

# ETHIOPIA

## AMR MPTF Final Narrative Report

### Overview

**Project Title:** AMR MPTF support for the implementation of the Ethiopian One Health AMR prevention and containment strategy (project ID; 00127140)

**Duration:** 36 months (3 years), 25 May 2021 to 24 May 2024

**Budget:** USD 1,000,000

The AMR-MPTF project in Ethiopia supports the design and implementation of systems strengthening in policy and programs; generating, interpreting and using evidence-based data for decision-making; and improving antimicrobials use (AMU) behavior change practices.

#### **Impact, outcomes and outputs linkages:**

1. **Impact:** Contribute to increased Ethiopia's **commitment and efforts** on AMR prevention and containment **based on evidence-based data**
  - 1.1. **Outcome:** Evidence based and representative **data on AMU and AMR improved** for policymakers and sectors implementing AMU practices  
**Output 1:** Improved Ethiopia's capacity in designing and implementing AMR related policy frameworks, investment plans, and program  
**Output 2:** Systems for generating, analysing and interpreting data on AMR and AM consumption/use strengthened
2. **Impact:** Antimicrobials use (AMU) **behaviours and practices sustainably improved** in critical sectors
  - 2.2. **Outcome:** Risks of and response to AMR improved in targets  
**Output 3:** Strengthened systems for infection prevention, hygiene, and biosecurity
  - 2.3. **Outcome:** Use of antimicrobials optimized in critical sectors  
**Output 4:** Systems for optimized use of antimicrobials strengthened in critical sectors

#### **Main activities:**

- Supporting the functioning of the multi-sectoral and multi-disciplinary AMR prevention and containment advisory committee and technical working groups (TWGs).
- Updating and monitoring the implementation of the One Health (OH) AMR prevention and containment strategic plan and AMR MPTF project.
- Developing OH communication, stakeholders' analyses and engagement strategy, and behavior change materials.
- Establishing/Strengthening sustainable human and animal antimicrobials sensitivity testing (AST) and AMR surveillance systems and data capturing.
- Strengthening healthcare associated infections (HAI) prevention and control and scaling up AMR prevention and containment evidence (including antimicrobial stewardship (AMS)) and good practices guided by/with AMR surveillance.
- Supporting behaviors change practices for optimized use of antimicrobials.

- Developing and implementing user-friendly animal species-specific treatment guidelines based on international recommendations.
- Developing safe and quality animal source food production with consideration of antimicrobial withdrawal times and maximum residue limits.

## AMR MPTF Project Final Report

### Output 1. Improved country capacity in designing and implementing AMR related policy frameworks, investment plans, and program

#### AMR Advocacy and Awareness Raising Commemorations Improved

**World Antimicrobials Resistance Awareness Week (WAAW), 18 to 24 November of every year**, each day of the week of every year are full of One Health (OH) and sector specific Antimicrobials Resistance (AMR) events. Some of the events are highlighted:

- In the first year of the AMR MPTF project, technical launch of the AMR MPTF project took place on 13th July 2021 in Addis Ababa to familiarize and disseminate, and ownership of stakeholders for the implementation of the AMR MPTF Ethiopia project. The official launch of the AMR MPTF project was coordinated with the launch of the 3rd AMR Prevention and Containment Strategic Plan One Health, 2021-2025 and took place on 18 November 2021 in Addis Ababa. The purpose of the official launch was to secure political and technical commitment, backstopping support for the implementation by the technical teams, and visibility of the AMR MPTF project. It was organized by the Ministry of Health (MOH), Ministry of Agriculture (MOA), Environment Forest and Climate Change Commission (EFCCC) in collaboration with FAO and WHO. This was attended and lead by ministers and government institution leaders, country representatives of UN agencies and partner organizations and professional associations. It was broadcasted on TV, e.g. <https://www.youtube.com/watch?v=xMUBANq2V9o>



- On the first day of World Antimicrobial Resistance Awareness Week (WAAW) every year, 18 November 2022, commemorated with a panel discussion in the presence of 80 delegates from across sectors and professional associations. Opening speech delivered by Mrs. Frenesh Mekuria, Deputy Director General, Environment Protection Authority. She emphasized among others safe disposal of hazardous industrial and hospital wastes as well as in recognition of environmental impact, and the needs assessment before construction of industries and hospitals for prevention and containment of AMR. During this event, the first of its kind sector specific (public health, agriculture and environment sectors) AMR prevention and containment plan officially launched in the presence of the guest of honor and heads of institutions. Besides Awarded Certificate of Appreciation signed by H. E Minister of MOH for the Outstanding Contribution for OH AMR prevention and containment. The FAO AMR program lead, national coordinator and AMR MPTF

coordinator, Tenaw Andualem Tadege was awarded the certificate over the years. Organized mass mobilization to 75 Women and Youth representatives on the prevention and containment of AMR with theme: Preventing Antimicrobials Resistance Together on 24 November 2022, Addis Ababa. WHO, FAO and other partners organized the event. We also disseminated AMU and AMR behavior change mobile text messages and posters in Amharic and English languages to members of the Ethiopian Veterinary Association (EVA) and others.

- Organized the OH World Antimicrobial Resistance Awareness Week (WAAW) 2023 panel discussion with the Theme: “Preventing Antimicrobial Resistance Together”. It was officially opened by H.E. Ms Frehiwot Abebe, state minister, of the ministry of health of Ethiopia.



WAAW 2023 photo

Examples of TV broadcasts:

- Broadcasted on TV, examples <https://www.youtube.com/watch?v=xMUBANq2V9o>
- Provided live educational broadcast on AMU and AMR: <https://www.youtube.com/watch?v=nsQMkB-POL4>
- Produced the weeklong compiled report of World Antimicrobial Resistance Awareness Week (WAAW) 2023 events in Ethiopia and shared to wider audience.
- Contributed to the drafting of the Governance Framework for Antimicrobial Resistance Prevention and Containment, 2024.
- Contributed to the development, planning and costing of the second National Action Plan for Health Security (NAPHS) 2024-2028 in Ethiopia towards building capacities to prevent, detect and response to health threats and public health emergencies as highlighted by the second Joint External Evaluation (JEE) and further strengthening Ethiopia's health security capabilities and resilience, 4 to 7 and 25 to 31 March 2024.

**National AMR Awareness Day Commemorated, every year** (historically since 2013):

- Supported the 10<sup>th</sup> AMR advocacy and awareness-raising commemoration day with the theme “Coordinated efforts towards antimicrobial stewardship” organized on 15 June 2022 in the presence of 70 (15 females) participants from MOH, MOA, EPA, regulatory authorities, academia, research institutes, health facilities both public and private, pharmaceutical companies, professional associations, civic societies, international and development partner organizations, and mass media. The day was celebrated with a panel discussion on the implementation and achievements of the national AMR Prevention and Containment Strategic plan discussion and advocacy with emphasis to national essential medicines and national standard treatment guidelines.



- Co-organized OH AMR awareness day on 14 June 2024 and provided presentation on Public-Private Partnerships for the Implementation of OH Antimicrobial Resistance Prevention and Containment Strategic Plan for Ethiopia, Addis Ababa.

### **Multisectoral coordination, engagement and awareness on AMR improved**

- Coordinated and contributed the organization of the 39<sup>th</sup>, 40<sup>th</sup>, 42<sup>nd</sup>, and 43<sup>rd</sup> regular meeting of the Ethiopia OH AMR Prevention and Containment Advisory Committee. The AMR MPTF coordinator presented updates about the AMR MPTF project support for implementation of Ethiopian OH AMR prevention and containment strategy for Ethiopia, 31 May 2022. Chaired the 42<sup>nd</sup> national OH AMR prevention and containment advisory meeting, Addis Ababa, 5 July 2024.



40<sup>th</sup> regular meeting of the AMR advisory committee

### **One Health AMR Communication and Stakeholders' Engagement Strategy Developed:**

- The Tripartite (WOAH-FAO-WHO) developed, endorsed the validated the One Health AMR prevention and containment communication and stakeholders' engagement strategy for Ethiopia.
- Engaged 20 animal source food producers/farmers and animal health care providers on the developed one health AMR prevention and containment communication strategy, 18 to 19 Dec 2023.

### **One Health AMR Monitoring and Evaluation (M & E) Framework and Key Performance Indicators (KPIs) developed:**

- Assessed the Monitoring and Evaluation capacities and needs of the AMR focal persons in the institutions.
- Produced a report on the assessment of the M & E needs and capacities of the Antimicrobial Resistance National Action Plan for Ethiopia in close consultation with the Quadripartite M & E team and Ethiopian AMR stakeholders.
- The Tripartite (WOAH-FAO-WHO) developed, endorsed the Monitoring and Evaluation of the one health antimicrobial resistance prevention and containment strategic framework and Key Performance Indicators (KPIs).
- Provided capacity development training on AMR M & E and KPIs to 35 (3 females) one health AMR focal experts and national AMR advisory committee members. The AMR MPTF M & E training equipped the national AMR stakeholders with the necessary skills and tools pertaining to M & E of AMR and enabled them to follow the progress and performance of AMR prevention and containment strategic framework in their respective sectors and institutions. Web link, entitled "Antimicrobial resistance focal experts and advisory committee members trained on AMR Monitoring and Evaluation in Ethiopia" <https://www.fao.org/antimicrobial-resistance/news-and-events/news/news-details/fr/c/1637689/>



### Public-Private Partnerships (PPP) Strengthened:

- In line with the whole-of-society engagement in a One Health approach, everybody – in all sectors and disciplines – need to be engaged in the implementation of the action plan, to preserve the effectiveness of antimicrobial medicines. This informed organization of a workshop on Public Private Partnership for Efficient implementation of the OH Antimicrobial Resistance Prevention and Containment Strategic Plan for Ethiopia, 16 to 18 April 2024. This event brought the public and private stakeholders together with the aim of establishing joint responsibilities and sharing resources to attain common goals and overcome difficulties in the fight against AMR.

### Advocacy and Awareness raising to professionals on AMU and AMR:

- Provided Awareness raising and advocacy presentation on AMR prevention and containment to Environmental Health Professionals at the water, sanitation and hygiene (WASH) capacity building Extension for Community Healthcare Outcomes (ECHO) program, co-organized by Ethiopia Environmental Health Professionals Association (EEHPA) and Ethiopian Infection Prevention and Control Association (EIPCA), 31 March 2022. These communications and collaborations widen and strengthen our AMR MPTF work beyond animal health in the environment and link with United Nations Environment Program (UNEP), 31 March 2022.
- The FAO AMR MPTF coordinator provided a virtual 2 units credit Continuing Medical Education (CME and Continuing Professional Development (CPD) on Antimicrobial Resistance Prevention and Containment to more than 205 professionals from medicine, pharmacy, veterinary and environmentalists' awareness event on 23 November and 1 Dec 2023. It was co-organized by the Ethiopian Medical, Pharmaceutical, Veterinary and Environment Health Professionals Associations. A sample poster is shown below:



### AMR MPTF lessons learned and strengthened:

- Organized the Tripartite (FAO-WOAH-WHO) mid-term AMR MPTF Lesson Learning Workshop for one health participants 36 (6 females), 7 to 8 June 2023. The workshop discussed successes, best practices, challenges, and ways of improving AMR strategy implementation in general and MPTF project in particular.
- An “End of project Lesson learning workshop, 20 to 21 August 2024” allowed the project team to review and reflect on the implemented activities. This facilitated consensus building on

achievements made and highlighted challenges faced. The team had an opportunity to learn from both positive and negative experiences and mapped the priorities for the country on how to build on the successes of the AMR-MPTF project.



*Lesson learned workshop participants, credit mobile photo.*

### **Global, regional and national coordination and contributions strengthened:**

- Participated and contributed at the Quadripartite (WHO, FAO, WOA, and UNEP) African Regional Lessons Learned Workshop for Implementation of AMR National Action Plan of more than 25 countries and 89 delegates, 10 to 13 July 2023, Dakar, Senegal. At the workshop four Ethiopian one health delegates participated and shared experiences of the Ethiopian One Health AMR prevention and containment lessons over the years.



*FAO participants at the Quadripartite Africa Regional Lesson Learned Workshop, credit, Charles Bebay mobile photo*

- Contributed to AMR awareness raising in terms of key audiences, areas of work, and engagement approaches at the quadripartite global consultations of diverse stakeholders from across the globe and cross the human, animal, plant, and environmental health sectors at a virtual meetings, 28 -30 June 2022 and from 5 -7 July 2022.
- Contributed at the 4<sup>th</sup> Africa Campaign under the theme Preventing Antimicrobials Resistance Together, 22 November 2022, Dakar, Senegal co-organized by AUC (Africa Union Commission and the regional quadripartite (FAO-UNEP-WOAH-WHO). Presented during the Let's Discuss Success Initiative: Ethiopia has Maintained and Scaling up Efforts to Tackle AMR: One Health Approach with emphasis to Safe and Quality animal source food production with consideration of AMU, Residues and AMR
- Shared experiences on AMR Integrated surveillance at the 3rd global AMR MPTF Experience sharing webinar 10 March 2022.
- Coordinated and completed the sixth, seventh and eighth round of the quadripartite AMR Ethiopia Self-assessments Surveys (TrACSS).
- Ethiopia selected by the Quadripartite AMR MPTF team for a G20 Health Working Group Fourth Meeting co-branded side event entitled "Tackling Antimicrobial Resistance Across Sectors: The Value of the Antimicrobial Resistance Multi-Partner Trust Fund" scheduled for 02 September 2024 at Natal, Brazil. Drafted presentation/speech of the Ethiopian part presented by the state minister of agriculture. This event is aimed to show examples of One Health response

to AMR in different countries with experience sharing and highlighting the catalytic role of the AMR MPTF in supporting countries, harnessing the collective expertise of Quadripartite.

- Presented the OH Tripartite AMR MPTF Successes and achievements for Ethiopia at the 11th Steering Committee (SC) included resource partners meeting, 11 June 2014. FAO is the lead and coordinator organization for tripartite AMR MPTF project in Ethiopia.
- Contributed to and provided detailed feedback on “Key Messages on Antimicrobial Resistance (AMR) within the agriculture sector” to be presented at 26 Sep 2024 UNGA meeting.
- Participated at the virtually at the UN Multi-stakeholder hearing on AMR, New York, 15 May 2024
- FAO AMR MPTF coordinator held a coordination meeting with USAID Medicines, Technologies and Pharmaceutical Services (MTaPS) and Infectious Disease Detection and Surveillance (IDDS) programs to look for the areas of collaboration and synergy.

#### **AMU and AMR KAP assessments supported:**

- Produced five reports in five districts, four on Awareness and Understanding of Animals Owners on Antimicrobials Use and Resistance and one Assessment on Awareness and Understanding Veterinarians on AMU and AMR in five districts of four regions in Ethiopia through the support provided to the second cohort In-Service Applied Veterinary Epidemiology Training (ISAVET) trainees in Ethiopia.
- Drafted a report on Situation Analysis of Antimicrobial Use and Resistance in Ethiopia: One Health Approach jointly with FAO HQ. This was internal but a manuscript from the report was submitted for peer-reviewed journal publication. <https://doi.org/10.1016/j.onehlt.2023.100527>
- Drafted technical report for Agriculture (Animal Health Sector) on AMR Surveillance and Antimicrobials Sensitivity in Ethiopian Testing.

#### **Output 2. Systems for generating, analysing and interpreting data on AMR and AMC/AMU strengthened.**

##### **2.0 Strengthen Sustainable National Human AMR and Consumption Surveillance**

##### **2.1 Strengthen Sustainable National Human AMR Surveillance**

- Conducted baseline assessment on basic microbiology labs in 13 hospitals and sentinel sites to be enrolled in the national AMR surveillance
- Conducted Training on basic microbiology to laboratory technologists from 16 hospitals and sentinel sites
- Conducted mentoring and mentoring of the AMR Surveillance sites
- Procured microbiology lab supplies by WHO and distributed through Ethiopian Public Health Institute to the sentinel sites

**Result:** 16 hospitals are enrolled in National AMR Surveillance, out of which currently 14 hospitals report their AMR data to GLASS. As the result Ethiopian continued as a member GLASS

##### **2.2 Conducted Antimicrobial Consumption surveillance/survey**

##### **2.2.1 National Antimicrobial Consumption survey**

- Established Technical Working Group (EFDA, MOH, and EPSS,) and provided training on AMC surveillance to the members of technical working group
- Conducted two round national antimicrobial consumption surveillance/survey of five years, 2017-2019, and 2020-2022 based on imported and locally manufactured data and submitted into two round the data to WHO-GLASS

**Result:** AMC Survey data and report prepared and submitted to WHO-GLASS and EFDA, Ethiopia is one of the few African countries which are a member of GLASS AMC surveillance

##### **2.2.2. Hospital antimicrobial consumption surveillance**



- Conducted Training on Antimicrobial consumption surveillance (both theory and practical) for 30 pharmacists and related experts from 13 hospitals and health bureaus found in different parts of the country
- Supported 13 hospitals to conducted kick off Antimicrobial Consumption Surveillance using two years data of antimicrobial distributed from pharmacy store to different unit of each hospital

**Result:** The training on and support of kick off AMC surveillance undertaken by the hospitals capacitated the hospitals to conduct AMC surveillance and report such data to their respective health bureau(s).

### **AMR surveillance system and laboratory capacity strengthened:**

- Practical and theoretical capacity development training on AMR surveillance, and isolation, identification, antimicrobial susceptibility testing (AST), bacterial preservation, epidemiological approaches for AMR surveillance, and data management provided to 27 (7 females) from animal health, food safety and quality, public health institute zoonotic diseases & food safety, environment, conformity assessment center, and academia laboratories including the private, 18 - 23 July 2022. These capacity development training workshops were cost-shared by AHI of MOA and a significant portion of the costs were covered.
- Provided catalytic support for AMR surveillance system, laboratories capacity building and antimicrobial sensitivity testing (AST) items such as antimicrobials discs, media, reagents and supplies; to AHI and through it to subnational animal health labs, animal products and inputs quality testing centre (APIQTC) of the Ethiopian agriculture authority (EAA), and National Veterinary Institute (NVI), 26 Jan 2024, link *AST supplies hand-over ceremony*:

<https://x.com/FAOEthiopia/status/1750830905109684695?s=09>



### ***AST supplies hand-over ceremony***

- Participated at and contributed to the “Draft National Strategy on Aquatic Organisms’ Health and Biosecurity for Ethiopia, 2024-2034” to properly explain AMR in it and also encouraged the responsible to contribute and include aquatic specific issues in the second version of the integrated AMR surveillance plan.
- Produced a report on epidemiologic survey and post marketing quality surveillance of Substandard & Falsified (SF), and Unregistered Veterinary Antimicrobials in Ethiopia.

As a result of the continued AMR surveillance system strengthening support, it has progressed and achieved the following during this reporting period:

- AHI advanced from Progressive Improvement Pathway (PIP) stage 2 in 2018 to PIP stage 4 in 2023, may be the first in agrifood labs in Africa. <https://www.fao.org/ethiopia/news/detail-events/en/c/1662054/>
- AHI awarded certificate of outstanding contribution and AMR champion signed by HE the minister of health during WAAW 2023
- AHI initiated and bio-banked more than 600 bacterial isolates in its repository



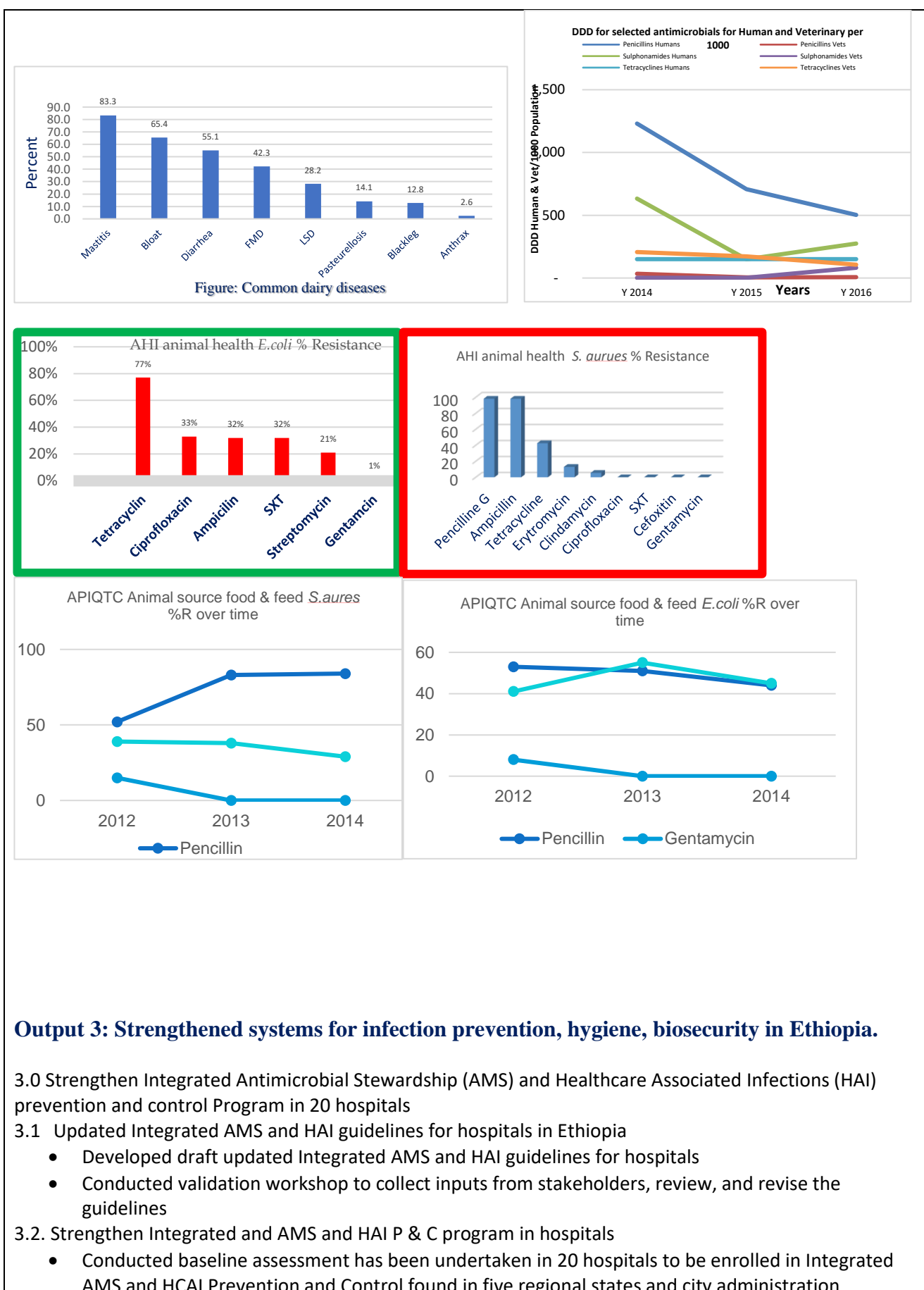
- Two AMR focal/experts from AHI have done their externship assessment on the AMR surveillance system and lab capacity assessment in Rwanda, completed and certified as FAO ATLASS full assessors.
- Coordinated AMR proficiency test (PT) samples delivery for animal health institute (AHI) and animal products and inputs quality testing center (APIQTC) of the Ethiopian agriculture authority (EAA) and all passed with remarkable results on external quality assessments for AMR testing, exceeding the acceptable performance threshold for AMR testing (80%).

#### **AMR surveillance system and AST annual review and experiences sharing strengthened:**

- Annually Integrated AMR Surveillance, detection, isolation and antimicrobial sensitivity testing (AST) of pathogens plan implementation reviewed and experience shared workshop, 24-26 August 2022. Sixteen (1 female) experts from animal health institute (AHI), regional animal health laboratories, zoonotic diseases laboratory of Ethiopian Public Health Institute, food and veterinary medicines and feed quality control laboratories of Ethiopian Agriculture Authority (EAA), National veterinary Institute (NVI), Infectious Disease Detection and Surveillance (IDDS), and FAO of UN presented their respective institutions reported and discussed at the meeting.
- FAO organized AMR Surveillance annual review and experiences sharing workshop and animal health and food safety laboratories Mentorship Manual finalization workshops, for 24 (3female) participants, 11 to 13 December 2023, Addis Ababa.
- One-Health AMR Surveillance Experiences Sharing and Microbiology Laboratories Visit Experiences Sharing Workshop at AHI on the 22<sup>nd</sup> November of 2022. And enabled the participants identify the strengths, gaps, possible synergies, challenges and areas of collaboration among institutions on AMR surveillance and research. Link, *Ethiopia is scaling up efforts to tackle AMR via a One Health Approach Success story*: <https://www.fao.org/antimicrobial-resistance/news-and-events/news/news-details/en/c/1506140/>
- At the OH AMR Surveillance and Research for Action Conference in November 2021, two systematic reviews on AMU/AMR in human and animal health, five research presentations on AMR in human and animal health and food safety and one on opportunities for synergies upon integration of AMR Surveillance systems in the agrifood and human were presented and discussed, November 19, 2021.
- An epidemiological AMR data collection capturing and management excel based tool for animal health laboratories for the agriculture sector developed in collaboration with AHI to bridge a comprehensive and global database and is currently being tested in the field to provide summary visual information for busy practitioners in the field to inform decision-making.

#### **AMU and AMR data/information generated for decision making:**

The continued and combined supports of the AMR projects strengthened the surveillance system and started generating data and information. Examples of the AMU and AMR data/information system strengthening, and data/information generated outputs from animal health (AHI) and food safety (APIQTC) and from the AMR surveillance reports.



- Conducted advocacy workshop on integrated AMS and HAI Prevention and Control Programs for management (medical director, chief executive officer) of 20 hospitals to be enrolled in the programs along with mix of trainees below.
- Provided Training on Integrated AMS and HAI Prevention and Control Program for 100 mix of professionals (4 mix professionals: physicians, pharmacists, laboratory technologists, and IPC focal person/hospital) from 20 hospitals and health bureaus found in different parts of the country.
- Conducted monitoring and supportive supervision on the hospitals enrolled in integrated AMS and HCAI Prevention and Control Program.

**Result:** The advocacy workshop, training and integrated supportive supervision has enabled the hospitals to implement major Integrated AMS and HAI prevention and control activities. Very few hospitals categorized antibiotics into AWaRe (Access-Watch-Reserve) and launched implementing persuasive and restrictive measures in prescribing Watch and reserve antibiotics. Yekatit 12 Hospital has developed and implemented special prescription paper for prescribing of reserve antibiotic. Few hospitals have developed and used Antibigram to guide prescribing of Antibiotic. Example Zewditu Hospital has developed and started implementing antibiogram to guide prescribing.

#### **Poultry Biosecurity, AMU and AMR workshop and training provided and strengthened:**

- Provided Antimicrobial Use (AMU), AMR, Biosecurity, and Safe Food Production Training workshop to 42 animal health care providers, farm owners and veterinary medicines retail outlets experts on 23 November 2021.
- AMU, AMR, Biosecurity, Vaccines Use, and Alternatives and Complementary approaches to AMs workshop in Ethiopia organized for 27 experts from MOA, EAA, AHL, NVI, regional agriculture bureaus, private, 2 -5 August 2022.
- Produced a draft report entitled Status of Biosecurity, and AMU and AMR (Assessment of Knowledge, Attitude, and Practices of poultry owners) in small to large-scale commercial poultry farms”. Once cleared the report will be shared with federal and regional institutions and to the respondents themselves.
- Provided training to 28 poultry producers/farmers and animal health care providers on basic biosecurity, disease prevention and good farming practices, May 4 – 5, 2023 as a follow-on intervention to the identified gaps through the assessment of farm biosecurity and infection prevention measures, and AMU and AMR practices by small- to large-scale commercial poultry farmers or producers.
- Drafted poultry behavior changes communication (BCC) in Amharic language on reducing the need for antimicrobials in the poultry farm i.e. good animal husbandry; effective biosecurity, vaccination, and use of alternatives to antimicrobials” *ፀረ- ተሕዋስያን አጠቃቀም እና ፀረ- ተሕዋስያን መድሃኒቶች በጀርሞች መለመድ ላይ ያተኮረ የግንዛቤ ማስጨበጫ* to farmers and animal health care providers.
- Drafted and validated national biosecurity guideline for poultry production, Bishoftu, and re-reviewed the national biosecurity guidelines for poultry production directives, Bishoftu, 2 to 4 Aug 2024

#### **Output 4: Systems for Optimized use strengthened in critical sectors. Outcome: Risks of and response to benefits of AMR reflected in national budgets and multi-lateral partner sector-wide investments**

##### **4.0. Capacitate Ethiopian Food and Drug Authority in Substandard and Falsified Antimicrobial monitoring**

Supported Ethiopia Food and Drug Authority (EFDA) to Conduct Survey on Substandard and Falsified (S & F) medical product with focus of Antimicrobials. Established Technical Working, recruited a consultant,

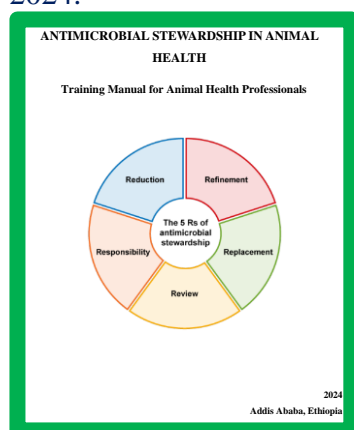


developed protocol and data collection tools, and provided training of data collectors. Collected sample of tracer pharmaceutical products from formal and informal market, verified the collected samples against EFDA registration documents, pre-import permit and records and port clearance permit. Then conducted post marketing quality control (PMQC) lab tests on 10% of suspected S & F products. SF Survey report prepared, validated through workshop, and submitted to WHO and EFDA.

**Result:** These survey activities undertaken with support of WHO and engagement of experts of EFDA enhanced the capacity EFDA to undertake similar activities. Survey Report of S & F prepared

### **Antimicrobial Stewardship to animal health care professionals provided and capacity developed:**

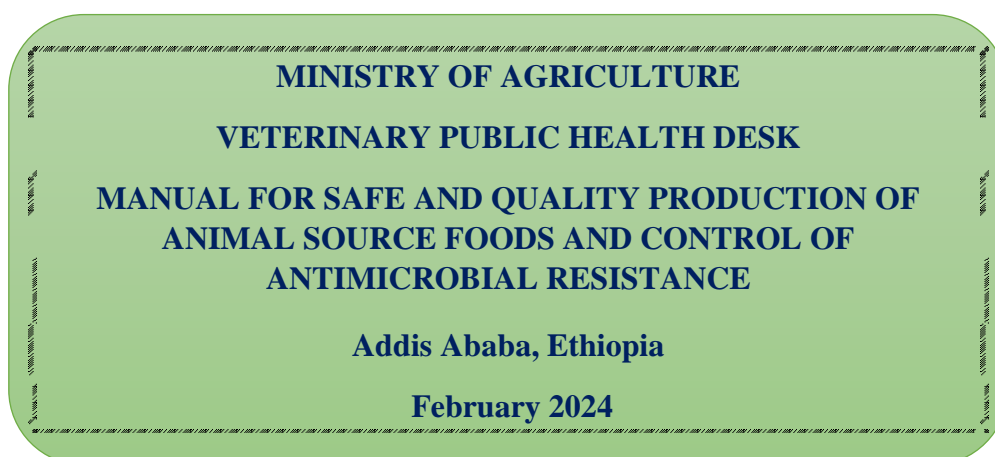
- Developed Antimicrobial Stewardship in Animal Health Training Manual for Animal Health Professionals.
- Validated the Antimicrobial Stewardship Manual for Animal Health providers, 23-27 April 2024.



- Provided the first of its kind One Health capacity development training on Antimicrobials Stewardship to 19 (1 female) animal health care professionals conducted from 29 to 31 August 2022. FAO in coordination and collaboration with Federal Ministry of Agriculture, Ministry of Health, Ethiopia Agriculture Authority and USAID-MTaPS organized this training. In addition, exemplary regional animal health laboratory (Bahir Dar) and a veterinary clinic (Damboya, SNNP) show cases presented and discussed at the training.
- Provided capacity development training on veterinary pharmaceuticals (antimicrobials) management and use training to 51 (5 females) animal health care providers and supply management professionals in Oromia, 23 - 25 March 2022.
- Provided training on Antimicrobial Stewardship to Animal Health to Animal Health Professionals from Oromia region, 25 to 27 April 2024.
- Provided one health antimicrobials prudent use and antimicrobial stewardship training to 36 (6 females) animal health professionals, in West Amhara Region, Bahir Dar, 2 to 5 August 2023 and SNNP region to 39(1 female), 1 to 3 Oct 2023.
- Coordinated and lead the antimicrobials stewardship and reducing the need for Antimicrobials TOT for Animal Health Professionals in Ethiopia with MOA and EAA, 18 to 22 June 2024.
- Coordinated and drafted/updated poultry treatment guidelines, 20 to 24 May 2024.

### **Safe and quality production of animal source food and control of AMR supported and strengthened:**

- Organized series of consultative meetings on safe and quality production of animal source food and control of AMR technical guideline workshop organized with fourteen multi-institution and multi-disciplinary team of experts from 22 - 25 February 2022.
- Developed and validated Manual for Safe and Quality Production of Animal Source Foods and Control of Antimicrobial Resistance.
- Provided capacity development training on Safe and Quality Food Production with Consideration of AMU, AMR, and Withdrawal Times and Maximum Residues Limits provided to 40 (6 females) animal health professionals and providers from federal and regional institutions (MOA, regional livestock bureaus, EAA, EFDA, and EPHI), 18 - 21 October 2022.
- Provided advocacy and awareness raising training on antimicrobial use (AMU) and antimicrobial resistance (AMR), and primary animal source safe food production to 41 (5 females) mass media professionals and public relation experts from MOA, AHI, EAA, NVI, Amhara mass media, Oromia mass media, SNNP, Sidama, Addis Media, EBC, Walta TV, Fana TV, Ethiopian Radio, Ethiopia News Agency, and Ethiopia Press Agency organized, from 26 - 28 October 2022. Participants were provided with the general OH, disease prevention, and AMU/AMR, and safe food production principles. Following the training, the media outlets have broadcast news and advocacy articles in their respective outlets. Web article link: <https://www.fao.org/antimicrobial-resistance/news-and-events/news/news-details/en/c/1629710/>



#### **Epidemiological Assessment and Post Marketing Quality Surveillance of Substandard and Falsified (SF) Veterinary Antimicrobials conducted:**

- Report produced on Epidemiological Assessment and Post Marketing Quality Surveillance of Substandard and Falsified (SF) and Unregistered Veterinary Antimicrobials in Ethiopia

#### **AMC, AMU and AMR reviewed**

- Inappropriate and overuse of antimicrobials in animals especially among medium and small-scale poultry producers in the country advised the drafting, review and validation of Poultry Treatment to guide on the treatment of poultry diseases while prioritizing poultry disease prevention through application of farm biosecurity measures and proper and timely poultry disease diagnosis. The need to observe drug withdrawal periods and to monitor response to treatment while reporting adverse reaction to medication, failure to respond to treatment and surveillance to AMR and monitoring of AMU were considered pertinent in providing information and data that will enrich the efforts towards containment of AMR. Hence, coordinated and drafted/updated poultry treatment guidelines, 20 to 24 May 2024.

- A workshop organized on farm level AMU Data Collection to 20 (3 females) participants from the agrifood sector, 26 to 28 Feb 2024, Addis Ababa which demonstrated the importance of having good national data on animal populations. This activity enlightened participants on the alternative livestock data sources where reference for such data can be made. The importance of Standardized data collection tools and methodologies is critical in ensuring repeatability and consistency in data reporting.
- Produced a report and published on Situational analysis of AMR, laboratory capacities, surveillance systems and containment in Ethiopia, link: <https://www.sciencedirect.com/science/article/pii/S2352771423000472>
- Co-organized global webinar entitled: Situational analysis of AMR, laboratory capacities, surveillance systems and containment in Ethiopia, 13 April 2023 link: <https://www.youtube.com/watch?v=2p08w-w61a4>

### **The published and broadcasted outputs of the health system strengthening synergistic supports of AMR projects:**

#### **Published outputs, title and links:**

- <https://www.fao.org/antimicrobial-resistance/resources/papers-in-scientific-journals/en/>
- Antimicrobial resistance status of selected bacteria isolated from animal source foods and feed in Ethiopia Sep 2022, link: <https://dx.doi.org/10.4314/evj.v26i2.2>
- Prevalence of subclinical mastitis, associated risk factors and antimicrobial susceptibility of the pathogens isolated from milk samples of dairy Cows in Northwest Ethiopia, 26 May 2022, link: <https://doi.org/10.1016/j.prevetmed.2022.105680>
- Study on identification, assay and organoleptic quality of veterinary medicines in Ethiopia; March 2022; link: <https://rdcu.be/cIceH>
- Situational analysis of antimicrobial resistance, laboratory capacities, surveillance systems and containment activities in Ethiopia: A new and one health approach, [https://authors.elsevier.com/sd/article/S2352-7714\(23\)00047-2](https://authors.elsevier.com/sd/article/S2352-7714(23)00047-2)

#### **Presented abstracts and posters:**

- Potential opportunities for integrating Ethiopian AMR surveillance systems under one health platform at the GHS 2022 and WOHC 2024 conferences.
- Prevalence of subclinical mastitis, associated risk factors and antimicrobial susceptibility of the pathogens isolated from milk samples of dairy Cows in Northwest Ethiopia at the GHS 2022 conference.
- Impact of intervention on dairy farms: Mastitis incidence, milk bacterial load and farmers' knowledge, attitudes and practices in central Ethiopia; presented at Addis Ababa University, College of Agriculture and Veterinary Medicines Research Day celebration, on Saturday 21 May 2022.

#### **Broadcast:**

- <https://www.fao.org/antimicrobial-resistance/resources/papers-in-scientific-journals/en/>
- Web article: Ethiopia is scaling up efforts to tackle AMR via a One Health Approach: <https://www.fao.org/antimicrobial-resistance/news-and-events/news/news-details/en/c/1506140/>
- Provided live education program on AMU and AMR at the Ethiopia Broadcasting Corporation national/Ethiopia radio program on 27 May 2022 from 9:00-10:00 AM by the MPTF coordinator
- <https://www.fao.org/antimicrobial-resistance/news-and-events/news/news-details/en/c/1506140/>
- <https://www.youtube.com/watch?v=xMUBANq2V9o>



- <https://www.fao.org/antimicrobial-resistance/news-and-events/news/news-details/en/c/1506140/>

### **Main challenges**

**What have been the main challenges confronted in delivering the project and how did you address these?**

- The main challenges were logistical. Travel restrictions, due to increasing cases of COVID-19 and the internal conflicts witnessed in the country delayed implementation of activities.
- The activities to be led and coordinated by WOAHA have been rescheduled to meet their demands, most of them done during the no-cost extension period and some partially and some others not completed. Moreover, WOAHA has neither office nor seconded staff in Ethiopia to coordinate the implementation of activities. However, they relied on FAO and MOA to organize and coordinate their activities.
- Restructuring and turnover of staff in some government organizations delayed in implementation of some activities.
- Competing priorities of the government due to security and draught.
- WOAHA recruited a consultant, travelled and participated in a workshop to develop OH communications and stakeholders' strategy but failed to deliver the outputs.

**What has been the impact of these challenges on project delivery?**

- Delayed implementation of some of the activities so request no-cost extension.
- The long time taken than anticipated for the completion of the One health AMR communication and stakeholder engagement strategy due to the failure of the consultant, but a second consultant engaged with the remaining budget. Completion of the One health AMR communication and stakeholder engagement strategy document was delayed by one year as a second consultant had to be hired following the non-responsiveness and disappearance into thin air of the initial consultant that started the work on this activity.
- Use of alternatives options during COVID 19 and travel restriction
- Identification and engagement of relevant facilitators for the AMR whole genome sequencing (WGS) and bioinformatics testing Training of Trainers (TOT) for laboratories. However, after several communications with WOAHA said that they did not have but for this TOT and finally cancelled.

### **Learning Innovation:**

- FAO has effectively coordinated the AMR MPTF project the last four years, the first year on concept and proposal development and the last three years on project implementation.
- Ethiopian government has owned and committed resources through cost sharing & often in-kind resources for implementation of the AMR MPTF project for the prevention and containment efforts on AMR despite competing priorities.
- Ethiopian Government has owned, and sustainability supported the AMR MPTF project. In return the AMR MPTF project has served as catalytic in mobilizing resources, and synergized and cross-fertilization of AMR projects within and across sectors, which has saved resources.
- Agrifood AMR Surveillance system and the central and referral lab progressed well along with FAO ATLASS PIP stages and starts generating reliable and relevant data for informed decision making.
- Good attempts to integrate biosecurity, IPCs, Stewardships and Surveillance systems
- Coordination with other projects and events provided technical and logistical synergy, and saved resources and time.

- Programmatic and health system strengthening approach in the implementation of the Ethiopian AMR strategy.
- The AMR MPTF project has contributed to the prevention and containment of AMR in Ethiopia as demonstrated by FAO PMP assessment and the results were shared in various national, regional and global fora.
- Several coordination meetings with other development partners to form technical and logistical synergy in the prevention and containment of AMR in general and in the implementation of the AMR MPTF project in particular.

## Review of progress against log frame: Log frame outputs and activities

<b>% progress against indicator: Based on time, budget and activities underway/completed</b> <b>Categories: 0% 1-25%; 25-50%; 50-75%; 75%-99%; 100%</b>			
<b>MPTF Output</b>	<b>Indicators</b>	<b>Progress description (activities started/completed)</b>	<b>Indicator % met</b>
Improved country capacity in designing and implementing AMR related policy frameworks, investment plans, and program	Develop AMR prevention and containment strategy/ NAP framework with monitoring and evaluation, and costing	<ul style="list-style-type: none"> <li>• AMR Prevention and Containment Strategic Plan with M &amp; E and costing (2021 to 2025) officially launched in November 2021.</li> <li>• AMR MPTF project was technically and officially launched on 13 July and 18 November, respectively.</li> <li>• One Health AMR Prevention and Containment Advisory committee and Technical Working Groups (TWGs) established.</li> <li>• World Antimicrobial Awareness Week (WAAW) 2022 and 2023 were organized. A report on the later compiled and shared.</li> <li>• Drafted the Governance Framework for Antimicrobial Resistance Prevention and Containment, 2024.</li> <li>• Assessed the Monitoring and Evaluation Capacities of the Antimicrobial Resistance (AMR) National Action Plan for Ethiopia” reported.</li> <li>• Developed OH AMR communication and stakeholders’ engagement strategy.</li> <li>• Capacity developed for national stakeholders on M &amp; E framework and KPIs.</li> <li>• Cascaded implementation of the AMR strategy.</li> <li>• PMP assessed the AMR strategy and has progressed well.</li> <li>• AMR MPTF lesson learned workshop organized.</li> </ul>	100%
	Operational plan for implementing the updated NAP with the associated budget.	<ul style="list-style-type: none"> <li>• Sector Specific operational plan developed and launched for the three sectors (human and animal health and Environment)</li> </ul>	100%

MPTF Output	Indicators	Progress description (activities started/completed)	Indicator % met
	(Number of federal, regional and/or city administrations, institutions incorporate AMR prevention and containment strategic elements in their annual plans)	<ul style="list-style-type: none"> <li>Strategic AMR elements have been included in the human Health Sector Transformation Plan.</li> <li>Awareness Raising Training Workshop on Infection Prevention, Biosecurity, Safe Food Production and AMR provided to Addis Ababa city administration animal health office.</li> </ul>	
Systems for generating, analyzing and interpreting data on AMR and AMC/AMU strengthened.	Indicator 2.1. Report on AMC and AMU	<ul style="list-style-type: none"> <li>AMC/AMU data/information in humans collected, reported and submitted to EFDA regulatory authorities. Two round AMC data in humans collected, submitted to GLASS and report generated and submitted to EFDA and WHO. Ethiopian is a member of GLASS</li> <li>Awareness and Understanding (KAP) of Animals Owners on Antimicrobials Use and Resistance and one on Veterinarians produced.</li> </ul>	100%
	Percentage of laboratories with capacity to perform AST Number of experts trained on AST and AMR surveillance. (Integrated with output on IPC activities)	<ul style="list-style-type: none"> <li>Developed AMR data capture and compilation tool and being field tested.</li> <li>Held an Integrated AMR Surveillance (detection, isolation, identification and AST) plan implementation annual review and experiences sharing workshop for 2022 and 2023</li> <li>Provided practical and theoretical capacity development training on AMR surveillance, and isolation, identification, antimicrobial susceptibility testing (AST), bacterial preservation, epidemiological approaches for AMR surveillance and data management provided to 27 animal health, public health, food safety and quality, public health institute zoonotic diseases, environment, conformity assessment center, and academia laboratories.</li> <li>Produce a technical report on AMR Surveillance and Antimicrobials Sensitivity Testing in Ethiopian for the Agriculture sector.</li> <li>Provided catalytic microbiology antimicrobial susceptibility testing (AST) supplies for human and animal health laboratories consumables: antimicrobials discs.</li> <li>Handover note for the procured AST/AMR supplies. Selected specifications, and quantified AST supplies for both human and animal health, and food safety labs</li> <li>Training on basic microbiology is provided to 13 medical laboratory</li> </ul>	100%



MPTF Output	Indicators	Progress description (activities started/completed)	Indicator % met
		<p>technologists from hospitals and sentinel sites.</p> <ul style="list-style-type: none"> <li>Baseline assessment of basic microbiology and AST in 20 hospitals has been undertaken. Preparing to provide training of laboratory technologists.</li> <li>Situation Analysis of Antimicrobial Use and Resistance in Ethiopia: One Health Approach drafted.</li> <li>Assessed the AMR surveillance system progressed to PIP 3 and AHI PIP 4. AHI awarded certificate of outstanding contribution and AMR champion during WAAW 2023.</li> </ul>	
Strengthened systems for infection prevention, hygiene, biosecurity in Ethiopia	3.1. IPC and biosecurity and good practices guidelines developed and/or disseminated	<ul style="list-style-type: none"> <li>Developed and validated “Status of Biosecurity &amp; infection prevention; and antimicrobial use (AMU) &amp; AMR in Commercial Chicken Farms in Ethiopia” report. <ul style="list-style-type: none"> <li>Drafted directive on Biosecurity, AMU and AMR Management Guideline for Poultry Farm and Poultry Production Biosecurity.</li> <li>Drafted poultry behavior change communication (BCC) on Reducing the need for antimicrobials in the poultry farm practices in Amharic language (ፀረ-ተሕዋስያን አጠቃቀም እና ፀረ-ተሕዋስያን መድሃኒቶች በጀርመን መለመድ ላይ ያተኮረ የግንዛቤ ማስጨበጫ) to farmers and animal health care providers.</li> </ul> </li> <li>Status of Biosecurity and AMU and AMR (Assessment of Knowledge, Attitude, Practices of poultry owners) in small to medium-scale commercial poultry farms” assessed.</li> </ul>	100%
	Number of trained professionals on IPC and biosecurity (integrated with output on AMS activities)	<ul style="list-style-type: none"> <li>Twenty-eight poultry producers/farmers and animal health care providers trained on basic biosecurity, disease prevention, AMU and AMR, and good farming practices as a follow on to the baseline assessment.</li> <li>Training Workshop organized on Biosecurity, Vaccines Use AMU, AMR, and Alternatives and Complementary approaches to AMs organized to 27 MOA, EAA, AHI, NVI, regional agriculture bureaus, private experts.</li> </ul>	100%
Systems for optimized use of antimicrobials strengthened in critical sectors.	Assessment report on substandard and falsified (SF) antimicrobials. (Number of tracer antimicrobials Post Market Surveillance (PMS) conducted)	<ul style="list-style-type: none"> <li>National Survey of Substandard antimicrobial conducted: Consultant recruited, and technical working group established, protocol and data collection tool developed, training of data collectors provided, samples of trace medicines collected as per the protocol from formal and informal market. Collected samples</li> </ul>	100%

MPTF Output	Indicators	Progress description (activities started/completed)	Indicator % met
		<p>verified against EFDA registration, pre-import, and port clearance documents. 10% of suspected samples subjected to Quality Control Tests. SF Survey report prepared and validated through workshop. The report submitted to EFDA and WHO. These efforts enhanced the capacity of EFDA.</p> <ul style="list-style-type: none"> <li>• An epidemiological survey and post marketing quality surveillance of substandard and falsified (SF) veterinary medicines report drafted.</li> <li>• Laboratory post marketing surveillance (PMQS) of samples of medicines as per the protocol on selected and suspected products conducted.</li> <li>• Drafted a report on the assessment of SF medicines in humans.</li> <li>• Draft report presented and discussed by TWG and management of EFDA.</li> <li>• Final draft guideline safe and quality production of primary animal source food and control of AMR developed.</li> <li>• Consultative workshop to re-review, finalize the safe and quality production of primary animal source food and control of AMR organized.</li> </ul>	
	<p>Number of hospitals implementing integrated (HAI, AMR surveillance and AMS)</p> <p>(Number of HCPs who are provided with capacity development training on AMS.)</p>	<ul style="list-style-type: none"> <li>• Baseline assessment on 20 hospitals to be enrolled in implementation of integrated AMS and HAI Prevention and Control undertaken.</li> <li>• Conducted Advocacy workshop on integrated AMS and HAI prevention and control for Chief Executive Officers and Medical Directors of hospitals.</li> <li>• Provided Training on Integrated AMS and HAI Prevention and Control to mix professionals (Physician, pharmacist, laboratory technologist and IPC focal person per a hospital) 20 hospitals.</li> <li>• Monitoring and supportive supervision conducted on the trained hospitals to ensure implementation of AMS and HAI prevention and control activities.</li> <li>• Baseline assessment on integrated AMS and HAI Prevention and Control in 20 hospitals undertaken.</li> <li>• Training on Integrated AMS and HAI Prevention to multidisciplinary team from 7 hospitals provided</li> </ul>	100%
	<p>Number of animal healthcare providers trained on AMU and AMR</p>	<ul style="list-style-type: none"> <li>• Advocacy and awareness raising on antimicrobial use (AMU) and antimicrobial resistance (AMR), and Safe Food Production training organized to 41 mass media and public relation experts. And these media outlets have broadcasted</li> </ul>	75%-99%

MPTF Output	Indicators	Progress description (activities started/completed)	Indicator % met
		<p>news and advocacy articles in their respective outlets.</p> <ul style="list-style-type: none"> <li>Awareness raising on AMU and AMR training workshop was done at a workshop for experts in November. Preparations for AMU assessment and AMR mapping are underway.</li> </ul>	
	Indicator 4.1: Number of HCPs who are provided with capacity development training on antimicrobial stewardship	<ul style="list-style-type: none"> <li>Developed and validated Manual for Safe and Quality Production of Animal Source Foods and Control of Antimicrobial Resistance.</li> <li>Provided training Safe and Quality Primary Animal Source Food Production with Consideration of AMU, AMR, and Withdrawal Times and Maximum Residues Limits training organized to 40 Animal Health Professionals.</li> <li>Developed Antimicrobial Stewardship Training Manual for Animal Health Professionals.</li> <li>Provided one health antimicrobials prudent use and antimicrobial stewardship training to 75 (7 female) animal health professionals, in West Amhara Region and SNNP regions.</li> <li>Organized workshop to develop methods and tools on farm level AMU and AMC data collection to 20 (3 females) participants from the agrifood sector.</li> <li>The first of its kind, One Health on Antimicrobial Stewardship (AMS) training organized to 19 animal health care professionals.</li> </ul>	100%

## Review of progress against log frame

### Log frame outcomes

MPTF Outcome	Indicators	Assumptions – revisions/comments?
Risks of and response to AMR improved in targets	<ul style="list-style-type: none"> <li>Number of Functional AMR Advisory committees and TWGs</li> <li>Monitoring and evaluation framework included in AMR prevention and containment strategic plan.</li> <li>OH AMR communication and stakeholders' engagement strategy, and behavior change and advocacy products developed.</li> </ul>	<p>Ethiopia is a big country and AMR is high in the agenda of the government as reported above. There is a high demand and probability of not accessing some parts of the country.</p> <p>Actions:</p> <ul style="list-style-type: none"> <li>This could be an opportunity for project implementation.</li> <li>Agree on prioritization of activities.</li> <li>Success and evidence will guide support decisions and linkage with development partners. Ethiopia has some experiences in the implementation of AMR. The additional</li> </ul>



MPTF Outcome	Indicators	Assumptions – revisions/comments?
		supports by the MPTF are very much appreciated for health facilities affected
Evidence based and representative data on AMU and AMR improved for policymakers and sectors implementing AMU practices	<ul style="list-style-type: none"> <li>• AMC/AMU report generated</li> <li>• Number of experts trained on AST and AMR surveillance</li> <li>• An epidemiologic AMR data capturing and compilation tool developed</li> <li>• Handover note for procurement of antimicrobial susceptibility testing discs, media and other supplies</li> </ul>	<p>The 2021 national election had no influences on AMR MPTF performances.</p> <p>The trajectory of COVID-19 pandemic during the implementation period interfered in implementation of the AMR MPTF project</p> <ul style="list-style-type: none"> <li>- We tried to use the COVID-19 interventions such as infection prevention and lab capacity building as opportunities for strengthening AMR prevention, containment, and surveillance. And will align in response plans</li> <li>- The introduction of COVID-19 vaccines is another opportunity</li> </ul>
Use of antimicrobials optimized in critical sectors	<ul style="list-style-type: none"> <li>• Number of experts trained on AMU and AMR</li> <li>• Number of hospitals implementing integrated (HAI, AMR surveillance and AMS)</li> <li>• Species specific biosecurity guidelines developed</li> <li>• Guideline on safe production of primary animal source food in consideration of withdrawal time and MRL developed</li> </ul>	<p>Instead of the anticipated turnover of government staff who are implementing the AMR MPTF project, however, restructuring of some government offices may delay some of the activities of the AMR MPTF project.</p> <p>We will continue engaging with the institutions and experts as a replacement and exchanges of notes and updates</p>

### Risk matrix

Risk description	Risk Category: Contextual Programmatic Institutional	Worst case consequence for the project			Mitigating action	Action owner
			Impact	Likelihood		
Current security situation in some part of the country may limit travel restriction that may delay implementation of the AMR MPTF project in the areas affected	Contextual	May delay the implementation of some activities in the areas affected.	High	Moderate	<ul style="list-style-type: none"> <li>• Implementation of the activities here there is no travel restriction.</li> </ul>	The federal government and all AMR MPTF stakeholders will plan ahead
Restructuring of some government office and turnover of staff may delay some of the activities of the AMR MPTF project. So we continued engaging with individual experts as a replacement and exchanges of notes and updates	Institutional	Delay in implementation	Moderate	Low	<ul style="list-style-type: none"> <li>• Support ownership and sustainability in the system.</li> <li>• Regular replacement, refresher and exchanges of notes and updates</li> <li>• Consultation and continued engagement with focal points</li> <li>• Turnover of government staff who are implementing the AMR MPTF project was not that high but restructuring of some institutions.</li> </ul>	All stakeholders implementing AMR MPTF

Ethiopia is a big country and AMR is high in the agenda. Probability of not accessing some parts of the country.	Institutional	Inadequate coverage.	Low	Low	This could be an opportunity for project implementation. Agree on prioritization of activities. Success and evidence will guide support decisions and linkage with development partners. Ethiopia has some experiences in the implementation of AMR.	Ethiopian AMR MPTF stakeholders
Government and private human and animal health institutions including laboratories may be damaged that may affect implementation	Institutional	Delay in implementation	High	High	Support by the tripartite agencies the maximum they can be appreciated to contribute to revitalize these institutions	Government, Tripartite, development partners.