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AWARENESS-RAISING SESSION ON CODEX GUIDELINES ON INTEGRATED AMR SURVEILLANCE AND MONITORING

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Awareness-Raising Session on Codex Guidelines on Integrated AMR Surveillance and Monitoring

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Hold awareness-raising session on draft Codex Guidelines on integrated AMR surveillance and monitoring.

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Abbreviations and Acronyms

ADRM	Adverse Drug Reaction Monitoring
AHI	Animal Health Ireland
AMR	Antimicrobial Resistance
AMU	Antimicrobial Use
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
DGDA	Directorate General of Drug Administration
DGHS	Directorate General of Health Services
DLS	Department of Livestock Services
EUCAST	European Committee on Antimicrobial Susceptibility Testing
FAO	Food and Agriculture Organization of the United Nations
GAP	Global Action Plan
LDDP	Livestock and Dairy Development Project
LRI	Livestock Research Institute
MoFL	Ministry of Fisheries and Livestock
MR	Methyl Red
MRL	Maximum Residue Limit
NAP	National Action Plan
OHS	One Health Secretariat
OTC	Over the Counter
SCC	Somatic Cell Count
WHO	World Health Organisation
WOAH	World Organisation for Animal Health

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EXECUTIVE SUMMARY

A two-day virtual workshop on the “Codex Guidelines on Integrated AMR Surveillance and Monitoring” was held on 8th and 9th March 2022. The workshop was attended by 118 participants representing public and private sectors including academia, researchers, extension personnel, scientist and professionals. The foremost objective of the workshop was to raise the stakeholders’ awareness about the Codex guidelines on integrated AMR surveillance and monitoring. In the workshop, three presentations were presented by the three renowned speakers on the different cross cutting topics including integrated AMR surveillance and monitoring in line with Codex Alimentarius commission; Irish experience on AMR from the perspective of changing the culture of use of antibiotics and in achieving multi-stakeholder support, and survey outputs on AMR and AMU in the livestock sector and food of animal origin in Bangladesh. Following presentations there was an online question and answer session. Finally, a set of recommendations emerged in the workshop for further intervention of integrated AMR surveillance and monitoring of foodborne antimicrobial resistance.

INTRODUCTION

The *Codex Alimentarius*, or “Food Code” is a collection of standards, guidelines and codes of practice adopted by the *Codex Alimentarius* Commission.

Codex develops international food standards, guidelines and codes of practice for an international food code that contributes to the safety, quality and fairness of food trade. Codex, which coordinates input from 188 member countries and the European Union. The *Codex Alimentarius* is a collection of international food standards, guidelines, and codes of practice whose main purpose is to protect the health of consumers and ensure fair practices in food trade. The *Codex Alimentarius* thus covers food safety matters (residues, hygiene, additives, contaminants, etc.)

Antimicrobial resistance (AMR) is a global public health threat at the human, animal and environmental interface which necessitates a “One Health” approach. Monitoring and surveillance of foodborne AMR contributes to the food safety component of such an approach.

Ideally the integrated monitoring and surveillance programme(s) includes the coordinated and systematic collection of data or appropriate samples at different stages along the food chain and within the food production environment, and the testing, analysis and reporting of data. The integrated programme(s) includes the alignment and harmonization of sampling, testing, analysis and reporting methodologies and practices, as well as the integrated analysis of relevant epidemiological information from humans, animals, foods, plants/crops and the food production environment.

National priorities, AMR food safety issues and scientific evidence, capabilities and available resources should guide the development of integrated monitoring and surveillance programme(s) which should undergo continuous improvement as resources permit. This does

not imply that a country needs to implement both monitoring and surveillance in all stages or areas covered by the programme(s).

The data generated by integrated monitoring and surveillance programme(s) provide valuable information for the risk analysis (risk assessment, risk management and risk communication) of foodborne AMR. These data may also be useful for trend analysis, epidemiological studies, food source attribution studies, and research.

While this document's focus is on foodborne AMR, there is an implicit connection between the goal of addressing foodborne AMR with the goal of reducing foodborne illness, and thus a connection to the national food safety control system.

These Codex guidelines are intended to assist governments in the design and implementation of integrated monitoring and surveillance programme(s). They provide flexible options for implementation and expansion, considering resources, infrastructures, capacity, and priorities of countries. Each monitoring and surveillance programme should be designed to be relevant for national, and when appropriate, regional circumstances. While these Codex guidelines are primarily aimed at action at the national level, countries may also consider creating or contributing to international, multinational or regional, monitoring and surveillance programme(s) to share laboratories, data management and other necessary resources.

INAUGURATION OF THE WORKSHOP

A two-daylong virtual workshop on the “Codex Guidelines on Integrated AMR Surveillance and Monitoring” was held on 8th and 9th March 2022. The workshop was attended by 118 participants representing public and private sectors including academia, researchers, extension personnel, scientist and professionals. At the outset of the workshop, Dr. Md. Ainul Haque, National Project Coordinator introduced the agenda of the workshop to the participants. Dr. Monjur Mohammad Shahjada, Director General of Department of Livestock Services (DLS) was present as the chief guest in the workshop. Dr. Shahjada highly appreciated the time befitting effort of UNIDO to conduct such a wonderful workshop. The foremost objective of the workshop was to raise the stakeholders' awareness about the Codex guidelines on integrated AMR surveillance and monitoring.

PURPOSES OF THE WORKSHOP

The workshop was organized with the following purposes:

- 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.

TECHNICAL SESSION OF THE WORKSHOP

Three technical presentations were made by the three renowned resource speakers

1. Codex Guidelines on integrated monitoring and surveillance of foodborne antimicrobial resistance. Presentation made by Ms. Rosa M. Peran i Sala, former Codex chairperson and senior advisor at the Ministry of Health, Welfare and Sports of the Netherlands;
2. 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 made by Ms. Finola McCoy, Senior Programme Manager Cell Check, Animal Health Ireland;
3. Moderated Q&A session based on online questionnaire survey on AMR and AMU in the livestock sector and food of animal origin in Bangladesh. Presentation made by Dr. Valeria Bortolaia, international AMR expert and Dr. Md. Giasuddin, National AMR expert.

A. First presentation on Codex guidelines on integrated monitoring and surveillance of foodborne antimicrobial resistance was presented by Ms. Rosa M. Peran i Sala, former Codex chairperson for AMR Codex guidelines and senior advisor at the Ministry of Health, Welfare and Sports of the Netherland. The presentation highlighted the following important areas:

- What is Codex Alimentarius? How is it organised? How does Codex work?
- Integrated monitoring and surveillance of foodborne AMR,
- The mandate of the CAC-40: Terms of Reference
- New guidelines on integrated monitoring and surveillance of foodborne AMR: structure and content
- Challenges for adoption and next step

The Codex Alimentarius Commission (CAC) was established in 1963 by the Food and Agriculture Organization of the United Nations (FAO) and WHO, to develop harmonized international food standards, guidelines, and codes of practice to protect the health of consumers and ensure fair trade practices in the food trade. They recognized the need for international standards to guide the world's growing food industry and to protect the health of consumers. The objectives of the

CAC are (i) to protect consumer health and (ii) to promote fair practices in the food trade.

The Codex is organized by commission, executive committee, Codex subsidiary bodies, Codex Committees, coordinating committees and Codex Secretariat.

The Secretariat of the Codex Alimentarius Commission, hosted at FAO headquarters in Rome, provides coordination and liaison across the entire spectrum of Codex activities. Under the overall guidance of the Codex Secretary, a senior official appointed jointly by the Directors-General of FAO and WHO, the secretariat comprises a small team of professional and technical officers and support staff.

Integrated monitoring and surveillance of foodborne AMR

Current Codex documents are available to address integrated monitoring and surveillance of foodborne AMR. These are:

- Code of practice to minimise and contain AMR (CXC 61-2005)
- Guidelines on risk analysis of foodborne AMR (CXG 77/2011)
- New guidelines on integrated monitoring and surveillance of foodborne Antimicrobial Resistance (CXG 94-2021)

The Global Action Plan (GAP) on AMR directed to:

- Member states to put in place National Action Plans of AMR;
- Strengthen surveillance of AMR and AMU;
- Support integrated surveillance and reporting AMR;
- Regularly update Codex standards and codes on AMR.

Monitoring and surveillance of AMR is one of the keys to tackle AMR. It detects and tracks changes and trends in microbial populations including drug-resistant microorganisms and resistant determinants such as genes and resistance mechanisms. Regarding AMR surveillance, the Global Action Plan directed to:

- Improve surveillance and monitoring of AMR and AMU to inform policies;
- Enhance capacity-building to support development and implementation of NAP, including surveillance and monitoring;
- Ensure that NAP include monitoring and surveillance of AMU.

Key components of integrated surveillance of AMR, including: sampling sources, target microorganisms, sampling design, laboratory testing, data management, analysis and report.

It is essential to develop a **guideline for the integrated monitoring and surveillance of foodborne AMR**. The core components of the guidelines are as follows:

1. Introduction and purpose

2. Scope
3. Definitions
4. Principles
5. Risk-based approach
6. Regulatory framework, policies and roles
7. Infrastructure and resources
8. Preliminary activities on the implementation of an integrated monitoring and surveillance program(s) for foodborne AMR
9. Components of integrated monitoring and surveillance program(s) for AMR
10. Components of integrated monitoring and surveillance program(s) for AMU
11. Integrated analysis and reporting of results
12. Evaluation of the integrated monitoring and surveillance program(s)
13. Training and capacity building

The following basic principles should be followed during implementation of integrated AMR surveillance and monitoring:

Principle-1: A one health approach should be applied whenever possible and applicable when establishing monitoring and surveillance programme(s) for foodborne AMR;

Principle-2: Monitoring and surveillance programme(s) are an important part of national strategy (ies) to minimize and contain the risk of foodborne AMR;

Principle-3: Risk analysis should guide the design, implementation and evaluation of monitoring and surveillance programme(s);

Principle-4: Monitoring and surveillance programme(s) should be tailored to national priorities and should be designed and implemented to general data on AMR and AMU in relevant sectors to inform risk analyses;

Principle-5: Monitoring and surveillance programme(s) should be tailored to national priorities and should be designed and implemented to allow continuous improvement as resources permit;

Principle-6: Priority for implementation of monitoring and surveillance programme(s) should be given to the most relevant for foodborne AMR and/or AMR food safety issues from a public health perspective, taking into account national priorities;

Principle-7: Monitoring and surveillance programme(s) should incorporate, to the extent practicable, the identification of new and emerging foodborne AMR or trends and should be designed to inform epidemiological investigation;

Principle-8: Laboratory involved in monitoring and surveillance should have effective Quality assurance/management systems in place;

Principle-9; Monitoring and surveillance programme(s) should aim to harmonize laboratory data collection, analysis, and reporting across sectors according to national priorities and resources as part of an integrated approach. Use of internationally recognized, standardized and validated methods and harmonized interpretative criteria, where available, contributes to the comparability of data, facilitates the multispectral exchange and analysis of data and enhances an integrated approach to data management analysis and interpretation.

B. The second presentation on Animal Health Ireland, and the Cell Check Programme was presented by Finola Mc Coy, Senior Programme Manager, Cell Check, Animal Health Ireland. The presentation covered the following important points:

Animal Health Ireland (AHI) is a non-profit, public-private partnership providing the leadership, knowledge and coordination required to establish effective control and eradication programmes for non-regulated diseases of cattle. Animal Health Ireland is supported by the professional group of implementation group and technical working group.

Animal Health Ireland are closely interlinked and interconnected with the following organizations:

1. Farmer's organizations;
2. Dairy and beef processors;
3. Government and state agencies;
4. AI companies, and
5. Professional/ advisory/ support services.

Cell Check is the way to promote animal health through different ways in Ireland. These are building awareness, building capacity, establishing best practice, setting goals, and evaluating changes. Cell Check is increasing awareness through providing training, publishing information in a magazine, providing awards for quality milk production and cost effective milk production. Similarly, building capacities through different means such as farmer workshops, seminars and reports. Furthermore, it establishes best practice through providing materials such as videos, booklets and guidelines for the control of mastitis.

Cell Check has set a goal by 2025 targeting quality milk production considering some parameters.

These quality parameters are as follows:

1. Somatic cell count (SCC) target (80% of milk supplied <200K)
2. Methyl red (MR) test at the farmer door steps
3. Data collection target (30% of dairy farmers recording mastitis treatments online and 75% of dairy farmers recording dry cow treatments online)

C. Third presentation on moderated Q session based on online questionnaire survey on AMR and AMU in the livestock sector and food of animal origin in Bangladesh was presented by Dr. Valeria Bortolaia, international AMR expert and, Dr. Md. Giasuddin, National AMR expert. The purposes of the Q session were as follows:

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

The expected outcome of the online workshop was targeted to:

- 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 of AMU and AMR data, considering international best practices;
- Foster and strengthen collaboration among stakeholders involved in AMU and AMR surveillance in the livestock and food of animal origin sectors.

Regarding AMU surveillance following areas were identified to ask the respondents:

- Regulatory oversight, appropriate use, and quality of antimicrobials used for livestock and poultry;
- Antimicrobial stewardship;
- AMU data management (collection/analysis/ reporting/dissemination);
- Inter-sectoral collaboration for AMU data collection, compilation and interpretation.

Regulatory oversight, appropriate use, and quality of antimicrobials used for livestock and poultry. Under this thematic area following questions were prepared to circulate among the respondents:

- What are your organization's roles and responsibilities in the context of oversight on antimicrobial approval for use in food producing animals?
- What are the policy and risk management requirements and/or practices associated with such reviews and approvals (application of Codex risk analysis criteria, exclusion of

therapeutic of important human significance) followed by your organization?

Antimicrobial stewardship. Under this thematic area following questions were posed to stakeholders:

- Are there guidelines for veterinarians on how to use antimicrobials for different livestock species and diseases?
- Are there guidelines on antimicrobial use for farmers (including awareness to prevent and mitigate fraud) – are these guidelines enforceable through any regulatory requirements?
- Are there any strategies in place to limit AMU and incentivize alternatives to antimicrobials?
- Do you/your organization participate in writing these Guidelines /strategies and monitoring compliance?

AMU data management. Under this thematic area following questions were addressed to the stakeholders:

- Do you/your organization have defined roles and responsibilities in relation to collection/ analysis/ reporting/ dissemination of information related to AMU?
- Do you have defined roles and responsibilities regarding use of AMU data to inform policy development?

Regarding AMR surveillance following areas, respondents were asked to identify:

- Sampling design for AMR surveillance;
- National capacities for AMR sample collection;
- National laboratory networks and capacities for AMR surveillance;
- AMR data management in the livestock sector;
- Translation of AMR data into information for different level of stakeholders.

Sampling design for AMR surveillance. Under this thematic area following questions were formulated to ask the stakeholders:

- What are your/your organization roles and responsibilities in the design and implementation of a sampling strategy for AMR surveillance?
- Is the sampling strategy designed for implementation at national, regional or local level?

Capacity for sample collection (for AMR surveillance). Under this thematic area stakeholders were asked:

- How many DLS officers are collecting samples for AMR surveillance in livestock, poultry and food thereof, and in which geographical areas of the country?
- Do you have **defined protocols** on sampling techniques and are there trainings thereon? If yes, please share those.

- If the entire country is not covered in the sampling plan for AMR surveillance, what are the reasons for it?
- Do you foresee any possibility to **align the AMR sampling part with other ongoing initiatives** in the food safety area?

Laboratory capacity. Under this thematic area following questions were posed to stakeholders:

- What are your/your organization roles and responsibilities in the context of laboratory capacity for analyses of samples for AMR surveillance in livestock animals and food thereof (e.g. **contribution to SOP writing, monitoring of compliance with SOPs, training of laboratory personnel**, etc.)?
- Do you follow any documented antimicrobial susceptibility testing method which could be shared?

AMR data management. Under this thematic area following questions were posed to stakeholders:

1. What are your/your organization roles and responsibilities in the context of AMR data management?
2. Is there a national/regional/local strategy regarding data collection, analysis, reporting and dissemination?
3. Do you have any digitalized system or is it paper based? If it is computer-based, could you elaborate on the data entry process and what software is being used?
4. Could you share with us a sample table based on which the data might be aggregated and analyzed?
5. To what extent are AMR surveillance data used to inform policy?
6. What are the feedback mechanisms, science and policy advisory structures that are available to support the reliance on data / evidence in AMR management decision making?

RECOMMENDATIONS OF THE WORKSHOP

The workshop recommended the following for integrated AMR surveillance and monitoring:

1. Development of a policy paper on integrated AMR surveillance and monitoring framework in the livestock sector;
2. Development of a sampling strategy for AMR surveillance in animals and food of animal origin;
3. Strengthening multi-sectoral one health approaches for integrated AMR surveillance

and monitoring;

4. Comply with Codex guidelines for the surveillance of foodborne pathogens of animal origin;
5. AMR risk assessment, risk management and risk communication should be conducted in compliance with CAC;
6. CAC guidelines should be followed and adopted during production of food of animal origin;
7. A questionnaire survey will be conducted on AMR and AMU in the livestock sector and food of animal origin

ANNEXURE 1

List of the participants attended in the online workshop

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ANNEXURE 2

Programme of the Online Workshop

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.

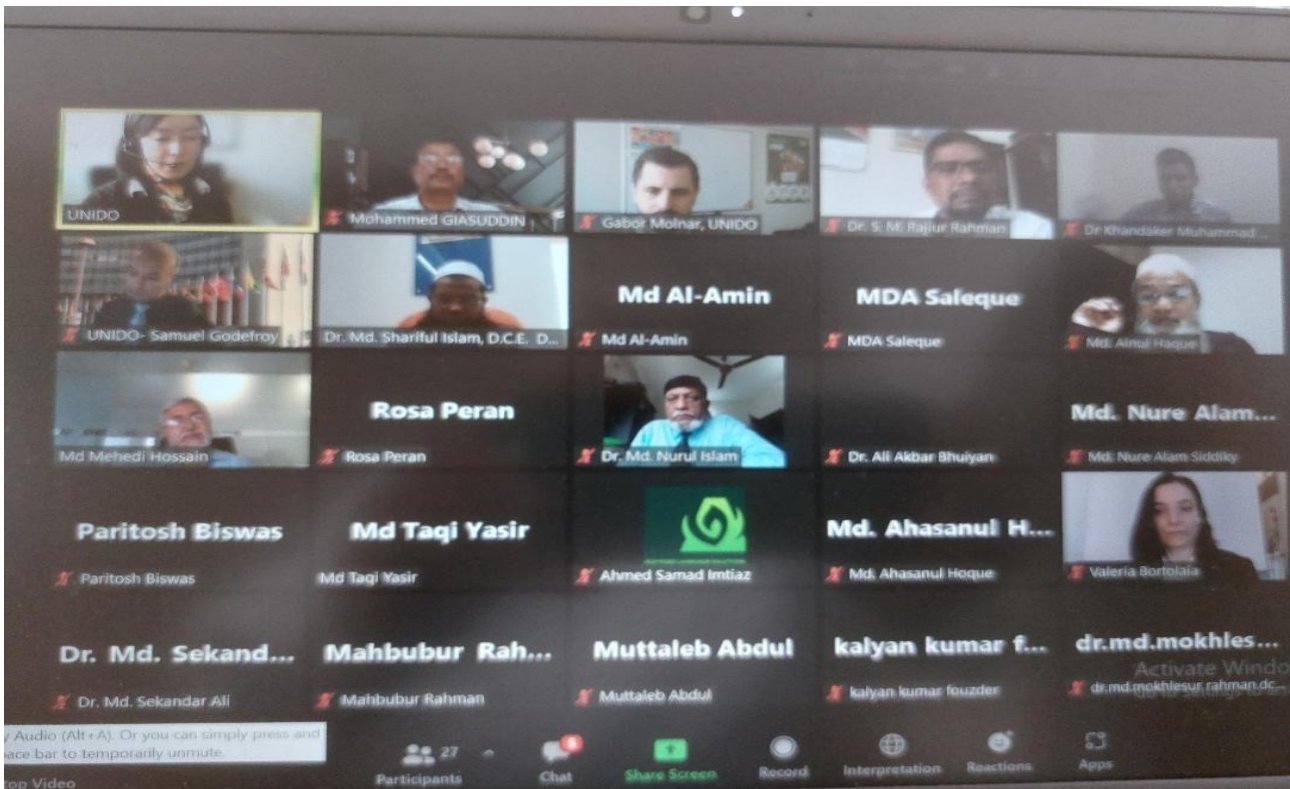
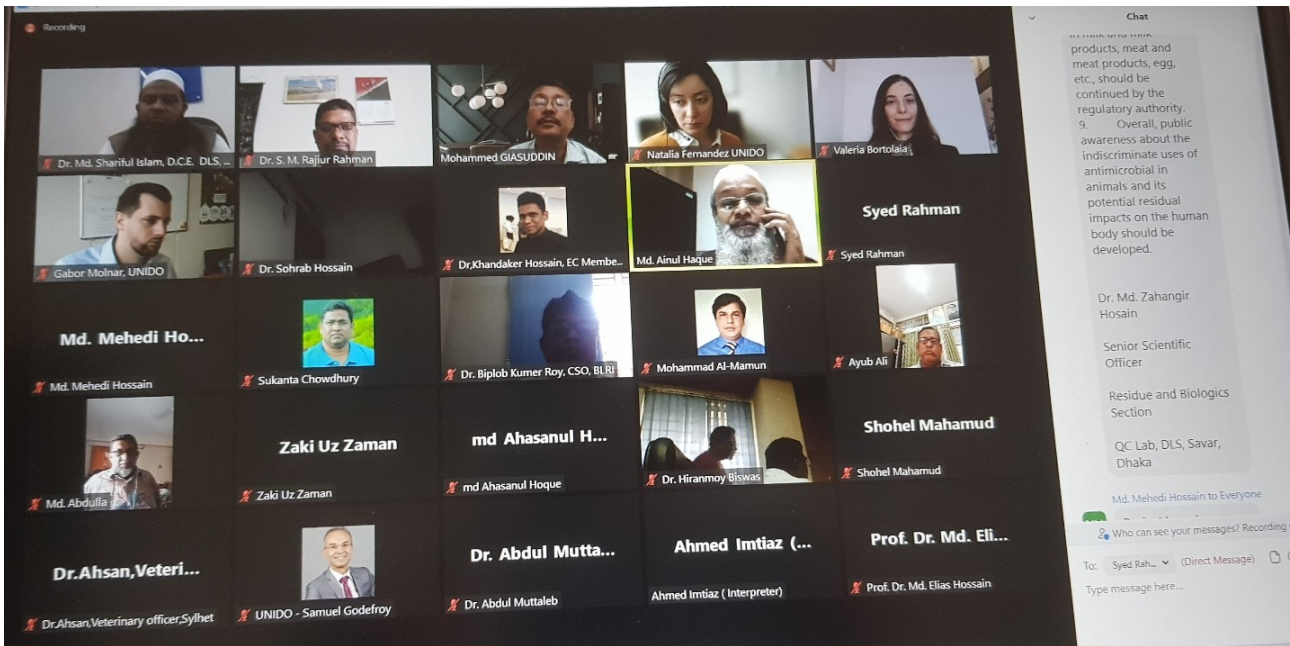
- Current sources of AMU data in livestock and food thereof in Bangladesh, and representativeness in relation to the national livestock and food production.
- Current sources of AMR data in livestock and food thereof in Bangladesh, and representativeness in relation to the national livestock and food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

ANNEXURE 3

Photograph of AMR virtual workshop





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