

Overview

Project description

Project: One Health Antimicrobial Resistance Multi-Partner Trust Fund (AMR MPTF) Project in Ghana (ID: 00124433)

- Duration: 24 months, 24 May 2021 – 24 May 2023; 24 February 2024 (9 months extension)

Ghana is focusing on strengthening governance and coordination between the Tripartite and intergovernmental agencies in One Health. Main outputs include the following:

- Improved Ghana's capacities for designing and implementing AMR related policy frameworks, investment plans and programmes.
- Improved Ghana's capacities for mainstreaming and for costing AMR as well as changes in practices to minimize AMR.
- Evidence based representative data on AMR/AMU improved for policymakers and sectors implementing AMU practices.
- Systems for generating, analysing, and interpreting data on resistance, consumption and use patterns developed or strengthened.
- Systems for biosecurity and IPC strengthened in targeted countries.
- Systems for optimized use strengthened in critical sectors.
- Improved countries capacities to design targeted awareness/Behaviour Change raising initiatives.

Project progress:

The AMR MPTF project improved Ghana's capacity for designing and implementing AMR related policy frameworks, investments plan and programmes in many ways. First, a data mapping exercise was carried out to support the monitoring and evaluation (M&E) framework and identify cost-effective means to monitor and evaluate implementation of the AMR National Action Plan (NAP) was completed. M&E consultant was recruited, who through a series of meeting with AMR focal points, and key stakeholders delivered a comprehensive data mapping exercise and evaluation framework, to support M&E of AMR NAP implementation. An IT consultant was recruited who develop AMR M&E software and digital dashboard for monitoring AMR NAP and AMR MPTF indicators. Ghana now monitors its AMR NAP implementation due to support from the AMR MPTF project.

Also, AMR MPTF supported implementation of quarterly AMR platform meetings including core Technical Working Group meetings. This support facilitated quarterly AMR platform meetings, and technical working group meetings in 2022 and 2023. AMR platform focussed on AMR activities in country and gave strategic directions for implementation.

Regarding the AMR MPTF output of systems for optimized use of antimicrobials strengthened in critical human and animal sectors, the following key activity was carried. Ghana was able to complete an activity aimed at adapting the WHO classification list of Antimicrobials for Ghana and to ensure optimized prescribing and dispensing based on Laboratory results. The AMR secretariate of the Ministry of health together with stakeholders in health, academia and Ghana National Medicines Select Committee led this activity. The stakeholders adapted WHO classification list for antimicrobials and produced an infectious diseases update to the EML and Standard Treatment guidelines which is being incorporated into the Ghana's Essential Medicine List and Standard Treatment Guidelines.

AMR MPTF improved Ghana's capacity to design awareness raising, behaviour change and educational activities. Hence the goal of educating the public to promote the responsible use of antimicrobials among the general population is on track. Leveraging on the WAAW momentum, Churches, Mosques, schools, and the public were educated in 2021 - 2023.

Significant progress was made with regards to the specific output; systems for generating, analysing, and interpreting data on resistance and consumption/use patterns developed or strengthened. First, Ghana instituted a monitoring mechanism for the use of antimicrobials in terrestrial animals, fisheries, and plant health. Through well-defined processes, a workshop to identify and review tools for on-farm AMU data collection was carried out. Suitable templates were developed, validated, and migrated into a mobile application (app). The app was pretested and is in use for on farm data collection (poultry, piggery, aquaculture, hatcheries) and data collection from veterinary clinics. A series of training for farmers and veterinary officers from seven regions involved in the pilot preceded the roll out of the mobile application. An end of year assessment of data coming in was carried out. And overall, Ghana's system for generating, analysing and interpretation of on-farm AMU data strengthened and an established surveillance system in place to generate data on antimicrobial use on farms.

Secondly, AMR MPTF supported the ESBL integrated surveillance protocol in one other region of Ghana. Assessment of sites were completed and three sites respectively for human, animal, and environmental health component of the Tricycle ESBL E. coli surveillance identified, trained, and supported to commence surveillance on ESBL E. coli in the Ashanti region of Ghana.

Also, the AMR MPTF supported Ghana to complete a much-needed assessment of current capacity of laboratories for conducting culture and sensitivity testing and capacity for hospital-based surveillance. Data from the assessment has provided critical areas for intervention to improve care of patients and improve antimicrobial stewardship in Ghana.

AMR MPTF project also supported Ghana to facilitate collection and review of sales data on antimicrobials for animal use. Workshop was organized for stakeholders and comprehensive discussions led to the development of standard tools and methodology for the collection of antimicrobial sales data in the animal sector. Data collection started in October 2022 by staff from veterinary service division and overall, Ghana's capacity to carry out surveillance on sales data of antimicrobials in animal health is enhanced.

Another key intervention to strengthened systems for generating, analysing, and interpreting data on resistance patterns is ongoing aimed at resourcing regional laboratories with capacity to perform culture and sensitivity testing based on comprehensive needs assessment. Selected Laboratories in animal health were assessed using FAO-ATLASS tool including a comprehensive needs assessment. Procurement of laboratory consumables and items are completed.

It is encouraging to highlight the progress towards systems for biosecurity and IPC strengthening in Ghana. Through the catalytic support of AMR MPTF, Ghana was able to develop national biosecurity standards to enhance antimicrobial stewardship at farm level for piggery and aquaculture. A team of stakeholders and industry players were brought together to draft national biosecurity guidelines for piggery and aquaculture, prioritize and assign score/ weights to items in the guidelines to promote good biosecurity on farms. Wider stakeholder workshop for validation of the guidelines was organized. Corrections and recommendations of stakeholders incorporated, and biosecurity guidelines approved and adopted for country. A training manual was developed from the guidelines that would facilitate training of farmers and other stakeholders on biosecurity and assessment of the farms and certification based on biosecurity standards. This certification and ranking of farms based on biosecurity standards

we envisage would generate the demand to adhere to biosecurity guidelines on poultry, piggery and aquaculture farms, and drive the reduction in the inappropriate use of antimicrobials.

The plant sector was not left out. With support from AMR MPTF, Ghana was able to take steps aimed at supporting the development and adoption of integrated pest management (IPM) strategies. We completed a KAP study to understand at baseline, the use of antimicrobials on farms among vegetable farmers and Agrochemical shop owners. A workshop was organised to disseminate the results to the study participants and other actors in the crops and environment sectors. Findings from the survey provided critical gaps in antimicrobial use particularly in vegetable farm which require urgent intervention. To leverage on low hanging interventions, the staff of Plant Protection and Regulatory Services Directorate and Environmental Protection Agency were given ToT training in AMR and AMU, and they will in turn train the crop farmers.

In the human health sector, the support of AMR MPTF filled in a critical gap of IPC training for private medical facilities that were not included in the government sponsored IPC training for government health facilities. In this pilot, fourteen high volume private health facilities in Accra were trained on MoH IPC document and AMR. This is the first ever organized training on IPC for members of the association of private medical practitioners in Ghana. Trainees were trained and supported to conduct baseline assessment of WASH practices in respective private health care facilities and plan interventions to improve IPC. Manuscript on baseline survey submitted to a journal. Intense interest following completion of this activity necessitated proposals development to scale-up the training and assessment to other regions in the country.

Main challenges

The Ghana AMR MPTF project appear to be very ambitious with the intention to use the funds available to address majority of the areas that require intervention in the country. Also, Ghana experienced a very high inflation which resulted in significant variation in the budget that was made about three years ago. For this reason, the money available for some activities was not adequate. We had to get support locally for the completion of some of the activities. Competing activities from other agencies and partners demanding attention from same implementors slowed the implementation process. The tripartite is actively supporting implementation and encouraging focal points to prioritize AMR MPTF activities.

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

For this reason, the money available for some activities was not adequate. We had to get support locally for the completion of some of the activities.

Learning Innovation

We have successfully integrated the AMR activities in some of the ministry activities to ensure sustainability in some cases beyond the AMR MPTF support. Also, it was possible to mobilise some support locally to complete some activities for which funding was not adequate.

Stakeholder engagement and resource mobilization: Is there evidence that the MPTF grant is catalyzing a broader engagement of stakeholders and / or additional investment in addressing AMR (in particular government)

Several engagements example, FAO AMR MPTF is receiving funding to complete an activity for which were not able to complete under the AMR MPTF. The MOH in collaboration with the AMR MPTF and other partners is receiving support from the Fleming fund, ICARS etc to advance the work of AMR in country.

Table 2: Review of progress against log frame

2.a Log frame outcomes

MPTF Outcome	Indicators	Assumptions – any revisions? Put here
Increased comprehensiveness and quality of the policy dialogue and practice	Number of countries whose AMR Multisectoral Coordination mechanisms engage with a broad range of relevant partners	
Use of antimicrobials optimized in critical sectors	Number of countries that implemented one or more (additional) international instruments on AM	

2.b Log frame outputs and associated indicators

% progress against indicator: Based on time, budget and activities underway/completed						
Categories:	0%	1-25%;	25-50%;	50-75%;	75%-99%	100% Choose best option



MPTF Output	Indicators	Progress description (activities started/completed)	Indicator % met	Assumptions – any revisions? Put here
A. Improved countries capacities for designing and implementing AMR related policy frameworks, investments plans and programmes	A.1 Fully functional One Health Multi-Sectoral Coordination Group (MCG) established.	1.1.1 AMR MPTF supported the activity to convene quarterly AMR platform meetings including core technical Working Group meetings. Supported quarterly and emergency AMR platform meetings, and technical working group meetings in 2023. AMR platform focussed on AMR activities in country and gave strategic directions for implementation. Ghana now has a fully functional One Health Multi-Sectoral Coordination Group (MCG).	100%	

	<p>A.2 Operational plan for implementing AMR National Action Plan developed or updated with associated budget consideration.</p>	<p>1.1.2 An activity to conduct a data mapping exercise to support the monitoring and evaluation (M&E) framework and identify cost-effective (efficient) means to monitor and evaluate implementation of the AMR NAP was fully completed. Two sub activities were carried out and completed under this activity. First, a, M&E consultant was recruited, who through a series of meeting with AMR focal points, and key stakeholders carried out data mapping exercise to support monitoring and evaluation framework, and identify cost effective means, units, focal points to support M&E of AMR NAP implementation. Secondly, an IT consultant was recruited to develop AMR M&E software and digital dashboard for monitoring AMR NAP and AMR MPTF indicators.</p> <p>1.1.3 To monitor implementation of the AMR NAP in Ghana half-yearly, a training workshop was organised for focal persons and stakeholders on AMR NAP M&E dashboard to enable data input on all related AMR activities in the country on to the M&E dashboard. Data entry is ongoing by focal persons for monitoring of the AMR NAP.</p> <p>1.1.4 Research economic costs and implications of AMR in plant health, terrestrial and aquatic animals' health, environment, human-health etc. and technical analysis of investment outlook is a key activity in progress. Using the FAO recruitment process to recruit a consultant to lead activity. TOR developed and application advertised, and consultant recruited. A series of TWG meeting with consultant were conducted and data collection carried out. Consultant had circulated draft report pending final report3.</p>	<p>100%</p> <p>100%</p> <p>95%</p>	
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		1.1.5 This activity aimed at convening public forum on economic case for investments into AMR (defining gaps and investment opportunities in AMR) is yet to start.	1-25%	
B. Systems for optimized use of antimicrobials strengthened in critical human and animal sectors	B.1 Antimicrobial stewardship program implemented in additional health care facilities	4.6.29 We initiated this activity of developing training scheme/content and train veterinary personnel on responsible use of antibiotics in terrestrial animals and aquaculture. Training scheme was developed and validated. Pending the training of veterinary personnel.	50-75%	
	B.2 Guidelines for responsible and prudent use of antimicrobials based on international standards are developed or revised	4.6.28 This activity aimed at adapting the WHO classification list of Antimicrobials for Ghana and ensure optimized prescribing and dispensing based on Laboratory results was fully completed. The AMR secretariate of the Ministry of health together with stakeholders in health, academia and Ghana National Medicines Select Committee completed this activity and adapted WHO classification list for antimicrobials and guidelines for antimicrobial use is ready for incorporation into the next edition of the Ghana's Essential Medicine List and Standard Treatment Guidelines.	100%	
C. Improved capacity to design awareness raising, behaviour change and educational activities	C.1 Communications strategies developed	5.7.31 Educating the public to promote the responsible use of antimicrobials among the general population is on track. Leveraging on the WAAW momentum, Churches, Mosques, schools, and public were educated in 2021, 2022 and 2023. However, a massive public education campaign is planned to follow completion of the development of AMR related Information, Education, and Communication (IE&C) materials for public education.	50-75%	
		5.7.32 The activity aimed at reviewing the public education campaign for optimized impact is planned to follow the massive public education activity to take place after the development of the AMR IE&C materials. A consultant has been recruited to facilitate this work. However, the review is yet to be carried out.	1-25%	

	C.2 IEC materials developed and used for nationwide AMR campaigns	5.7.30 Developing Information, Education and Communication (IE & C) materials for targeted groups in a stratified public education campaign (informed by target audience analysis) is ongoing. Development of print and video IE&C materials for TV, radio, social media and stratified public education is ongoing.	25-50%	
D. Improved countries capacities for mainstreaming and for costing AMR	D.1 National Action Plan on AMR (NAP) with the estimation of the costs of the implementation of the NAP by year have been established or reviewed.	1.2.7 Activity aimed at finalizing and publishing AMR NAP mainstreaming guidelines for Ministries Departments and Agencies (MDAs) and Multi-sector MDA director's forum to provide technical support for AMR NAP mainstreaming and prioritization by MDAs is yet to start. A consultant to lead this activity has been recruited.	1-25%	
	D.2 Assessment of investment needs, existing resource finance and funding gaps for implementing National Action Plan conducted with the involvement of all relevant sectors.	1.2.6 Conduct in-depth assessment of barriers, bottlenecks, and gaps to inform effective mainstreaming and implementation of AMR NAP activities in the relevant sectors. This activity is yet to start.	1-25%	
E. Systems for generating, analysing, and interpreting data on resistance and consumption/use patterns developed or strengthened	E.1 Multisectoral Co-ordination Group (MCG) is supported by the Tripartite to review the data and data quality on AMU/AMC and/or AMR in relevant sectors and consider the need to adapt the	3.4.8 Technical Workshop Series on generation, analysis, interpretation and use of quality resistance and consumption data (AMU/AMC/AMR data quality). This activity is still in the planning stages. Funds to carry out activity release to country by WOH. 3.4.9 Policy dialogue on AMR and AMU data. This activity is yet to start.	1-25%	

	delivery of national strategies.			
	E.2 Percentage of targeted laboratories with capacity to perform antimicrobial susceptibility testing and bacterial isolation and identification according to international standards.	<p>3.4.10 Assess current capacity of laboratories for conducting culture and sensitivity testing; and capacity for hospital-based surveillance. An academic institution: University of Ghana Medical School, department of Microbiology is implementing this activity, led by the chairman of the Surveillance Technical Working Group of Ghana's AMR platform. This comprehensive nation-wide assessment is completed.</p> <p>The findings highlight a substantial gap in the quality of culture and antibiotic susceptibility testing (AST) services provided by hospital laboratories and reveal limited accessibility to bacteriology laboratory services for a significant portion of the population. Of the 635 hospitals that met the inclusion criteria, 55 had laboratories capable of performing bacterial culture and AST, representing a national prevalence of 8.7% (n=55/635). 30% of assessed facilities received a two-star rating, indicating acceptable performance with partial compliance to the minimum standard for AMR surveillance. 40% received a one-star rating, indicating poor performance and not meeting the minimum requirements for AMR surveillance. 30% received a zero-star rating, also representing poor performance and not meeting the minimum requirements. Geospatial analysis using a Network Analyst model showed that approximately 41.5% of the population is not covered by clinical diagnostic culture and AST. All laboratories failed to identify >75% of their cultured pathogens to the species level. The overall grade in pathogen data quality for AST was 2.2 ± 0.4, corresponding to an average performance score. These challenges highlighted areas for critical interventions.</p> <p>4.5.14 Resource regional laboratories with capacity to perform culture and sensitivity testing based on comprehensive needs assessment. Selected Laboratories were assessed using FAO-ATLASS tool, needs assessment were also carried out. Procurement of laboratory consumables and items is ongoing.</p>	100%	
			75-100%	

		Next steps are to deliver resources to the Ministry of Food and Agriculture to be installed in the selected laboratory.		
E.3 National surveillance system for AMR/ AMC/ AMU supported in human health, animal health, plant health, food, and environment	<p>3.4.11 Conduct AMR prevalence studies. A commissioned studies to conduct nation-wide AMR prevalence studies found worrying evidence of multidrug resistance among uropathogens including strains categorised as critical by the WHO. A majority, 61.5%, of the data was obtained from females with a mean age (\pm standard deviation) of 40 ± 23 years. The five most common uropathogens obtained in this survey were <i>E. coli</i> (36.5%, 3823/10466), <i>Klebsiella species</i> (23.5%, 2456/10466), <i>Citrobacter species</i> (12.7% (1331/10466), <i>Pseudomonas species</i> (8.3%, 855/10466) and <i>Staphylococcus aureus</i> (5.5%, 580/10466). For oral antibiotics, nitrofurantoin exhibited the highest in vitro susceptibility, ranging from 32.1% in <i>Serratia marcescens</i> to 81.8% in <i>Morganella morganii</i>. Among <i>E. coli</i> isolates, multidrug-resistant (MDR), extensively drug-resistant (XDR), and potentially pan-drug-resistant (PDR) phenotypes were observed in 28%, 27%, and 8% of isolates, respectively. <i>Staphylococcus aureus</i> exhibited lower resistance proportions, with 7% MDR, 7% EDR, and 3% PDR. Additionally, 57% (48/84) of <i>Acinetobacter sp</i> were carbapenem-resistant, 68% (1401/2062) of <i>E. coli</i> were third-generation cephalosporin-resistant, whilst 19% (129/694) of <i>E. coli</i> tested against meropenem were carbapenem-resistant. These findings are supporting the review of review of current guidelines for the management of urinary tract infections in Ghana may be necessary.</p> <p>4.5.12 Support the ESBL integrated surveillance protocol in 1 region of Ghana. Assessment of sites were completed. Three sites respectively for human, animal, and environmental health component of the Tricycle ESBL <i>E. coli</i> surveillance identified,</p>	100%		
			75-100%	

		<p>trained, and supported to initiate processes to begin surveillance. Surveillance activity ongoing.</p> <p>4.5.13 Support the ESBL data input into the GLASS. Focal person from Noguchi Memorial Institute for Medical Research worked on stored isolates from ESBL tricycle surveillance. For two consecutive years, the AMR MPTF project supported Ghana to collate, clean and enter Antimicrobial Susceptibility Testing (AST) results from human health component alongside over 22000 isolates from sentinel sites. AST data into WHO GLASS. However, had challenges with entering environmental and animal health AST results into GLASS. Administrators of GLASS were contacted, who gave a response that, GLASS is not accepting environmental and animal data at current time.</p> <p>3.4.15 Establish the surveillance system of antimicrobial use in animals, crops, and environment sectors. Stakeholders met and defined implementation plan for this activity to be implemented by the veterinary service Division of the ministry of Food and Agriculture, and the Environmental Protection Agency of the Ministry of Environment, Science, Technology, and innovation. Awaiting release of funding from WOA AH AFRO to country for full scale implementation.</p> <p>3.4.16 Develop indicators for monitoring antimicrobial use and resistance across all affected sectors. Leveraging an AMR NAP M&E dashboard development, indicators across some affected sectors were developed. Pending review by a wider stakeholder across all sectors and inputs from stakeholders.</p> <p>3.4.17 Develop monitoring tools for antibiotic use in terrestrial animals and aquaculture. Leveraging on an FAO led AMR MPTF activity, monitoring tools for antibiotics use in terrestrial animals and aquaculture were developed. Next step is for a</p>	<p>100%</p> <p>100%</p> <p>75-100%</p> <p>50-75%</p>	
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		<p>wider stakeholder meeting to finalise tools and indicators for AMU in terrestrial animal farms and aquaculture.</p> <p>3.4.18 Monitor antimicrobial use in selected health facilities for human health. Data collection, analysis, report generation and dissemination are completed. Findings suggest that, out of the ten facilities surveyed, most patient level data, 61.5%, were obtained from females with a mean age (\pm standard deviation) of 40 ± 23 years. The five most common uropathogens obtained in these surveys were <i>E. coli</i> (36.5%, 3823/10466), <i>Klebsiella</i> species (23.5%, 2456/10466), <i>Citrobacter</i> species (12.7% (1331/10466), <i>Pseudomonas</i> species (8.3%, 855/10466) and <i>Staphylococcus aureus</i> (5.5%, 580/10466). For oral antibiotics, nitrofurantoin exhibited the highest in vitro susceptibility, ranging from 32.1% in <i>Serratia marcescens</i> to 81.8% in <i>Morganella morganii</i>. However, organism-specific variations were observed. Among parenteral antibiotics, cephalosporins showed relatively lower susceptibility rates (range, 12-54%), while both meropenem (range, 40-79) and amikacin (range, 69-95%) demonstrated significantly higher in vitro activity against the uropathogens. Among <i>E. coli</i> isolates, multidrug-resistant (MDR), extensively drug-resistant (XDR), and potentially pan-drug-resistant (PDR) phenotypes were observed in 28%, 27%, and 8% of isolates, respectively. <i>Staphylococcus aureus</i> exhibited lower resistance proportions, with 7% MDR, 7% EDR, and 3% PDR. Additionally, 57% (48/84) of <i>Acinetobacter</i> sp were carbapenem-resistant, 68% (1401/2062) of <i>E. coli</i> were third generation cephalosporin-resistant, whilst 19% (129/694) of <i>E. coli</i> tested against meropenem were carbapenem-resistant.</p> <p>3.4.19 Institute monitoring mechanisms for the use of antimicrobials in terrestrial animals, fisheries, and plant health. Workshop to identify, review tools for on farm AMU carried</p>	<p>100%</p> <p>100%</p>	
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		<p>out. Suitable templates have been developed, validated, and migrated into a mobile application for the AMU data collection on. The app has been pretested and in use for collecting on farm data from farms (poultry, piggery, aquaculture, hatcheries) and Veterinary clinics. Training for farmers and veterinary officers from seven regions involved in the pilot was carried out. Interim end of year assessment of data coming in was carried out.</p> <p>3.4.20 Facilitate collection and review of sales data on antimicrobials for animal use. Workshop has been organized to discuss and develop standard tools and methodology for the antimicrobial sales data in the animal sector. Data collection started in October 2022 by staff from veterinary service division.</p> <p>3.4.21 Develop systems to yield AMC surveillance data in human and animal sectors. Stakeholder identification and engagement completed. Potential sources of AMC surveillance data identified. The AMR secretariate of the ministry of Health is leading this activity.</p>	75-100%	
F. Systems for biosecurity and IPC strengthened in targeted countries	F.1 National plans developed or reviewed to ensure good production practices	4.5.23 Develop national biosecurity standards to enhance antimicrobial stewardship at farm level. Draft national biosecurity guidelines for piggery and aquaculture have been developed. The items within the guidelines have been prioritized and score/ weights assigned to them. Wider stakeholder workshop for validation of the guidelines was organized. Corrections and recommendations of stakeholders incorporated, and biosecurity guidelines approved and adopted for country.	100%	
	F.2 Implementation and/or scale up minimum	4.5.25 Pilot the use of biosecurity standards to rank poultry, pig, and fish farms in three ecological zones in Ghana. Training manual development on developed national biosecurity	50-75%	

	<p>requirements for infection prevention for food production, in accordance with international standards.</p>	<p>guidelines is completed. Training of selected farmers on the biosecurity guidelines and assessing using the biosecurity guidelines is yet to be completed.</p> <p>4.5.27 Conduct antimicrobial use studies in animal sector to expand the initiated AMU behaviour change studies in other species. The veterinary service division of the Ministry of Food and Agriculture is leading this activity on behalf of WOA. Detailed proposal has been submitted to WOA AFRO which have also forwarded to WOA HQ in Paris. This activity is completed</p>	<p>100%</p>	
	<p>F.3 National IPC programme supported in line with IPC core components</p>	<p>4.5.26 Support the development and adoption of Integrated pest management (IPM) strategies using farmer field school approach. We completed a KAP study on the use of antimicrobials on vegetable farms and Agrochemical shop owners. Data collection was completed, data analysis, reporting and dissemination completed.</p>	<p>100%</p>	
	<p>F.4 Stakeholder training for the scaled-up implementation of national IPC programme/ interventions.</p>	<p>4.5.22 Train the private practitioners in human health on MoH IPC document. Focal persons from fourteen high volume private health facilities in Accra were trained on IPC, WASH and AMR. This is the first ever organized training on IPC for members of the association of private medical practitioners in Ghana. Trainees were trained and supported to conduct baseline assessment of WASH practices in respective private health care facilities and plan interventions to improve IPC. Manuscript from baseline survey submitted to a journal. Intense interest following completion of this activity necessitated proposals development to scale-up the training and assessment to other regions in the country. Seeking funding for the scale-up.</p> <p>4.5.24 Training manual development for biosecurity framework is completed. Ghana now have a training manual based on</p>	<p>100%</p>	

		developed national biosecurity guidelines for training farmers in poultry, piggery and aquaculture.	100%	
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Risk matrix – any changes?

Risk description	Risk Category: Contextual Programmatic Institutional	Worst case consequence for the project	Risk Score		Mitigating action	Action owner
			Impact	Likelihood		
Competing activities to be carried out by country implementing partners in the ministries.	Institutional	Delay in implementation of activities	Medium	Medium	Early consultation with key focal points and continued engagement and tripartite support in planning and administrative work to ease the pressure on the implementing partners	Tripartite