for day 2** by *Dr. Md. Ainul Haque & Dr. Gabor Molnar, Project Officer, UNIDO*

DAY TWO – 23 NOVEMBER 2022

OPERATIONALIZATION OF ENFORCEMENT FUNCTIONS FOR THE LIVESTOCK SECTOR

Objective of the day:

The objective of the session is to establish a dialogue among public and private stakeholders to validate the objectives and plan set on the *Policy paper on Operationalization of DLS’s regulatory function and coordination mechanisms for food of animal origin*. In addition, the session will aim at discussing best practices from other countries and identifying roles and responsibilities with respect to slaughterhouses and milk collection and processing centres as central elements of the milk and meat value chain.

PROGRAMME

- 09:30 – 10:30** **Review of day one discussions and modalities for day two dialogue** by *Dr. Md. Ainul Haque – National Project Coordinator and Dr. Gabor Molnar, Project Officer, UNIDO*
- 10:30 - 11:00** **Tea break**
- 11:40 - 12:45** **Policy Paper on Food Safety Framework of Food of Animal Origin** presented by *Dr. Md. Mehedi Hossain, National Inspection Expert & Dr. S M. Rajiur Rahman National Livestock and Dairy Expert*
- Keynote presentation on the transformation of slaughterhouses and milk collection and processing centres in Ireland** by *Dr. Michael Barry - Specialist in Food Regulatory Framework*
- Questions and answers**
- 12:45 – 14:00** Lunch and prayer break

14:00 – 16:00	Roundtable discussion
16:00 – 16:30	Closing remarks of the day and reflection for day 3 by Dr. Md. Ainul Haque and Dr. Gabor Molnar, Project Officer, UNIDO

DAY THREE – 24 NOVEMBER 2022

LIVESTOCK POLICY DIALOGUE

Objective of the day:

As a continuation of the first and second days, public and private stakeholders will engage on a policy dialogue how AMR surveillance and AMU containment could be addressed in the livestock sector. As part of these discussions, participants will touch upon the current issues and possibly mitigation measures for the rational use of antimicrobials in the animal production. Ultimately, the discussions will aim for identifying a mutually agreed way forward for AMR surveillance and AMU containment.

PROGRAMME

09:30 – 10:00	Review of day one discussions and modalities for day two dialogue by Dr. Md. Ainul Haque – National Project Coordinator and Dr. Valeria Bortolaia – International AMR expert, UNIDO
10:00 - 10:30	Tea break
10.30 – 12:45	Antimicrobial Resistance Containment Policy in Animal Health Sector in Bangladesh presented by Dr. Md Nure Alam Siddiky - National Expert on AMR Surveillance, UNIDO
	Policy paper on integrated AMR surveillance and monitoring framework for food of animal origin, including containment of AMU presented by Dr. Valeria Bortolaia, International Expert on AMR Surveillance, UNIDO
	Questions and answers
12:45 – 14:00	Lunch and prayer break
14:00 – 16:00	Roundtable dialogue and discussions
16:00 – 16:30	Summary of discussions by Dr. Md. Ainul Haque and Dr. Gabor Molnar, Project Officer, UNIDO
16:30 - 17:00	Closing ceremony

Annex-4.b

List of participants in the Policy dialogue workshop on “Food Safety and AMR Surveillance for Food of Animal Origin”, organized by UNIDO, LDDP, DLS. 22-24 November 2022, Dhaka, Bangladesh

	Name	Gender	Position and name of institution
1	Dr. Nahid Rashid	Female	Secretary, Ministry of Fisheries and Livestock
2	Dr. Monjur Mohammad Shahjada	Male	Director General, DLS
3	Dr. Md. Emadatul Haque Talukder	Male	Director Admin, DLS, Dhaka
4	Mr. Md. Abdur Rahim	Male	Project Director (Joint Secretary), LDDP, DLS, Dhaka
5	Dr. Md. Ainul Haque	Male	NPC, LDDP, UNIDO
6	Dr. Md. Giasuddin	Male	National Expert on AMR, LDDP, UNIDO
7	Dr. Md. Mehedi Hossain	Male	National Inspection Expert, LDDP, UNIDO
8	Dr. S M Rajiur Rahman	Male	National Livestock and Dairy Expert, LDDP, UNIDO
9	Dr. Md. Nure Alam Siddiky	Male	National AMR Consultant, LDDP, UNIDO
10	Dr. Gopal Chandra Biswas	Male	Register (In Charge), BVC, Dhaka
11	Md. Altaf Hossain	Male	Deputy General Manager, Nabil Group, Jessore
12	Dr. Sukanta Chowdhury	Male	Team Leader, icddr,b, Dhaka
13	Dr. Md. Lutfor Rahman	Male	Head of Production, Bengal Meat, Pabna
14	Dr. Md. Bahanur Rahman	Male	Professor, BAU, Mymensingh
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124	Zaki Uz Zaman	Male	UNIDO Country Representative, BD
125	Prof. Dr. Nitish Debnath	Male	Country Lead, Fleming Fund, Bangladesh

Annex-5.a

Agenda for the Expert Working Group 3 on “AMR Surveillance in food of animal origin” within the “DLS High-level Policy Dialogue Framework on Strengthening Capacities of Department of Livestock Services’ Regulatory Function Related to Safety of Food of Animal Origin and Foodborne AMR Surveillance in Bangladesh”. 12th – 13th March 2023, DLS, Dhaka, Bangladesh

Date	Time	Activity	Responsible persons
12 th March	09.30 - 10.00	Combined opening session of veterinary enforcement and AMR	DG DLS PD LDDP Country Representative UNIDO
	10.00 - 10.05	Objectives & Outputs to be achieved on Day 1 (Focus on AMU)	Dr. Valeria Bortolaia
	10.05 - 10.15	Introduction of Expert Working Group Members	Expert Working Group members
	10.15 - 10.30	Summary of Main Findings of UNIDO Report on Mapping and Evaluating the Capacity to Manage Antimicrobial Resistance in Bangladesh - with Focus on AMU aspects	Dr. Valeria Bortolaia
	10.30 - 11.00	Tea/Coffee Break - Informal reflection on Findings regarding AMU during break amongst expert working group members	All
	11.00 - 13.00	Expert Working Group Round Table Discussions 1. How can roles and responsibilities on the collection and analysis of livestock AMU data be coordinated between DLS and DGDA? 2. How can DLS contribute to overcome the legislative gaps towards rational AMU in livestock? 3. How can DLS contribute to ensure an effective implementation policy of the existing legislation on AMU in livestock?	All
	13.00 - 14.00	Prayers & Lunch	All
	14.00-14.30	Continuation and Finalization of Round Table Discussions	
	14.30 - 14.50	Rapporteurs present findings – Main Gaps and Challenges – Policy Options for internal dialogue	Rapporteurs
	14.50 - 15.00	AOB and Concluding Remarks	All

Date	Time	Activity	Responsible persons
13 th March	09.00 - 09.10	Opening of Roundtable Meeting / Objectives & Outputs to be achieved on Day 2 (Focus on AMR)	Dr. Valeria Bortolaia
	09.10 - 09.30	Summary of Main Findings of UNIDO Reports on Mapping and Evaluating the Capacity to Manage Antimicrobial Resistance in Bangladesh - with Focus on AMR aspects, and on Policy for Integrated AMR Surveillance and Monitoring Framework in Animals and Food of Animal Origin	Dr. Valeria Bortolaia
	09.30 - 10.30	Expert Working Group Round Table Discussions 1. Organization and governance for AMR surveillance in animals and food of animal origin in Bangladesh 2. What are DLS roles and responsibilities for sustainable AMR surveillance and monitoring programme in livestock and food, in line with Codex recommendation?	All
	10.30 - 11.00	Tea / Coffee Break - Informal reflection on Findings regarding AMR during break amongst expert working group members	All
	11.00 - 12.00	Expert Working Group Round Table Discussions <i>(continued...)</i> What are DLS roles and responsibilities for sustainable AMR surveillance and monitoring programme in livestock and food, in line with Codex recommendation? 3. How can DLS contribute to integrated AMR surveillance in a One Health perspective?	All
	12.00 - 12.30	Rapporteurs present findings – Main Gaps and Challenges – Policy Options for internal dialogue	Rapporteurs
	12.30 - 13.00	Summary of Outputs of Round Table Discussion EWG 3 – Policy Options for Internal and External (Inter-Ministerial) dialogue	UNIDO
	13.00 - 14.00	Prayers & Lunch	All

Annex-5.b List of the participants

List of participants in the “DLS High-level Policy Dialogue Framework on Strengthening Capacities of Department of Livestock Services’ Regulatory Function Related to Safety of Food of Animal Origin and Foodborne AMR Surveillance in Bangladesh”. 12th – 13th March 2023, DLS, Dhaka, Bangladesh

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