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Antimicrobial Resistance Multi-Partner Trust Fund annual report 2021

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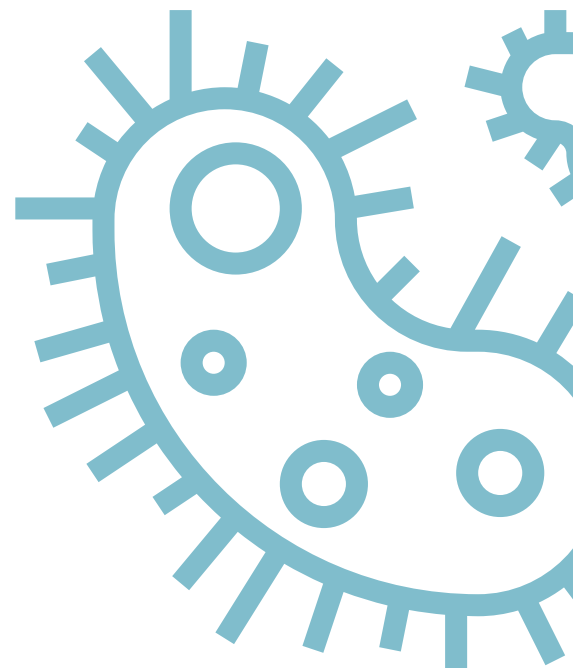


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Antimicrobial Resistance Multi-Partner Trust Fund annual report 2021



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Acronyms and abbreviations

AMC	Antimicrobial consumption
AMR	Antimicrobial resistance
AMR MPTF	Antimicrobial Resistance Multi-Partner Trust Fund
AMR-NAP	National action plan on antimicrobial resistance
AMR TWGs	Technical working groups on antimicrobial resistance
AMU	Antimicrobial use
ASEAN	Association of South-East Asian Nations
AST	Antimicrobial sensitivity testing
ATLASS	Assessment Tool for Laboratories and AMR Surveillance Systems
AWaRe	Access, Watch, Reserve
BARA	Bangladesh AMR Response Alliance
CASIC	Bungoma County AMS Interagency Committee
CDC	Centers for Disease Control and Prevention
CDVSs	County Directorates of Veterinary Services
CIVAS	Centre for Indonesian Veterinary Analytical Studies
COVID-19	Coronavirus disease
DHS	Department of Health Services
DVS	Directorate of Veterinary Services
ECTAD	Emergency Centre for Transboundary Animal Disease
EFDA	Ethiopian Food and Drug Authority
ESBL	Extended spectrum β -lactamase
FAO	Food and Agriculture Organization of the United Nations
FDA	Food and Drug Authority
GDAHP	General Directorate of Animal Health and Production
GAP	Global Action Plan
GIZ	German Agency for International Cooperation
GLASS	Global Antimicrobial Resistance and Use Surveillance
GLG	Global Leaders Group
HAIs	Health care-associated infections
IACG	Inter-Agency Coordination Group
IEC	Information, education and communication
IMCC-AMR	Inter-ministerial coordination committee on antimicrobial resistance
InFARM	International FAO Antimicrobial Resistance Monitoring platform/system
INS-MINSA	National Institute of Health of Peru

IPC	Infection prevention and control
IPCAF	Infection prevention and control assessment framework
IVDA	Indonesian Veterinary Drug Association
IVMA	Indonesian Veterinary Medical Association
KAP	Knowledge, attitudes and practices
LMIC	Low- and middle-income country
M&E	Monitoring and evaluation
MCG	Multisectoral Coordination Group
MSAP	Multi-Sectoral Action Plan on AMR
NAP	National action plan
NGO	Nongovernmental organization
NUS	National University of Singapore
OIE	World Organisation for Animal Health
ONSSA	Moroccan National Office of Food Safety
PHC	Primary health care
PMP-AMR	Progressive Management Pathway for AMR
PPS	Point prevalence survey
RCHLS	Republican Centre for Healthy Lifestyle
SANIPES-PRODUCE	Fishery Health Agency of Peru
SENASA-MIDAGRI	National Agricultural Health Service of Peru
SDGs	Sustainable Development Goals
Sida	Swedish International Development Cooperation Agency
SF	Substandard and falsified
spp.	Species
TISSA	Tripartite Integrated System for Surveillance on AMR and Antimicrobial Use
TJS	Tripartite Joint Secretariat
ToRs	Terms of Reference
TrACSS	Tripartite AMR Country Self-Assessment Survey
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNSDCF	United Nations Sustainable Development Cooperation Framework
VPPs	Veterinary paraprofessionals
VSO	Veterinary service officer
WAAW	World Antimicrobial Awareness Week
WASH	Water, sanitation and hygiene



Foreword

Antimicrobial resistance (AMR) is a major global threat to humans, animals, plants, food systems and the environment. Without investment and commitments from countries globally to address this challenge, AMR will continue unabated. The MPTF has successfully begun the essential work to address this challenge. With the overall goal of “having reduced levels of AMR and slower development of resistance” in 10 years’ time, the AMR MPTF has seen, in 2021, the initial steps towards this goal, with capacity built in 8 countries, and coordinated steppingstones under the global programme.

Despite continuous restrictions caused by the coronavirus disease (COVID-19) pandemic, throughout 2021 collaboration between the Quadripartite organizations – the Food and Agriculture Organization of the United Nations (FAO), the World Organisation for Animal Health (OIE), the United Nations Environment Programme (UNEP) and the World Health Organization (WHO)¹ – sustained strong implementation progress at global, regional and country level. Progress against the overarching Antimicrobial Resistance Multi-Partner Trust Fund (AMR MPTF) results matrix is now being reported for the first time. This was possible through the financial partnership of the Governments of Netherlands, the United Kingdom (using UK aid funding through the Fleming Fund), Sweden (including through the Swedish International Development Cooperation Agency – Sida) as well as Germany (through the German Agency for International Cooperation – GIZ).

Addressing AMR requires a One Health approach, this includes consideration of the environment and the AMR associated biological and chemical pollutants that can impact human, animal, plant and ecosystems health. In mid-2021, UNEP became a co-signatory of the Fund, enhancing the understanding of the critical environmental dimensions of AMR. The four organizations worked closely together to develop the Joint Strategic Framework and work plan, which set out the strategic direction and plans for collaborative work on AMR over the next years. The direction of the Fund is now closely aligned with the Joint Strategic Framework for AMR and progress towards key Sustainable Development Goal (SDG) targets, where the AMR MPTF largely focuses on supporting implementation of One Health national action plans (NAPs) on AMR.

Eight country projects (Cambodia, Ethiopia, Ghana, Indonesia, Kenya, Morocco, Tajikistan, Zimbabwe), have successfully started to implement activities. Additionally, two country projects (Peru and Senegal) were approved in 2021 and implementation is set to start in early 2022. During this period, we have learned significant lessons on how to enhance our collaborative work to maximize impact and results at the country level.

The work at the country level is supported by global projects led by headquarters-based teams of the four organizations to advance a One Health approach to AMR in the areas of the environment, integrated surveillance, monitoring and evaluation (M&E), and legal and regulatory frameworks. This report highlights how the country and global projects are working collaboratively through building and sharing expertise, and how the global programmes inform and guide AMR-NAP implementation in countries.

¹ In March 2022, the Tripartite and UNEP signed a memorandum of understanding and are now officially called the Quadripartite. As this report reflects the work in 2021, the term “Tripartite and UNEP” will be used throughout.



As the AMR MPTF has also been extended to 2030 to align with the SDG agenda, we aim to provide quality support to additional countries. Consequently, we are pleased that in 2022 we will be able to scale up the Fund with another six countries. Our forward direction will focus on lessons learned, such as the need for continued technical support for quality country proposals and project design, continuous advocacy around the urgency and necessity for an effective One Health approach to AMR, and concerted outreach for further resource mobilization. Building on the current momentum for One Health, and through high-visibility opportunities such as the One Health Global Leaders Group (GLG) on AMR, it will be important to connect the Fund's activities to concrete longer-term investment opportunities, including through networking between countries and regions.

The first global assessment of AMR estimated that nearly 5 million deaths in 2019 were associated with AMR. This not only underscores the severity of AMR globally, but also highlights the urgent need to enhance country-level action and global commitment to tackle this growing threat to health and development. We hope that through the AMR-MPTF the organisations collaboratively can have an impact and assist countries to curb this silent pandemic.

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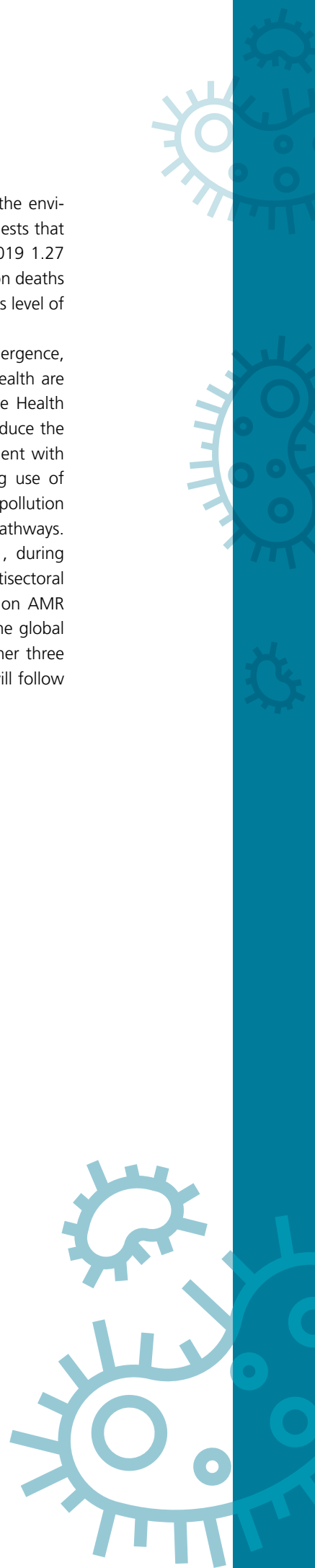
An agro-pastoralist woman carrying her baby waters a crop along with some other members of her community in Amudat, Uganda.

Introduction

AMR is a major global threat to humans, animals, plants, food systems and the environment and that is already affecting lives and livelihoods. New evidence suggests that this global threat is more immediate and severe than originally thought: in 2019 1.27 million deaths were estimated to be directly attributable to AMR and 4.95 million deaths to be associated with AMR, the majority in sub-Saharan Africa and Asia [\(1\)](#). This level of mortality threatens the attainment of the SDGs at every level.

There are many key inputs and pollution sources that contribute to the emergence, transmission and spread of AMR. As human, animal, plant and ecosystems health are all interconnected, a One Health response is required. Specifically, only a One Health cross-sectoral approach, applied at the national and international level, can reduce the over- and misuse of antimicrobials, address rates of infection requiring treatment with antimicrobials and increase access to quality, affordable medicines. Reducing use of antimicrobials alone will not be enough, there must also be reduction of key pollution sources to limit transmission of antimicrobial resistant infections and exposure pathways.

This annual report highlights progress made by the AMR MPTF in 2021, during which UNEP joined the Tripartite organizations to complement a broad, multisectoral One Health response to AMR. A joint Strategic framework for collaboration on AMR was also agreed. Implementation began on eight country programmes and one global programme (comprising a coordination role and four technical areas). A further three country programmes were also conceptualized in 2021 and implementation will follow in 2022.





Celeste Lucero, the WHONET-Argentina (WHONET-ARG) Antimicrobial Resistance (AMR) Surveillance Network's coordinator, is reading the results of susceptibility testing, looking if certain antibiotics were effective against the bacteria in the lab at Malbrán Institute in Buenos Aires, on 10 October 2021.

Strengthening collaboration for joint action and results

2.1 Tripartite to Quadripartite strategy and collaboration

The 2019 report of the Inter-Agency Coordination Group on AMR to the UN Secretary-General underlined the urgent need for much closer collaboration between stakeholders as well as efforts to address AMR through multisectoral One Health action at the global, regional and national level.

The Tripartite had already reaffirmed their commitment to work together to combat health risks at the human, animal and ecosystem interface in 2018. In 2019, through a memorandum of understanding and with the support of the Governments of the Netherlands and Sweden, the AMR MPTF was established for an initial period of 2019–2024.

Where the AMR MPTF sits within the wider Tripartite and UNEP response to AMR

The AMR MPTF was part of a wider set of Tripartite and UNEP interventions. During 2021, UNEP became a signatory of the AMR MPTF and working relations became closer. Such efforts included developing the joint Strategic Framework for collaboration on AMR to guide closer collaboration and help align delivery of Tripartite and UNEP work across the different levels of the four organizations over the next years, and an associated work plan for 2022-2023.

The AMR MPTF currently supports AMR-NAP implementation and technical programmes at the global level to assist country implementation. Eighty per cent of funds and work are provided to country programmes and 20% to global programmes.

How the AMR MPTF relates to broader work and strategy

While not currently directly funded by the AMR MPTF, the work of the AMR MPTF relates closely to global governance structures for AMR in terms of advocacy, direction setting and multi-stakeholder action. These are integral components of the Strategic Framework for collaboration on AMR. These structures include the GLG on AMR and the AMR Multi-stakeholder Partnership Platform.

In addition, in order to present a joined-up service offer through the United Nations Sustainable Development Cooperation Framework (UNSDCF), the Tripartite and UNEP country and regional teams have provided guidance on how to meaningfully include AMR in the Cooperation Framework. The aim of such a move would be to contribute to outcomes related to health, health security, One Health, sustainable food systems and the environment.

Increasing momentum for addressing AMR in Zimbabwe: Commitment of United Nations Country Team and the government

The United Nations Country Team (UNCT) in Zimbabwe made tackling the rise of AMR a priority in Zimbabwe's United Nations Sustainable Development Cooperation Framework (ZUNSD-CF) 2021–2026. The move is a game changer as it effectively links AMR to the national development strategy, thus ensuring strong governance, investment and accountability – all of which are important for the long-term sustainability of the AMR programme. These efforts build on the country's One Health AMR NAP launched in September 2017.

"As the GoZ [Government of Zimbabwe], we take AMR seriously and it has the highest level of commitment and support from the political leaders. We have done this through supporting the three different ministries (Ministry of Health and Child Care, Ministry of Lands, Agriculture, Fisheries, Water and Rural Development and Ministry of Environment, Tourism and Hospitality Industry) that are involved", said M. Dobbie, Chief Director of Public Health and focal person for the Ministry of Health and Child Care AMR.

The Tripartite, together with the GoZ, embarked on resource mobilization efforts that generated catalytic funds from the Fleming



Signing ceremony of Zimbabwe's new UN Sustainable Development Cooperation Framework

Fund and the AMR MPTF. The result was a reinvigorated push to implement planned activities from the NAP (2021–2022), signalling a more coordinated approach towards AMR. Under the aegis of the ZUNSDCF, the UNCT, in partnership with the Government of Zimbabwe and other stakeholders, will provide transformative support towards a coordinated and multisectoral One Health approach to reduce the burden of AMR in Zimbabwe.

"The strong leadership and commitment of the Government of Zimbabwe to combat the pub-

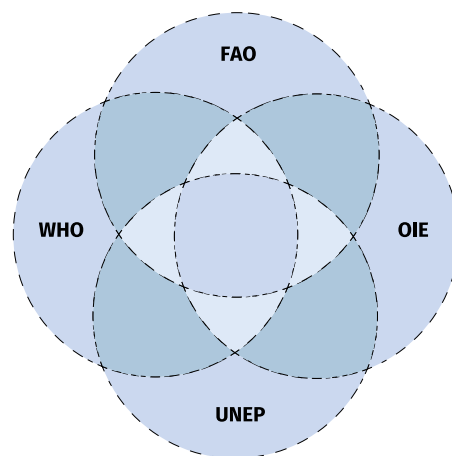
lic health and economic threat posed by AMR is already receiving strong support from the Tripartite organizations. The commitment of other members of the UN Country Team in Zimbabwe, including the UN Environment Programme, as expressed in the 2022–2026 United Nations Sustainable Development Cooperation Framework, will galvanize additional support in this regard", said Alex Gasasira, WHO representative in Zimbabwe.

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Affirming the Tripartite and UNEP alliance

Recognizing the ever more urgent need to address the threat of AMR, the Tripartite has reaffirmed its longstanding commitment to work together with UNEP on health risks across the human, animal and ecosystem interface. In 2021 UNEP signed the AMR MPTF agreement with the United Nations Development Programme (UNDP) and is thus now a formal partner. In addition, at the time of writing this report, on 17 March 2022 a memorandum of understanding was signed between the Tripartite partners and UNEP to formally bring UNEP into a new Quadripartite for One Health.

The Tripartite and UNEP collaboration is an integral part of joint activities and impact assessment. The M&E framework for the Global Action Plan (GAP) on AMR and the Tripartite AMR Country Self-Assessment Survey (TrACSS) include many indicators for which the AMR MPTF is looking to achieve (and monitor) impact over the longer term. Indicators of particular interest are those relating to strengthening multisectoral governance, AMR frameworks and legislation, and M&E of AMR-NAPs and integrated surveillance, as well as One Health approaches to antimicrobial use (AMU) and antimicrobial consumption (AMC), infection prevention and control (IPC), stewardship, advocacy and communication.



2.2 The AMR MPTF

Since its launch in 2019, the AMR MPTF has supported the Tripartite and UNEP in efforts to demonstrate effective One Health approaches to AMR, complementing the Fund's resource partners' specific sector-strengthening work. The Fund's prime focus is catalysing and accelerating progress of One Health approaches to AMR in low- and middle-income countries (LMICs), especially by supporting the implementation of AMR-NAPs. The Fund promotes Tripartite and UNEP collaboration, adding value at the interface between sectors to enhance learning and reduce duplication of work, more coordinated partnerships, and a more comprehensive understanding of challenges and opportunities in key areas.

In 2021 the AMR MPTF Steering Committee approved the use of funds to deliver priority activities, outputs and outcomes of the four organizations' Strategic Framework for collaboration on AMR. The Steering Committee also agreed to extend duration of the AMR MPTF to 6 years (to 31 December 2030) in line with the 2030 Agenda for Sustainable Development. The strategic shift in the AMR MPTF now aligns with targeted outputs, defined in the Strategic Framework for collaboration on AMR, which reflect the contexts in which the Tripartite and UNEP operate:

- Output 1 (country level): The capacity and knowledge of countries are strengthened to prioritize and implement context-specific collaborative One Health approaches to control AMR in policies, legislation and practice.
 - Sub-output 1.1: Tripartite and UNEP support One Health approaches to AMR in low and middle-income countries.
 - Sub-output 1.2: Guidance, tools, and technical standards and guidelines on One Health approaches to AMR are developed.
- Output 2 (global/regional level):
 - Output 2.1: Global and regional initiatives and programmes influence and support One Health responses to AMR.
 - Output 2.2: Global governance structures are established, resourced and function effectively.

Annex 1 presents the "theory of change" for the Strategic Framework for collaboration on AMR along with the results matrix for the AMR MPTF, listing ways in which the AMR MPTF contributes and common indicators of success.

2.3 Aiming for sustainable development results – the SDG and AMR MPTF results matrix

The AMR MPTF aims at AMR indicators for SDG 3 on good health and well-being, target 3.d (Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks):



- SDG 3.d.2: Percentage of bloodstream infections due to selected antimicrobial-resistant organisms.
- SDG 3.d.3: Proportion of health facilities that have a core set of relevant essential medicines available and affordable on a sustainable basis (where antibiotics will be disaggregated from the core set of data used in the metadata).

Although these indicators refer to human health, AMR is a multisectoral issue and progress in these goals depends on action in other sectors.

The Tripartite and UNEP's guidance to UN country teams on inclusion of AMR in the Cooperation Framework is an essential and welcome enhancement to the Tripartite and UNEP's ability to catalyse country responses to AMR, including through the AMR MPTF, to help achieve the SDGs. Table 1 illustrates the links between AMR and achieving the SDGs.







Table 1. Links between AMR and achievement of SDGs(2)

CORE SDGs	HOW AMR IMPEDES PROGRESS ON THE SDG	HOW PROGRESS ON THE SDG HELPS TO ADDRESS AMR
 <p>1 NO POVERTY</p>	<ul style="list-style-type: none"> ● People living in poverty are more prone to infectious diseases, and resistant infections are more likely to spread in poor living conditions. The poor are less able to access effective treatment. Substandard care and partial treatment can drive infection. ● High costs of treatment and chronic infections will impoverish millions. An additional 28.3 million people could be pushed into extreme poverty by 2050 because of AMR, most of them living in LMIC. 	<ul style="list-style-type: none"> ● Financial and social protection strategies will allow poor people to access quality services and decrease the impact of AMR.
 <p>2 ZERO HUNGER</p>	<ul style="list-style-type: none"> ● AMR in animals increases costs of animal health, infections become untreatable, production decreases and working animals cannot carry out their tasks, affecting the livelihood of farmers and food security. ● Livestock production in low-income countries would decline the most, with a possible 11% loss by 2050 in the high-AMR impact scenario. 	<ul style="list-style-type: none"> ● Developing sustainable food production systems with less reliance on antimicrobials and with the phasing out of antibiotic use in livestock for growth promotion will be essential for long-term AMR control. ● Increased professional advice and vaccination of food animals can reduce the emergence and spread of drug-resistant infections.
 <p>3 GOOD HEALTH AND WELL-BEING</p>	<ul style="list-style-type: none"> ● Globally, drug-resistant diseases currently cause at least 700 000 deaths a year. ● AMR will increase treatment costs, making effective care unaffordable for many, and UHC unattainable. ● Emerging and increasing resistance to drugs to treat HIV, TB and malaria is one of the key barriers to eliminating these diseases. Multi-drug resistant TB alone is estimated to cause 230 000 deaths annually. ● Reducing child and infant mortality relies on effective antibiotics. Currently, 200 000 neonates die each year from drug-resistant infections, such as pneumonia or resistant bloodstream infections. 	<ul style="list-style-type: none"> ● Strategies to reduce the risks of AMR must be linked to improving care and ensuring access to effective care when needed. ● Central to addressing AMR is ensuring that health systems are accessible and have a trained workforce providing evidence-based high-quality care in a hygienic setting. ● Increased vaccine coverage reduces the incidence of disease from resistant pathogens and limits the need for antibiotics; in turn, this prevents the development of AMR. ● Falsified and poor-quality antibiotics contribute to AMR. Hence, improving access to high-quality antimicrobials and preventing falsified and substandard medicines reaching the market will help to reduce AMR. ● Reliance on out-of-pocket payment for health care correlates with AMR in LMIC.
 <p>6 CLEAN WATER AND SANITATION</p>	<ul style="list-style-type: none"> ● Globally, 1 in 4 health care facilities have no access to basic water services, 1 in 10 have no sanitation services available, 1 in 3 do not have adequate facilities to clean hands at the point of care, and 1 in 3 do not segregate waste safely. Lack of the availability of basic WASH services is greatest in least developed countries, where 50% of health care facilities lack access to water services and 60% have no sanitation services at all. ● Lack of access to adequate WASH services is giving rise to the spread of infectious diseases; in turn, this increases antibiotic use and thus drives the emergence and spread of AMR. 	<ul style="list-style-type: none"> ● Each year, hundreds of millions of cases of diarrhoea in humans are treated with antimicrobials. Universal access to WASH could reduce such cases by 60%. ● Improved WASH services are critical to reducing the spread of infection.
 <p>8 DECENT WORK AND ECONOMIC GROWTH</p>	<ul style="list-style-type: none"> ● By 2030, increased mortality and morbidity due to AMR and thus reduced labour supply could cause a decrease in the global economic output of 1–3%, with estimated losses as high as US\$ 3.4 trillion. 	

CORE SDGs	HOW AMR IMPEDES PROGRESS ON THE SDG	HOW PROGRESS ON THE SDG HELPS TO ADDRESS AMR
	<ul style="list-style-type: none"> Antimicrobial compounds and their metabolites can be found in the wastewaters from manufacturing sites for medicines and APIs. In extreme cases, antimicrobial compounds have been found in water downstream from manufacturing sites in concentrations higher than those found in the blood of patients taking medicines. 	<ul style="list-style-type: none"> Effective pollution controls on pharmaceutical production, health facilities and agricultural production will substantially decrease the risk of AMR emergence and spread in the environment.
	<ul style="list-style-type: none"> To effectively tackle AMR, collaboration and partnerships are needed across all relevant sectors (human, animal, plants and the environment) and at all levels (national, regional and global). 	<ul style="list-style-type: none"> Working in partnership means taking up the One Health approach to addressing AMR.

RELATED SDGs



- 
 AMR can lead to increasing inequalities within societies; also, certain groups may be particularly vulnerable to drug-resistant infections. These groups include women, children, migrants, refugees, people employed in certain sectors (e.g. agriculture or health care) and people living in poverty.
- 
 Quality-assured local production of antimicrobials, vaccines and diagnostics can improve access to medical technologies and this is an important part of the strategy for some countries.
 - Investment in R&D is vital for the development of vaccines, new antibiotics and diagnostics.
- 
 AMR can lead to increasing inequalities within societies; also, certain groups may be particularly vulnerable to drug-resistant infections. These groups include women, children, migrants, refugees, people employed in certain sectors (e.g. agriculture or health care) and people living in poverty.
- 
 Addressing overcrowding, poor WASH provision and the lack of regulation of basic services will decrease the risks of infections and hence the emergence and spread of AMR in cities.
- 
 Global warming is resulting in changing patterns of disease and increased reliance on antimicrobials in non-immune populations.
 - Taking action on climate change will decrease the likelihood of extreme weather events and the associated spread of resistance.
- 
 If countries develop aquaculture, it is vital that this is done with appropriate regulation to ensure access to quality antimicrobial agents and to minimize the overuse and misuse of antimicrobials.

API: active pharmaceutical ingredient; HIV: human immunodeficiency virus; LMIC: low- and middle-income country; R&D: research and development; SDG: Sustainable Development Goal; TB: tuberculosis; UHC: universal health coverage; WASH: water, sanitation and hygiene.



Moldova. Biochemical examination (API 20E) for diagnosis of bacterial diseases. National Food Safety Agency laboratories - Republican Veterinary Diagnosis Center (RVDC), Chisinau.

AMR MPTF progress and achievements in 2021

3.1 Impact of COVID-19

COVID-19 has had an enormous impact on global health and food systems. It has also further demonstrated the need for strengthening a One Health approach at all levels to prevent, diagnose and manage infection and the risks of disease transmission at the human–animal interface.

At the same time, governments and ministries of health in particular, as well as country office staff, have been preoccupied with dealing with the pandemic, which has slowed agreement across sectors and ministries and progress in the field. According to TrACSS responses for 2020–2021, AMR-NAP implementation in all AMR MPTF countries have been negatively impacted by COVID-19, both operationally and administratively.

The transition to working online has allowed more frequent communication between the various levels of the three (now four) organizations. In certain cases, remote work has proved to be a more efficient way of delivering training and facilitating intercountry collaboration. Nonetheless, it has been much more difficult to take forward many of the activities as planned.

Over the lifespan of the AMR MPTF, projects have operated almost exclusively under pandemic conditions. This has prevented international travel for the planning, technical support, monitoring and oversight missions which have traditionally provided energy and inspiration for all. The same is true for the AMR MPTF Steering Committee, which has not met face to face since AMR MPTF started implementation. While the situation is improving, challenges imply that several programmes are likely to require no-cost extensions beyond the current 2 years.

Despite these challenges, at a macro level the political and financing environment in which the AMR MPTF operates is fast evolving, as is evident by the current political surge of interest in One Health. Key examples include the G7, G20 and UN Food Systems Summit; the World Health Assembly's establishment of an intergovernmental negotiating body to draft and negotiate a convention, agreement or other international instrument on pandemic prevention, preparedness and response; as well as other forums and initiatives.

3.2 Overview of programme implementation

The AMR MPTF launched eight country programmes in 2020 and one underpinning global programme in 2021. The timings for the programme starts are summarized in Table 2. Each programme contributes to the AMR MPTF results matrix (Fig. 1) for three desired long-term impacts (> 10 years) and specific outcomes and supporting outputs. What follows is a summary of progress on the major outputs towards which the country and global programmes are working (Table 3). More detailed and specific programme reports are included in Annex 3.

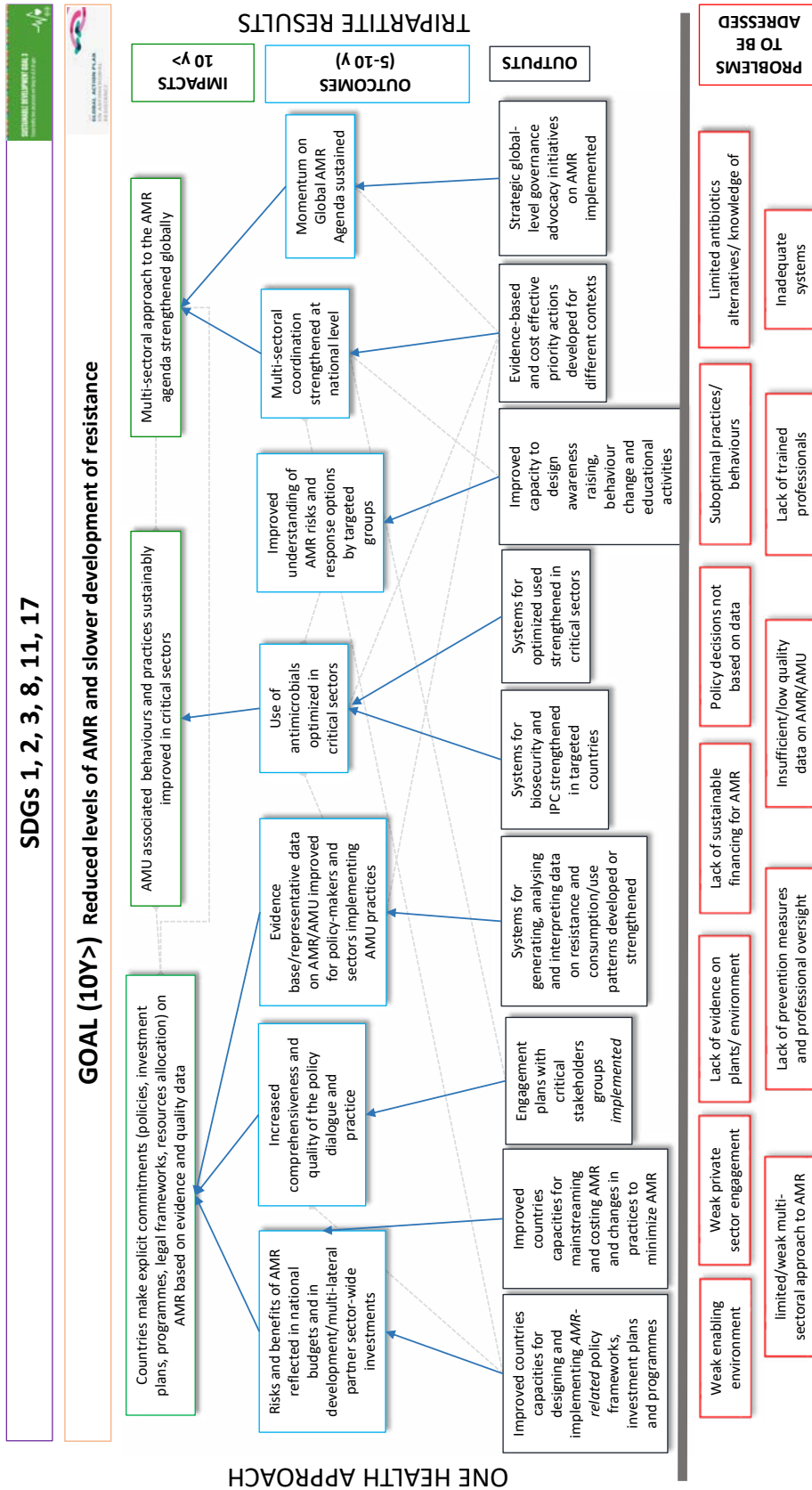
Table 2. Starting months in 2021 for country programmes now implementing

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Cambodia												
Indonesia												
Morocco												
Kenya												
Zimbabwe												
Ethiopia												
Ghana												
Tajikistan												

Table 3. Country and global programmes contributing to specific AMR MPTF outputs

OUTPUTS	CAMBODIA	ETHIOPIA	GHANA	INDONESIA	KENYA	MOROCCO	TAJKISTAN	ZIMBABWE	GLOBAL
Improved capacities for designing and implementing AMR-related policy frameworks, investments plans and programmes	■	■	■				■	■	■
Improved capacities for mainstreaming and costing AMR as well as changes in practices to minimize AMR			■						
Engagement plans with stakeholder groups implemented			■	■					■
Systems for generating, analysing and interpreting data on AMR, AMU/AMC patterns developed or strengthened		■	■				■	■	■
Systems for biosecurity and IPC strengthened		■	■	■	■	■	■	■	
System for optimized use of antimicrobials strengthened in critical human/animal sectors	■	■	■	■	■		■	■	
Improved capacity to design awareness-raising, behaviour change and educational activities	■		■		■	■	■	■	
Evidence-based, cost-effective priority actions developed for different contexts									■
Strategic global-level governance advocacy initiatives on AMR implemented									■

Fig. 1. Results matrix for the AMR MPTF



Improved AMR-related policy frameworks, investments plans and programmes

OUTPUTS	CAMBODIA	ETHIOPIA	GHANA	INDONESIA	KENYA	MOROCCO	TAJIKISTAN	ZIMBABWE	GLOBAL
Improved capacities for designing and implementing AMR-related policy frameworks, investments plans and programmes	■	■	■			■	■		■

Over both 2020 and 2021, the process of developing country proposals has considerably strengthened Tripartite collaboration and intensified prioritization and planning with government partners. In many cases, AMR was already included in health sector plans and some development plans. But in Zimbabwe and Peru, for example, the political leadership of the Tripartite have succeeded in identifying AMR as a priority in the UNS-DCF. While other countries will continue developing their new Cooperation Frameworks throughout 2023, AMR prioritization will be a focus in 2022.

National AMR MPTF launch events have also provided good opportunities to grow and sustain political momentum and a focus on AMR, despite COVID-19. These events have been combined with, and have supported, other key events where the launch of the AMR MPTF was accompanied by the launch of the country's One Health AMR Protection and Containment Strategic Plan, 2021–2025. Where needed, coordination was boosted, such as in Cambodia, where plans for an inter-ministerial coordination committee on AMR (IMCC-AMR) have been endorsed by the three ministerial technical working groups on AMR (AMR TWGs).

Establishment of a high-level inter-ministerial coordination committee for AMR in Cambodia

In Cambodia, the AMR MPTF project supports the establishment of a high-level inter-ministerial coordination committee for AMR (IMCC-AMR) to strengthen the coordination and monitoring of the multi-sectoral action plan for AMR (MSAP) 2019-2023.

In October 2021, the Government of Cambodia, in partnership with the Tripartite, organized a consultative meeting with key stakeholders across the One Health spectrum to collect inputs

for shaping the foundation of the IMCC-AMR. During the meeting, draft terms of reference for the IMCC-AMR were developed which are now awaiting final approval.

Cambodia endorsed the MSAP in December 2019. However, the lack of multi-sectoral coordination jeopardized the implementation of the action plan. Therefore, the Tripartite will provide its technical expertise on coordination, antimicrobial stewardship, and effective communication strategies to encourage the initiation and functioning of the intersectoral coordination mechanism.



© Cambodia CDC, MOH

Drafting of the ToRs for the inter-ministerial coordination committee for AMR at a hybrid-consultative meeting with key stakeholders in October 2021 in Cambodia

The legal team under the global programme are close to completing an internationally applicable tool to support legislation review. The tool builds on the methodology of the Food and Agriculture Organization of the United Nations (FAO) to analyse AMR-relevant legislation in the food and agriculture sector to include human health; animal health; food safety; and feed, environment and pesticide management; as well as important new work on governance and cross-cutting issues. There has been good collaboration with the global programme environment team to ensure that pollution controls and other legal instruments that impact environmental AMR are appropriately included in the tool.

The legal team worked with Zimbabwe to help a national legal consultant supported by the Fleming Fund use the tool to support current work on revising human health legislation. Some regulatory work has already been completed. For example, in Cambodia AMR-related articles have been integrated into the Ministry of Health's draft law on the management of health products, currently under review by the Department of Drug, Food and Cosmetics of the Ministry of Health. Following a review of legislation relevant for AMU/AMR supported by the Fleming Fund and implemented by FAO, the Ministry of Agriculture, Forestry and Fisheries has already issued a law on animal health and production. Thus, work is being done to try and harmonize laws on human and animal health.

AMR MPTF supports Morocco in establishing the first One Health governance mechanism to tackle AMR

Morocco's AMR MPTF project design showed the excellent dynamic that already exists among the key partners working in One Health. Building on this collaboration among technical teams, the Tripartite joined forces with the Ministry of Health, the Ministry of Agriculture and the Ministry of Environment to raise awareness on AMR and advocate for intersectoral partnership at a strategic level.

The AMR MPTF project has enabled the establishment of a One Health governance mechanism for AMR, bringing together key stakeholders to address common issues. The mechanism comprises:

- a steering committee, with high-level representation by the ministries of the three governmental departments and representatives of the Tripartite agencies;
- a technical coordination committee comprising the technical officers of the Tripartite and the focal points of the three ministerial departments; and
- a national scientific project coordinator who was recruited by the project and whose task is to federate all partners and facilitate implementation of the project.

The official launch ceremony of the project was crucial in raising awareness and engaging high-level decision-makers on AMR and involved the minister of health, the secretaries general of agriculture and environment, as well as representatives of the Tripartite. Their active partici-



Official launch ceremony celebrating the establishment of a One Health governance mechanism for AMR in Morocco

© FAO/ Lina Touri

pation showcased their strategic vision and commitment to collectively tackling AMR.

The governance mechanisms adopted in this project have made possible a solid and permanent common basis for reflection and sharing.

While the AMR-NAPs of nearly all countries cover human and animal health and livestock, inclusion of the environment is patchier. Many countries are unclear which issues to focus on. The global programme's environment team worked with countries to better understand their environmental status and priorities. A literature review to map existing capacity-building interventions was completed. This link between the environment team and countries will be essential in improving environmental reporting in TrACSS, which is currently behind other sectors.

The global programme's M&E team worked with regional and country offices to improve coordination between and within sectors for TrACSS and UNEP, helped to enhance environmental responses in TrACSS, and also worked on the biennial M&E report and the AMR MPTF M&E project. The M&E team is working with countries on M&E activities, such as in Cambodia, where they developed a national M&E framework for the Multi-Sectoral Action Plan on AMR (MSAP) with Tripartite support. The framework is awaiting official approval from the three ministries.

The pandemic has seriously restricted opportunities for engagement between technical and institutional sectors (such as between government and academia, civil society and the private sector). In Morocco and Ghana, the Tripartite adapted to the challenges posed by COVID-19 by working with government partners and stakeholders from other sectors at virtual "writing" workshops to develop proposals, concept notes and terms of reference (ToRs) for activities across all relevant outputs to be ready for implementation as soon as circumstances allow.

Engagement plans with critical stakeholder groups implemented

OUTPUTS

	CAMBODIA	ETHIOPIA	GHANA	INDONESIA	KENYA	MOROCCO	TAJIKISTAN	ZIMBABWE	GLOBAL
Engagement plans with stakeholder groups implemented			■	■					■

COVID-19 restrictions have massively hampered meetings and networking at the country level, and consequently progress in this area has been slow. Indonesia is one of two countries working to deliver this output and is the only one that was able to start anything in 2021. They are collaborating with the global M&E team to ensure that key partners are involved in developing and monitoring the AMR-NAP in pilot areas.

Conversely, remote working has facilitated communication and collaboration at the global level. The environment programme has been working to raise the visibility of the environmental dimensions of AMR with the highest governing bodies in each agency through the leadership of a "friends against AMR in the environment" Member States group.

Systems to generate, analyse and interpret data on AMR, AMU/AMC developed or strengthened

OUTPUTS	CAMBODIA	ETHIOPIA	GHANA	INDONESIA	KENYA	MOROCCO	TAJIKISTAN	ZIMBABWE	GLOBAL
Systems for generating, analysing and interpreting data on AMR, AMU/AMC patterns developed or strengthened		■	■			■	■		■

One reason that AMR is still neglected is the lack of reliable, robust data to inform policy and track progress. This issue affects all sectors but particularly non-human sectors and the human–animal interface. In 2021 the focus under this output was (i) setting up governance and administrative structures and (ii) carrying out assessments and reviews, developing tools and identifying locations. In Morocco, technical committees for setting up AMR surveillance systems were established within the Ministry of Health for human health and within ONSSA (National Office of Food Safety) for the veterinary sector. In Ethiopia, an epidemiological data capturing tool for AMR was developed and is now ready for use. The Ethiopian Public Health Institute was given resources to conduct baseline assessments of laboratories in 20 hospitals and to provide basic microbiological training to laboratory technologists from six hospitals. Several countries are adopting the “Tricycle protocol” for integrated surveillance – a standardized approach to monitoring levels of ESBL (extended-spectrum β -lactamase)-producing *Escherichia coli* in humans, animals and the environment. In Tajikistan, a mission to assess countries’ capacity to implement the protocol and recommend next steps was conducted in October–November 2021.

At the global level, the AMR MPTF supports the Tripartite Integrated System for Surveillance on AMR and Antimicrobial Use (TISSA). The intent of TISSA is to make available official and validated data provided by countries to FAO, OIE and WHO on patterns and trends in AMU and AMR in humans, animals, food, plants and the environment. TISSA aims to provide access to such data in a user-friendly way on a global and regional basis. Development of the TISSA data platform is at an advanced stage, and experts from each

Building Tajikistan’s integrated surveillance system for AMR

As a first step towards developing a national integrated AMR surveillance system, the WHO Tajikistan country office undertook a mission in autumn 2021 to assess the country’s capacity to implement the [WHO AMR Tricycle protocol](#) on surveillance of ESBL-producing *E. coli* – a major multidrug-resistant bacterium associated with serious hospital and community-acquired infections worldwide – in humans, animals and the environment. The team visited 22 national and subnational bacteriological laboratories, conducting interviews with laboratory staff to assess their knowledge and practices related to bacterial isolation, identification and AST, as well as work processes at each facility.

Abdukholiq Amirzoda, Deputy Ministry of Health and Social Protection of Population and the Chair of the AMR Multisectoral Coordination Group in the Republic of Tajikistan, said: “We need to update the bacteriology laboratory system with a focus on identifying resistant bacteria in humans, animals and the environment

to assess the situation and take necessary actions to prevent the future spread of antimicrobial resistance. This mission was a fundamental first step to establish an integrated surveillance system of ESBL-producing E. coli in humans, poultry and the environment”.

The mission revealed that Tajikistan’s national reference laboratory provides excellent bacterio-

logical services and will be an ideal site for coordinating implementation of the Tricycle protocol on surveillance of ESBL-producing *E. coli*. The next steps in setting up Tajikistan’s integrated surveillance system include training staff, and pilot testing and developing an integrated database for assessing the situation on ESBL-producing *E. coli*.



Visiting bacteriological laboratories in Tajikistan to assess their capacity to implement the WHO AMR Tricycle protocol on surveillance of ESBL-producing *E. coli*

© K. Boymatova/WHO Tajikistan

organization are starting to test the functionality and appropriateness of the platform. A substantial amount of work related to data visualization for each surveillance programme has been completed, but harmonization of data is proving to be a challenge as geographical regions differ for each organization.

Systems for biosecurity and IPC strengthened in critical sectors

OUTPUTS

CAMBODIA ETHIOPIA GHANA INDONESIA KENYA MOROCCO TAJIKISTAN ZIMBABWE GLOBAL

OUTPUTS	CAMBODIA	ETHIOPIA	GHANA	INDONESIA	KENYA	MOROCCO	TAJIKISTAN	ZIMBABWE	GLOBAL
Systems for biosecurity and IPC strengthened		■	■	■	■	■	■	■	

Preventing infection is vital to decreasing the need for antimicrobials and to preventing the spread of resistant strains as well as transmission at the human–animal interface.

In most cases, work on biosecurity and IPC is closely linked to antimicrobial stewardship (AMS) – optimal antimicrobial management and use – often through its association with health care-associated infection (HAI), so there is overlap between this output and the next. Both these issues are practical institutional management issues that are important in reducing the need for antimicrobials in the first place and in ensuring they are used most effectively when needed. Human health has traditionally been more advanced on IPC through its work in health care facilities, but agriculture has been catching up with work on biosecurity. Many countries have realized that there is much sectors can learn from each other. As a result, collaboration on this issue is increasing.

This area of work is dominated by institutional assessments and the development and implementation of locally appropriate guidelines (adapted from global tools). For example, in Indonesia assessments of IPC-WASH (water, sanitation and hygiene) and AMS across human and animal sectors are being planned. The Tripartite organizations have worked with government representatives and experts to finalize the tools and to make the administrative arrangements for the field visits.

The Fund has also supported work in individual sectors, such as in Kenya, where a baseline assessment of IPC and AMS practices for the human sector was carried out in 2021.

Improving IPC in poultry farms to combat AMR in Indonesia

As a result of the collaborative work of the Tripartite in Indonesia, 16 veterinary service officers (VSOs) have piloted an updated IPC-WASH tool in poultry farms in four districts of Java.

The IPC-WASH tool for the animal health sector combines WHO’s IPCAF and FAO’s layer farm assessment tool and was reviewed by the Ministries of Health and Agriculture as well as professionals working on human and animal health. Bima Bhaskara Raenaldy, a VSO from Blitar District, East Java Province, expressed his appreciation for the tool, saying “the updated version is more systematic and can be more easily implemented at farm level. Improving IPC and WASH on farms is imperative to reduce the development and spread of drug-resistant bacteria”.

The new tool has been piloted on 160 poultry farms. Farmers were trained, and surveillance, monitoring and audit processes

were carried out. The VSO team will now select 20 more farms from each district to receive targeted interventions to improve their IPC-WASH. The aim is to help them get a government certification known as Nomor Kontrol Veteriner (NKV), which makes it possible to track the food safety of livestock products. NKV also enables farmers to get better prices when selling to supermarkets or other provinces, or when exporting.

This tool not only has improved the IPC-WASH programme but also supports day-to-day implementation of AMS on poultry farms. The tool’s success shows how a One Health approach can achieve the common goals of the animal and human health sectors in combatting the global threat of AMR.



Veterinary Service Officer Bima Bhaskara assesses a layer poultry farm owned by Muhammad Alwi in Blitar district, East Java Province, Indonesia.

© Bima Bhaskara

Guidelines have been developed in Ethiopia on AMS and HAI in hospitals, and training on integrated AMS and HAI for 20 hospitals is planned. Kenya has developed farm biosecurity guidelines for dairy, poultry and pig value chains. Veterinarians and veterinary paraprofessionals (VPPs) being trained in their use also receive instructions and guidance on how to further disseminate the guidelines to stakeholders in their respective networks. AMR MPTF support has also enabled Zimbabwe to extend the Farmer Field School programme, which was and remains supported primarily by the Fleming Fund. Farmer Field Schools are used to promote adoption of good animal husbandry practices to improve biosecurity and hygiene standards in the broiler value chain as a tool for disease prevention and control.

Vaccination is included under the biosecurity and IPC banner. In Zimbabwe activities focused on the theileriosis vaccine, for which a production implementation plan has been adopted and laboratory supplies and testing kits have been procured, and on monitoring the impact of the new typhoid vaccine.

FAO helps reduce use of antimicrobials in the broiler value chain in Zimbabwe

To reduce AMU in the broiler value chain, FAO in Zimbabwe is working with extension officers from the Department of Veterinary Services to support poultry farmers in eight districts to collect farm-level data on AMU and develop an economic case for AMR while promoting good animal husbandry practices.

FAO has since trained 18 extension officers on Farmer Field School approaches to promoting good husbandry practices among broiler farmers, while collecting farm-level data on antibiotic use via KoBo Collect, a mobile app.

Each officer is working with at least 25 farmers to collect data on the types of antibiotics used by farmers to treat the birds, frequency of use, quantities and at what stages of growth. This data is an important step towards establishing standards and guidelines for broiler production at the farm level and, consequently, improving animal and human health. The standards and guidelines can also be adopted for related value chains. *"I do not only collect data*

on the use of antimicrobials. I also give farmers expert knowledge on how, when, when not to and what types of antibiotics to use. This has greatly helped farmers to reduce the use of antibiotics while increasing productivity and reducing animal deaths due to diseases", says Philemon Matsanhura, an extension officer for Mutasa District.

One of the project beneficiaries who has been in the broiler production business since 2014 explains that proper management of antibiotics not only reduced animal losses but also enabled him to access markets that he previously could not access. *"Since I have participated in the AMR project, I have noticed an increase in the health of my chickens, a drop in the use of antibiotics and even referred some farmers to our local extension worker. I am proud of the part that I am playing to reduce the use of antimicrobials and improve the health and well-being of the general public",* says Maxwell Nyandiya of Chigomba Village, Mutasa District.

This project is supported by the Fleming Fund and the AMR MPTF.



Subregional AMR Project Coordinator Mark Obonyo (left) going through the data collected by the extension officer in Mutasa District, Zimbabwe

© FAO

Systems for biosecurity and IPC strengthened in critical sectors

OUTPUTS

	CAMBODIA	ETHIOPIA	GHANA	INDONESIA	KENYA	MOROCCO	TAJKISTAN	ZIMBABWE	GLOBAL
System for optimized use of antimicrobials strengthened in critical human/animal sectors	■	■	■	■	■		■	■	

This output is quite closely linked to the previous one on biosecurity and IPC. In Kenya, for example, guidelines on the prudent use of antimicrobials (which had already been developed under another programme) were disseminated to the same county veterinarians and VPPs who attended the biosecurity training reported above. In Ethiopia, with the technical support of FAO, the Ministry of Agriculture led the establishment of a One Health multidisciplinary team to develop technical guidelines for safe, quality animal source food production and AMR containment.

Key areas of work under stewardship include development of government policy and training materials, and programmes for health professionals. For example, in Cambodia the National University of Singapore (NUS) and KHANA, a local nongovernmental organization (NGO), supported the Department of Health Services (DHS) in drafting an AMS policy, curricula for pre- and in-service training, and national guidelines on AMC monitoring. The DHS plans to finalize the key documents by mid-2022.

Some countries are working on substandard and falsified (SF) drugs. One of these is Ethiopia, which has received proposals from regulatory bodies in the country to conduct a survey. Plans have been developed, and TWGs in both the human and animal sectors have been established. A protocol and data collection manual have also been developed and are currently being reviewed.

The Tripartite and UNEP are keen to use their networks to promote country-to-country learning (hence an experience sharing webinar series with AMR MPTF was set up in October 2021). One example is Indonesia, which is developing an application (app) for joint standard treatment guidance in both the animal and human health sectors. Coordination meetings between staff of the Indonesian Tripartite organizations and FAO Bangladesh have paved the way. FAO Bangladesh has worked with the Bangladesh AMR Response Alliance (BARA) to develop a user-friendly app featuring treatment guidelines for human and animal health to inform professionals from both sectors on AMU priorities. Indonesia is also creating a coordination mechanism for monitoring and inspecting AMU in human and animal health. Finally, the country has developed operational procedures for joint inspection with the Food and Drug Authority (FDA), the Ministry of Agriculture, the Ministry of Health, the Ministry of Marine Affairs and Fisheries, FAO, OIE and WHO.

Using a One Health Approach to develop technical guidelines in Ethiopia

In Ethiopia, the AMR MPTF has played a catalytic role in initiating and drafting technical guidelines for safe, quality animal source food production and AMR containment. With the technical support of FAO, the Ministry of Agriculture led the establishment of a One Health multidisciplinary team, comprising 18 multidisciplinary and multisectoral experts to draft the guidelines. The experts came from the Ministry of Agriculture; the National Sanitary and Phytosanitary Steering Committee; the Ethiopia Food and Drug

Authority; the Veterinary Drug and Animal Feed Administration and Control Authority; the Animal Products, Veterinary Drug and Feed Quality Assessment Centre; the Ethiopian Public Health Institute; the Ethiopian Standards Agency; and the Food and Nutrition Department of Addis Ababa University.

The Ministry of Agriculture and Ministry of Health as well as stakeholders across the One Health spectrum reaffirmed their commitment to supporting implementation and operationalization of the guidelines. They also envisage developing complementary guidelines such as on feed (in connection with food safety and plant-source foods) and interventions along the value chain for controlling antimicrobial residues.



Food safety workshop in Ethiopia, 31 August – 3 September 2021

© FAO

Improved capacity to design awareness-raising, behaviour change and educational activities

OUTPUTS	CAMBODIA	ETHIOPIA	GHANA	INDONESIA	KENYA	MOROCCO	TAJIKISTAN	ZIMBABWE	GLOBAL
Improved capacity to design awareness-raising, behaviour change and educational activities	■		■		■	■	■	■	

Much of the work on awareness raising revolved around World Antimicrobial Awareness Week (WAAW) 2021, since this event took place late in the year when many countries were relaxing COVID-19 restrictions. Countries' communication strategies continue to improve during WAAW. For example, Cambodia enjoyed good coverage on mainstream media, including print, television and social media. The Tripartite supported Ghana in training 25 media professionals on effective AMR reporting and on outreach to various community groups, such as churches, mosques and market women, to inform them about AMU and AMR. Thousands of people were reached through community gatherings and community radio. The Tripartite also supported training for media personnel on AMR during WAAW in Kenya.

Aside from WAAW 2021, work started on communication strategies with multisectoral partners in Cambodia and Morocco. In Zimbabwe knowledge, attitudes and practices (KAP) studies have been identified and proposals invited.

Raising awareness on AMR in churches and mosques in Ghana

Advocacy and awareness raising through trusted communication channels at the grassroots level is vital in educating local communities on AMR. That is exactly what Ghana did during WAAW 2021.

With Tripartite support, teams of health professionals consisting of pharmacists, medical officers, health promotion personnel, and veterinary and environmental health officers visited mosques and churches in the Eastern Region of Ghana between 19 and 21 November.

Over 60 mosques and 100 different churches were visited by the district AMR teams to educate congregants on how to spread awareness and stop resistance. *"The information on antimicrobial use communicated to us is very educative and revealing"*, said a local church deacon in Suhum District.

Through this active community outreach, thousands of people received information on AMR and its health implications. They were well sensitized about the need to use antimicrobials prudently to prevent the spread of resistance. Sussana Cabbe, a pharmacist at a local hospital and a member of the AMR team in Denkyemba District, expressed satisfaction about the successful community outreach: *"They [the audience] were happy that we made the effort to reach out to them with this important message. They appreciated the need to protect current antimicrobials. They asked questions about the role of over-the-counter medicine sellers in promoting antimicrobial misuse"*.

The established district and regional AMR teams plan to sustain the campaign by integrating AMR awareness themes into public health education, outpatient programmes and through local radio stations.



© WAAW Team

WAAW teams educating church goes in the Eastern region of Ghana on AMR and the importance of using antimicrobials responsibly

Evidence-based and cost-effective priority actions developed for different contexts

The final two outputs seek to sustain momentum on the global AMR agenda and thus fall primarily under the remit of the global programme. The TISSA team focus on providing data to inform the global response and have defined the AMR and AMU data models and data harmonization points of the system, as well as data specifications for all surveillance programmes to be displayed on the system. The AMR MPTF has enabled FAO and OIE to strengthen their M&E teams and to support data quality assessment in TrACSS as well as to provide suggestions on improved use of TrACSS data and of the data collection process.

Strategic global-level governance advocacy initiatives on AMR implemented

Addressing AMR and the environment poses a significant challenge. Biological and chemical pollutants from untreated human, animal, agricultural and industrial waste affect the development, transmission and spread of AMR. This requires concerted action such as enhancing environmental governance and regulation, targeting priority AMR relevant pollutants, improving surveillance and monitoring and prioritising innovation, capacity development and financing on a broad scale. Consequently, clarity on how agencies can best fulfil their mandates and build capacity in a coordinated manner, while ensuring that internal and external stakeholders have a common understanding, is key to efficiently delivering as one across the UN system. Through the AMR MPTF, the Tripartite and UNEP have used a participatory process to develop a document that sets out their respective roles and the comparative advantage of interorganizational cooperation on the environmental dimensions of AMR.

The group contributed to the UNEP's Environmental dimensions of antimicrobial resistance (AMR) report (a summary for policymakers was launched at the United Nations Environment Assembly in February 2022) and to the call to action by the GLG on AMR: Reducing antimicrobial discharges from food systems, manufacturing facilities, and animal and human health systems into the environment [\(3, 4\)](#).



FAO project: GCP/GLO/710/UK - Engaging the food and agriculture sectors in sub-Saharan Africa and South and South-east Asia in the global efforts to combat antimicrobial resistance using a One Health approach - AMR Farmer Field School.

Fund governance

The governance arrangements of the AMR MPTF are based on standard governance arrangements for pass-through MPTFs per United Nations Sustainable Development Group (UNSDG) policy. The governance arrangements provide an efficient and effective decision-making and oversight framework, ensuring streamlined allocation processes and clear lines of accountability. These arrangements are built on and informed by the principles of inclusiveness, transparency, accountability and consensus-based decisions.

4.1 The Steering Committee

The Steering Committee comprises a senior-level principal representative (or nominated alternate) from each of the resource partners and the Tripartite, the Administrative Agent and the Secretariat as ex officio members. The committee met twice in 2021. Each meeting was preceded by a technical meeting, enabling the development partners to review proposals in more detail with country teams. The role of chair was passed from OIE to FAO during the 5th Steering Committee meeting in April 2021.

The Steering Committee provisionally approved the revision of the ToRs for the AMR MPTF, as much has changed within AMR and for the AMR MPTF itself since the ToRs were first prepared in 2019. The main changes relate to the inclusion of UNEP, the alignment of the AMR MPTF with the Tripartite and UNEP's Strategic Framework for collaboration on AMR, the extension of the Fund's duration to 31 December 2030, and the composition and management of the Steering Committee.

4.2 AMR MPTF Secretariat coordination

The core AMR MPTF Secretariat coordination functions include providing support to the Steering Committee, engaging with resource partners, facilitating projects (from selection through concept note and proposal assessment to monitoring and reporting) and engaging in global One Health and AMR. The original coordinator for the AMR MPTF left in mid-2021 on maternity leave; a temporary coordinator was appointed in July 2021.

4.3 MPTF Office Gateway/Fund dashboard

The AMR MPTF is administered by the MPTF Office, based in UNDP in New York. The [MPTF Office Gateway](#) is a public website that provides real-time financial information on the fund as well as information on the fund overall and all the approved programmes. The Gateway provides information on the terms of reference of the fund, the amount contributed by each resource partner, the funding transferred to the Participating Organizations and related expenditures and the projects approved by the Steering Committee. The 2021 Consolidated Annual Financial Report for the AMR MPTF, prepared by the UNDP MPTF Office, can be found on the [MPTF Office Gateway](#).

4.4 Resource mobilization

The Fund continues to have a high profile and is globally recognized as an important instrument for catalysing the scale-up of AMR-NAPs, particularly in LMICs.

- The Fund has grown over the last year. The German Federal Ministry for Economic Cooperation and Development and GIZ are new donors who have provided €3 million, and Swedish International Development Cooperation Agency (SIDA) has committed almost US\$ 8 million. The United Kingdom's Fleming Fund contributed an additional US\$ 1.78m. This brings total deposits to approximately US\$ 19.25 million, with an additional US\$ 6.9 million committed in the coming 4 years. The EU/DG SANTE (the European Commission's Directorate-General for Health and Food Safety) has also pledged €500 000 for the AMR MPTF as well as funds to support the AMR Partnership Platform.

In terms of ongoing advocacy and joint resource mobilization strategy, 2021 saw:

- An explicit call for support in the AMR Call to Action launched during the closing session of the 29 April 2021 High-level Interactive Dialogue on Antimicrobial Resistance, which was signed by 113 Member States and 39 supporting organizations.
- Ongoing discussion of the Fund and progress at Member States briefings by each organization, and calls to support the Fund by several Member States during their interventions at the World Health Assembly.
- Embedding of advocacy for the AMR MPTF as one of the key activities in the AMR GLG action plan for the next 2 years. A recent information note on financing to address AMR stated that "more donor country support for the MPTF is needed so that the Tripartite is able support countries in implementing national action plans on antimicrobial resistance" [\(5\)](#).
- Discussions and briefings about the Fund with many stakeholders, including the EU and EU Member States, resulted in firm commitments and pledges to the Fund already described.

Moving forward, based on results to date concerted outreach is required to diversify the AMR MPTF funding base. Such efforts will be the focus of the next year.



On 13 December 2021, Dr Opakunle Oladele reviews a sample at the clinical microbiology laboratory in the Department of Medical Microbiology and Parasitology at the Obafemi Awolowo University Teaching Hospitals, Nigeria. Microbiology laboratory facilities in hospitals like this one support day-to-day clinical decisions and patient care by isolating and identifying a pathogen and conducting antimicrobial susceptibility testing (AST) to determine appropriate treatment.

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Key lessons learned

- Thorough concept note and programme design has resulted in quality implementation, leading to early results. This has included extensive technical support from regions and headquarters as well as from the Steering Committee.
- COVID-19 has slowed implementation progress. However, the pandemic itself has highlighted the urgency of a One Health approach and also increased AMR advocacy.
- For sustained results, further resources for some programmes may be required, as well as connecting to concrete investment opportunities beyond the lifespan of the project.
- The AMR MPTF funding base remains limited. Further concerted outreach is required, for example by joining forces to harness the momentum for One Health.
- The level of coordination and backstopping cannot be underestimated, support at headquarters and at the regional level needs to be better anchored to enhance programme design, implementation and lessons learning, including networking between countries and regions.



Pediatricians Hrachuhi Ghazaryan and Seda Harutyunyan examine the lungs of 9month-old Nare Grigoryan who has bronchiolitis, at Wigmore Clinic in Yerevan, Armenia on 8 November 2021.

Next steps and vision for the future

Despite COVID-19, the Fund has established a secure foundation and effective ways of working at the global, regional and country level. It is very well placed to catalyse the establishment of functional One Health systems in the coming years.

The last year has been particularly challenging for everyone. Nonetheless, country programmes have substantially progressed the AMR agenda, alongside COVID-19 interventions and dealing with the consequences for work.

This 2021 report demonstrates concrete progress in implementation, given that the programmes only started at the beginning of 2021. It also has identified what is going well and areas where lessons learned need to be applied.

Over the coming year, the AMR MPTF will expand to more countries. Moreover, the Fund will work with the country and global programmes to revisit their work plans and adjust them where required. The Fund will also consider the need for no-cost extensions due to delays in implementation as a result of COVID-19. As noted, a major international meeting on the Tripartite and UNEP on AMR is planned for late 2022, during which significant replenishment of funds will be sought.

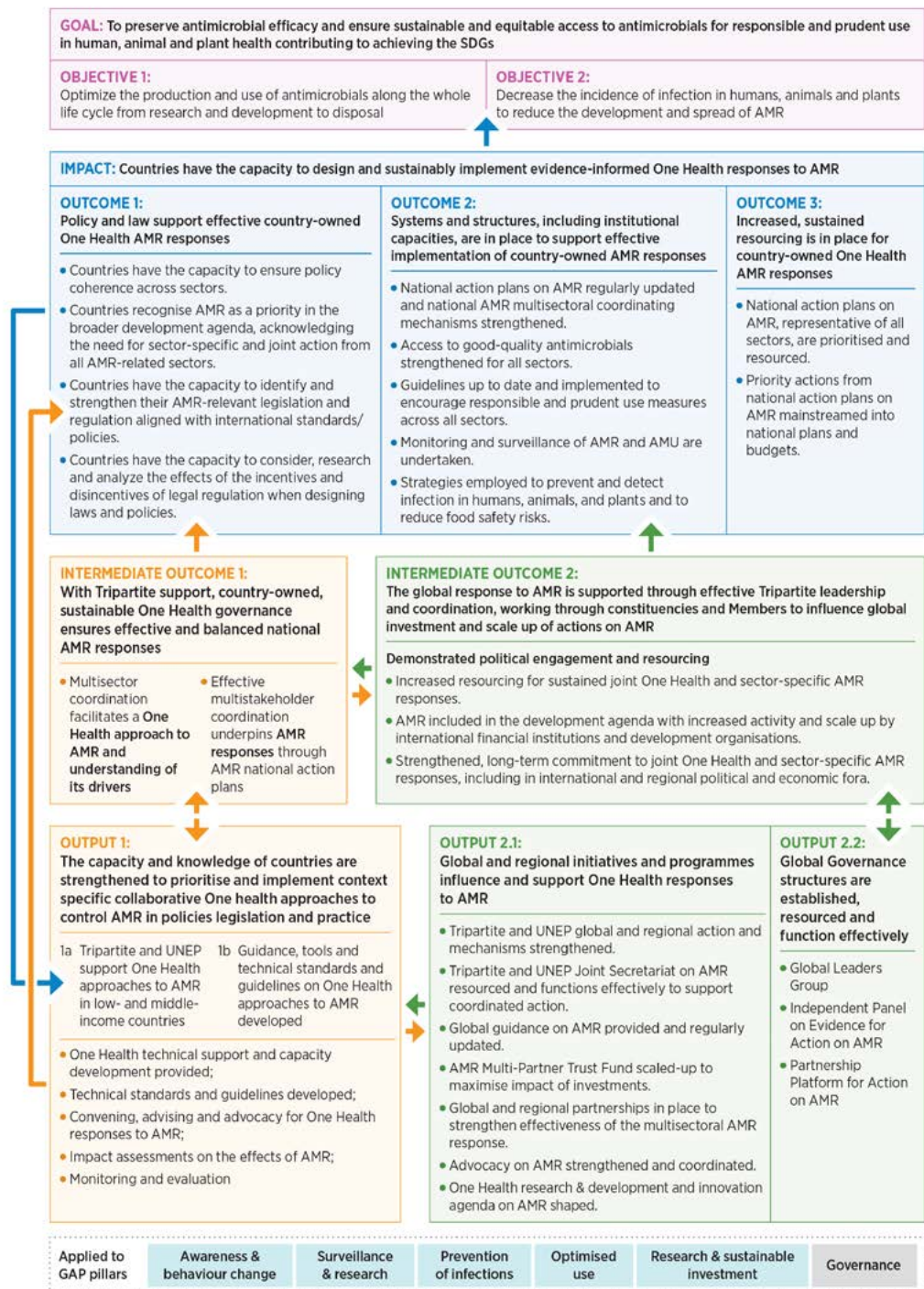
Particular areas of focus moving forward will include:

- continued and expanded experience-sharing activities building on the excellent start made in 2021 and covering new issues, including integrated surveillance and biosecurity and IPC;
- strengthening the links between the country and global programmes as the latter complete their upfront tasks and start to pilot activities and support countries in technical areas;
- sharing examples of success at the highest level, including through the GLG and other global governance structures;
- continuing to work on lessons learned from COVID-19 management, including relating to working conditions and programme management;
- strengthening the focus on rights-based and gender approaches in programmes, in line with the key principles of the AMR MPTF;
- developing a clearer understanding of AMR and the environment and the associated legal complexities, as well as safeguarding and promoting biodiversity given the growing support of critical synergies between AMR and biodiversity; and
- leveraging wider AMR/One Health investment (from funding to financing), including through international financial institutions and domestic finance (government budgets) to ensure continued AMR-NAP implementation and the sustainability of actions.



Costa Rica - Farmers working in a pineapple plantation, applying good agricultural practices throughout the production process and packaging of pineapple and supervision the State Phytosanitary Service through the professional supervision and inspection program pineapple.

Theory of change for the Strategic Framework for collaboration on AMR and the AMR MPTF results matrix



Country and global programme profiles

This annex comprises:

- a table showing country and programme headlines – key dates, management, and technical and financial progress; and
- a summary report for each country and global programme with:
 - a narrative section describing the main features of the programme, 2021 highlights, the main challenges (and impacts and mitigation), and any early learning and innovation; and
 - a listing of the log frame outputs and indicators for which there has been some progress, along with a summary of activities which have contributed to the outputs and an approximation of the degree of progress in achieving the indicators for the outputs. These assessments are the programmes' own and are necessarily subjective. In many cases there may have been zero achievement of the indicator itself; but where activities have started that will contribute to achieving the indicator, progress has been scored between 1% and 25%.

NB:

- Outcomes have not been included in these summary reports, as it is too early to be assessing progress against the outcomes.
- Not all outputs and indicators have been listed, only those where there has been some measurable progress. The separate programme reports published on the Gateway website include all outcomes, outputs and indicators.

Table A3.1. Country and global programme headlines

INDICATOR	CAMBODIA	INDONESIA	MOROCCO	GHANA	KENYA	ZIMBABWE	ETHIOPIA	TAJKISTAN	GLOBAL
Tripartite lead agency	WHO	WHO	FAO	WHO	OIE	WHO	FAO	WHO	FAO/ OIE/ WHO
Proposal approved	Sep 2020	Sep 2020	Sep 2020	Sep 2020 ²	Oct 2020	Oct 2020 ³	Apr 2021	Apr 2021	Oct 2020
Project started	Jan 2021	Jan 2021	Jan 2021	Jun 2021	Jan 2021	May 2021	May 2021	Jun 2021	Mar 2021
Start date (Gateway)	19 Oct 20	19 Oct 20	16 Dec 20	24 May 21	1 Dec 20	21 May 21	25 May 21	5 Aug 21	12 Mar 23
End date (Gateway)	31 Dec 22	31 Dec 22	31 Dec 22	31 Dec 22	31 Dec 22	19 May 23	23 May 23	23 May 23	12 Mar 23
Project start-up meeting held	Nov 2020	Nov 2020	Mar 2021	May 2021	Jan 2021	May 2021	Jun 2021	Aug 2021	Mar 2021
Multisectoral AMR committee	Yes (TrACCS – B)	Yes (TrACCS – B)	Yes (TrACCS – D)	Yes (TrACCS – D)	Yes (TrACCS – C)	Yes (TrACCS – C)	Yes (TrACCS – D)	Yes (TrACCS – E)	Yes, TJS
Progress reports/ calls to TJS	3	3	3	2	3	2	1	1	3

AMR: antimicrobial resistance; FAO: Food and Agriculture Organization of the United Nations; OIE: World Organisation for Animal Health; TrACCS: Tripartite AMR Country Self-Assessment Survey; TJS: Tripartite Joint Secretariat; WHO: World Health Organization.

TrACCS assessment for AMR multisectoral coordination committee

- A** – No formal multisectoral governance or coordination mechanism on AMR exists.
- B** – Multisectoral working group(s) or coordination committee on AMR established with government leadership.
- C** – Multisectoral working group(s) functional, with clear ToRs, regular meetings and funding with activities and reporting/accountability defined.
- D** – Joint working on issues, including agreement on common objectives.
- E** – Integrated approaches used to implement the AMR-NAP with relevant data and lessons learned from all sectors used to adapt implementation of the NAP.

² With request for technical amendments.

³ With request for technical amendments.

CAMBODIA

Overview

Project: Enhancing governance and coordination mechanisms to reduce AMR in Cambodia (ID: 00124430)

- Duration: 24 months (19 October 2020 to 19 October 2022)

The project focuses on strengthening governance and coordination between and within ministries, regulating AMU in the human and animal health sectors, and increasing public awareness and advocacy. Its key activities include:

- supporting the establishment of the IMCC-AMR;
- developing a national M&E framework for the MSAP;
- supporting the review of existing national tools and frameworks, including legislation, for regulating antimicrobial use in humans, animals, plants and the environment;
- rolling out national AMS guidelines in health care facilities;
- developing responsible and prudent AMU guidelines in animals and a road map for implementation; and
- developing national multisectoral AMR communication strategies and materials.

Highlights of the project so far

On 23 December 2019, the Royal Government of Cambodia launched the MSAP 2019–2023, reflecting a One Health approach to collaborative interventions to address the AMR threat. The MSAP was jointly prepared by the Ministry of Health, the Ministry of Agriculture, Forestry and Fisheries, and the Ministry of Environment and encompasses seven strategic areas to address AMR in human health, agriculture and the environment. These strategic areas include enhancing governance and coordination to reduce AMR, strengthening evidence through improved AMR surveillance, promoting prudent use of antimicrobials, raising awareness about AMR among the public and professionals, improving IPC through good practices in health care settings and animal farms, capacity building of professional staff through training, and strengthening research and innovation.

The AMR MPTF enables Cambodia to jointly implement the MSAP. Cambodia is delivering on three outputs, and progress is summarized below.

Improved countries capacities for designing and implementing AMR-related policy frameworks, investments plans and programmes

ToRs for the IMCC-AMR were developed with the support of the Tripartite and endorsed by the AMR TWGs from the three ministries. AMR TWGs in each ministry will identify membership from each ministry for official nomination to the IMCC-AMR.

A national M&E framework for the MSAP has been developed by the Tripartite in collaboration with key national stakeholders. Official approval from the three ministries is awaited.

The Ministry of Health has drafted a law on the management of health products, and AMR-related articles have been included. The draft law is under review by the Department of Drug, Food and Cosmetics of the Ministry of Health.

The AMR TWGs from the three ministries meet regularly to discuss progress on MSAP implementation and the MPTF project. A national workshop, planned for Q2 2022, will review progress. Representatives from the human, animal and environmental health sectors and Tripartite organizations will attend the workshop.

Systems for optimized use strengthened in critical sectors

AMS policy, pre- and in-service MSA training curricula, and national guidelines on AMC monitoring have all been drafted. Due to the COVID-19 pandemic, roll-out of AMS activities in hospitals was delayed as hospitals prioritized COVID-19 issues. The DHS/Ministry of Health was able to conduct one point prevalence survey (PPS) in a provincial hospital in 2021 due to COVID-19. The DHS plans

to finalize the key documents drafted last year by mid-2022. The DHS/Ministry of Health plans to roll out AMS activities in selected secondary and tertiary hospitals and to complete PPSs in another 16 hospitals in 2022.

An integrated review on AMU in the animal health sector and AMS good practices has begun with:

- a literature review of KAP surveys, studies, reports and publications related to AMU and AMR in Cambodia; and
- a review of existing guidelines for responsible use of antimicrobials to provide recommendations for AMU guideline development and AMR surveillance in the animal health sector.

This review will result in recommendations for developing guidelines for responsible and prudent AMU in the animal sector in Cambodia.

Improved capacity to design awareness-raising, behaviour change and educational activities

A consultative workshop was held from 10 to 12 November 2021 in Kampong Cham to draft an outline and contents of AMR communication strategies. Thirty participants from the Tripartite, the Ministry of Agriculture, the Ministry of Health and the Ministry of Environment, and other key stakeholders working on AMR in Cambodia, attended the workshop. A draft outline of the national AMR communication strategy is being developed and will be finalized in 2022.

Information, education and communication (IEC) materials, including animated videos, leaflets, posters and social media infographics on AMR/AMU, are being developed. WAAW 2021 was led by the General Directorate of Animal Health and Production (GDAH) and the Ministry of Agriculture, Forestry and Fisheries, co-organized with the Ministry of Health and the Ministry of Environment, and supported by the Tripartite. One national and three subnational awareness events were organized. The WAAW events focused on policymakers, professional groups, farmers and private sector companies representing the human, animal and environment sectors. WAAW events were broadcast via two TV channels and shared on several social media platforms.

Main challenges

Community outbreaks and increasing cases of COVID-19 caused the country to go into lockdown, which prevented physical meetings and restricted local and international travel. Government priorities (particularly the Ministry of Health) shifted to COVID-19, and AMR focal points in the Centers for Disease Control and Prevention (CDC)/Ministry of Health also focused on the response to COVID-19.

COVID-19 also limited opportunities to engage potential service providers for activities, as they were either working on COVID-19 assignments, sick or in quarantine.

Though virtual means were used for discussing project implementation, project teams had difficulty collecting feedback from participants due to poor internet quality and electricity problems.

Lack of awareness and limited capacity among ministries and health care professionals on AMR, AMS, AMC and AMU restrict their full engagement and support.

Impact of challenges on project delivery

Increasing cases of COVID-19 and travel restrictions led to changes in the modality of implementation of activities (e.g. OIE delegated some activities to GDAH and the Ministry of Agriculture, Forestry and Fisheries).

Implementation of PPSs in hospitals and roll-out of AMS guidelines to hospitals experienced delays, as hospital staff shifted their tasks to take care of COVID-19 patients; some staff were also sick or in quarantine.

Implementation of the review of AMU/AMR in the animal health sector was likewise delayed, as it was difficult to hire suitable potential service providers and virtual communication was difficult. Besides COVID-19, disease outbreaks in animals (e.g. African swine fever in pigs and lumpy skin disease in cattle) were also priorities for GDAH (Ministry of Agriculture, Forestry and Fisheries) and required an urgent response from the Emergency Centre for Transboundary Animal Disease (ECTAD) country office of FAO.

Overcoming the challenges

COVID-19 did not stop the project team from making progress. Virtual discussions helped. As COVID-19 vaccination coverage increased, cases dropped and the project team started to organize physical meetings to collect final input for the draft versions of documents discussed virtually (e.g., ToRs for IMCC-AMR and the M&E framework for the MSAP). The additional use of consultants sponsored and managed by the AMR MPTF project was effective. OIE delegated some activities to GDAH and the Ministry of Agriculture, Forestry and Fisheries through a letter of agreement. This arrangement is working well, as the Cambodia country Tripartite could implement two major activities in 2021.

Learning innovation

Existing Tripartite collaboration at the country level and cross-sectoral coordination through the AMR TWGs is a crucial mechanism for supporting activities that require participation from other sectors.

Log frame outputs where progress has been made

MPTF OUTPUT	INDICATORS	PROGRESS DESCRIPTION (ACTIVITIES STARTED/COMPLETED)	INDICATOR % MET
Improved capacities for designing and implementing AMR-related policy frameworks, investment plans and programmes	National coordination mechanism for the AMR	ToRs for IMCC-AMR were developed and endorsed by AMR TWGs from the three ministries.	76–99%
	National M&E framework for the MSAP developed.	A consultative meeting was held with all key stakeholders to collect final input. The framework was completed and is awaiting official approval from the three ministries.	76–99%
	The regulatory framework has been reviewed in line with related international guidance on responsible and prudent use of antimicrobial agents.	Reviewed the draft law on management of health products and integrated AMR-related items into it. The Ministry of Agriculture, Forestry and Fisheries already has a law on animal health and production, so the laws need to be harmonized. As part of a Fleming Fund project, FAO completed a legal review on legislation relevant for AMU/AMR in Cambodia (September 2020).	26–50%
Systems for optimized use of antimicrobials strengthened in critical human/ animal sectors	AMS programme implemented in additional health care facilities.	NUS and a local NGO (KHANA) helped the DHS to draft AMS policy, pre- and in-service training curricula, and guidelines on AMC monitoring.	51–75%
	Guidelines for responsible and prudent use of antimicrobials based on international standards are developed or revised.	The Agricultural Research Centre for International Development started reviews of: <ul style="list-style-type: none"> • KAP surveys, studies, reports and publications related to AMU and AMR in Cambodia; and • existing guidelines for responsible AMU to inform development of AMU guidelines and AMR surveillance in the animal health sector. 	1–25%
Improved capacity to design awareness-raising, behaviour change and educational activities	Communications strategies developed.	GDAH hosted a multisectoral workshop to draft an AMR communication strategy. Priorities were to establish a TWG on AMR communication; harmonize existing communication materials; involve the private sector and development partners; enhance capacity on AMR communication; monitor and evaluate awareness activities; and develop a draft AMR communication strategy for Cambodia.	50–75%
	IEC materials developed and used for nationwide AMR campaigns.	GDAH, Ministry of Agriculture, Forestry and Fisheries, the Ministry of Health, the Ministry of Environment and the Tripartite hosted several national and subnational events during WAAW 2021. In line with the global theme of “Spread Awareness, Stop Resistance”, the events provided policymakers from national and provincial governments as well as academia, the private sector, research, NGOs and media with a platform for further advocacy on AMR. Events were well covered on national mainstream media (print, TV and social media). Consultants started developing awareness materials on AMU/AMR for all sectors for policymakers, manufacturers, suppliers, animal producers, consumers and the public.	76–99%

ETHIOPIA

Overview

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

- Duration: 24 months (1 July 2021 to 30 June 2023)

The AMR-MPTF project in Ethiopia supports the design and implementation of systems strengthening in policy and programmes; generating, interpreting and using evidence-based data for decision-making; and improving AMU behaviour change practices. The main activities include:

- supporting functioning of the multisectoral and multidisciplinary AMR prevention and containment advisory committee and TWGs;
- updating and monitoring implementation of the One Health AMR prevention and containment strategic plan and the AMR MPTF project;
- developing One Health communication, stakeholder analysis and engagement strategy, and behaviour change materials;
- establishing/strengthening sustainable human and animal antimicrobial sensitivity testing (AST) and AMR surveillance systems and data capture;
- strengthening HAI prevention and control and scaling up AMR prevention and containment evidence (including AMS) and good practices guided by/with AMR surveillance;
- supporting behaviour change practices for optimized use of antimicrobials;
- developing and implementing user-friendly animal species-specific treatment guidelines based on international recommendations; and
- developing safe, quality animal source food production with consideration of antimicrobial withdrawal times and maximum residue limits.

Highlights of the project so far – joint activities implemented

The technical launch of the AMR MPTF project took place on 13 July 2021 in Addis Ababa to familiarize stakeholders and get commitments for implementation of the AMR MPTF Ethiopia project. The official launch of the project was linked with the launch of the third 5-year One Health AMR Prevention and Containment Strategic Plan (2021–2025) and WAAW 2021, which took place in Addis Ababa on 18 November 2021. The purpose of the official launch was to secure political and technical commitment, support for implementation by the technical teams and visibility for the AMR MPTF project. It was organized by the Ministry of Health, the Ministry of Agriculture, and the Environment, Forest and Climate Change Commission in collaboration with FAO and WHO. This event was attended by ministers and government institution leaders, country representatives of UN agencies, and partner organizations and professional associations and was broadcast on TV.

The One Health AMR Surveillance and Research for Action Conference in November offered a number of presentations and discussions. These included two systematic reviews on AMU/AMR in human and animal health, five research reports on AMR in human and animal health and food safety, and one presentation on highlighting opportunities to synergize AMR Surveillance using Public Health Laboratory-Based Sentinel Sites and the Integrated National AMR and Residue Surveillance Plan in Animal Health, Plant, Food Safety and Environment Sectors.

A workshop featuring sharing of One-Health AMR surveillance experiences and a microbiology laboratories visit (22 November) identified strengths, gaps, possible synergies, challenges and areas of collaboration among institutions on AMR surveillance and research.

FAO and agriculture-specific activities implemented

The AMU, AMR, Biosecurity and Safe Food Production Training workshop was held on 23 November 2021. The workshop included 42 animal health care providers, farm owners and veterinary medicine retail outlet experts from Addis Ababa.

AMU and AMR behaviour change mobile text messages and posters in Amharic and English were disseminated to members of the Ethiopian Veterinary Association.

The Ministry of Agriculture, with the technical and financial support of the AMR MPTF project, drafted guidelines for safe, quality production of primary animal source food and control of AMR. Eighteen multidisciplinary and multisectoral experts contributed to drafting the guidelines.

An epidemiological AMR tool was drafted for the agriculture sector to enable the capture, compiling and analysis of data, and to provide summary visual information for busy practitioners in the field to inform decision-making. Twenty-four public health, animal health, food safety and environmental experts participated in a review workshop in August.

WHO and specific public health activities implemented

Integrated AMS and HAI guidelines for hospitals in Ethiopia were updated following a consultative workshop to collect inputs from stakeholders and to review and revise the guidelines. Preparations are underway for training in 20 hospitals.

Preparations are also underway for baseline assessment of basic microbiology laboratories at hospitals and training of lab technologists. The Ethiopian Public Health Institute will conduct the assessments and provide the training.

A consultant has been recruited to build capacity of the national medical regulatory bodies to assess SF antimicrobials. A kick-off meeting was held with regulatory bodies, and a TWG was established to work with the consultant. An SF medicines survey protocol and data collection manual have been drafted, and the Ethiopian Food and Drug Authority (EFDA) will use them to conduct a survey and hold a validation workshop.

A report on a 3-year AMC survey in humans based on data collected, validated and analysed on imported and locally manufactured antimicrobials has been drafted and submitted to the EFDA for approval.

Main challenges, impacts and solutions

The main challenges were logistical. Travel restrictions, especially for OIE staff due to increasing cases of COVID-19 and internal conflicts in the country, affected implementation of OIE-led activity. This in turn led to delays in implementing activities. The delays were partially overcome by prioritizing activities that did not require travel and by using virtual meetings. The activities to be led and coordinated by OIE have been rescheduled for when staff travel approvals are granted.

Learning innovation

Coordination with other projects and events enabled technical synergies and saved resources and time.

Log frame outputs where progress has been made

MPTF OUTPUT	INDICATORS	PROGRESS DESCRIPTION (ACTIVITIES STARTED/COMPLETED)	INDICATOR % MET
		Development of One Health AMR communication and stakeholder engagement strategy has begun. Awaiting lifting of travel restrictions to allow a stakeholder workshop to do stakeholder mapping and draft the AMR communication strategy. An AMR MPTF brochure has been drafted.	51–75%
	Operational plan for implementing the updated NAP with the associated budget. (Number of federal, regional and/or city administrations and institutions that incorporate AMR prevention and containment strategic elements in their annual plans.)	Strategic AMR elements have been included in the human Health Sector Transformation Plan. An awareness-raising training workshop on infection prevention, biosecurity, safe food production and AMR was held for the Addis Ababa city administration animal health office.	26–50%
Systems for generating, analysing and interpreting data on AMR, AMU/AMC strengthened	Report on AMC and AMU.	AMC data collected and report generated and submitted to EFDA for approval. Epidemiologic AMR data capturing tool drafted and reviewed in a workshop. Being updated.	51–75% 76–99%
	Percentage of laboratories with capacity to perform AST. Number of experts trained on AST and AMR surveillance (integrated with output on IPC activities).	Preparations have been made for baseline assessment of basic microbiology and AST in 20 hospitals and for training of laboratory technologists. Handover note for the procured AST/AMR supplies. Selected with specifications, and quantified AST supplies for both human and animal health, and food safety labs.	26–50% 1–25%
	Number of professionals trained on IPC and biosecurity (integrated with output on AMS activities).	Checklist for undertaking baseline assessment on integrated AMS and HAI IPC in the 20 selected hospitals has been prepared, and a mix of professional trainees has been identified. Curriculum has been developed and trainers identified.	1–25%
Systems for optimized use of antimicrobials strengthened in critical human/ animal sectors	Number of health care professionals who are provided with capacity development training on AMS. (Number of post-market surveillance antimicrobial tracers conducted.)	For the assessment report on SF antimicrobials, proposals by the regulatory bodies to conduct SF surveys were developed. TWGs in the human and animal sectors were established. Data was collected and validated at a workshop. A draft protocol and data collection manual have been drafted and are being reviewed.	26–50%
	Number of animal health care providers trained on AMU and AMR.	Awareness raising on AMU and AMR training was done at a workshop for experts in November. Preparations for AMU assessment and AMR mapping are underway. Guidelines on the safe production of primary animal source food in consideration of withdrawal time and maximum residue limits drafted/refined at a workshop.	1–25% 51–75%
Improved capacity to design awareness-raising, behaviour change and educational activities	Number of animal health care providers trained on AMU and AMR.	GDAH hosted a multisectoral workshop to draft an AMR communication strategy. Priorities were to establish a TWG on AMR communication; harmonize existing communication materials; involve the private sector and development partners; enhance capacity on AMR communication; monitor and evaluate awareness activities; and develop a draft AMR communication strategy for Cambodia.	50–75%
	IEC materials developed and used for nationwide AMR campaigns.	GDAH, Ministry of Agriculture, Forestry and Fisheries, the Ministry of Health, the Ministry of Environment and the Tripartite hosted several national and subnational events during WAAW 2021. In line with the global theme of “Spread Awareness, Stop Resistance”, the events provided policymakers from national and provincial governments as well as academia, the private sector, research, NGOs and media with a platform for further advocacy on AMR. Events were well covered on national mainstream media (print, TV and social media). Consultants started developing awareness materials on AMU/AMR for all sectors for policymakers, manufacturers, suppliers, animal producers, consumers and the public.	76–99%

GHANA

Overview

Project: Ghana One Health Antimicrobial Resistance Multi-Party Trust Fund (AMR MPTF)

Project (ID: 00124433)

- Duration: 24 months (24 May 2021 to 24 May 2023)

Ghana is focusing on strengthening governance and coordination between the Tripartite and intergovernmental agencies in One Health. It seeks to support the integration of the AMR-NAP into country plans; support prudent AMU and systems to generate evidence; improve IPC and biosecurity in the human, animal and environmental health sectors; and design communication and awareness/advocacy AMR materials. Activities include:

- strengthening and ensuring the functionality of an AMR-IMCC;
- implementing the national M&E framework for the AMR-NAP;
- establishing surveillance systems for AMU in humans, animals, crops and the environment;
- assessing laboratory capacity for culture and sensitivity testing, and hospital-based surveillance;
- developing national biosecurity standards to enhance AMS at the farm level and building capacity on IPC/WASH for private practitioners in human health;
- adapting the WHO AWaRe (Access, Watch, Reserve) classification of antimicrobials and implementing outline strategies to optimize the prescribing, dispensing and use of antimicrobials;
- developing multisectoral IEC materials for a targeted public education campaign; and
- scaling up the ESBL-producing *E. coli* Tricycle protocol project in another region of Ghana.

Highlights of the project so far

The Tripartite and country counterparts working in One Health successfully applied for AMR MPTF funds to support Ghana's implementation of the AMR-NAP. The Fund provides an excellent opportunity to implement cross-cutting NAP activities that contribute to the outputs and outcomes outlined under the MPTF project.

Ghana's approved MPTF project contains 32 selected activities spread among the Tripartite, responding to six outputs, four outcomes and two impacts. Implementation of activities began in July 2021 across all sectors but suffered setbacks due to COVID-19 restrictions and an outbreak of bird flu.

The Tripartite, in collaboration with the AMR Secretariat (housed in the Directorate of Pharmacy in the Ministry of Health, which also hosts the country focal point for AMR and the chair for the national AMR platform) and partners, formed a 15-member core working group. A writing workshop to develop proposals and concept notes was held in December 2021. Eighteen concept notes and proposals for selected activities were drafted, and preparation of documents and some groundwork have started for these activities in readiness for full implementation.

WHO briefed the directorate hosting the AMR Secretariat on the project and their responsibilities to facilitate effective stakeholder engagement and ensure country ownership and understanding of project operations. FAO has not yet been able to do the same with the Ministry of Agriculture and Fisheries, due to the deployment of personnel to support field operations to contain an outbreak of bird flu.

In the spirit of One Health, the Tripartite organizations supported organization of the WAAW 2021 celebrations. Activities included training 25 media professionals on effective AMR reporting and outreach to various communities and targeted groups, such as churches, mosques and market women in 33 districts within the Eastern Region of Ghana, to educate them on appropriate AMU and on AMR. Thousands of people were reached through targeted community gatherings and the use of community radio stations. The establishment of 33 district AMR Committees and a regional 16-member AMR Committee was inaugurated by the regional minister during WAAW 2021.

Engagement meetings (virtual and hybrid) were held in July and November with the national AMR Secretariat and the WAAW 2021 planning committee, so that the Tripartite could update and officially communicate the operational plans for the project, the role of the Tripartite, and responsible agencies and focal points.

Main challenges, impacts and solutions

Ghana's implementation suffered setbacks at the height of the COVID-19 pandemic due to government interventions and restrictions on movements and gatherings. As a result, the core team working on this project had to resort to virtual communication and meetings (especially outside working hours). This proved a challenge for feedback from members on assigned duties. Most of implementing partners were also repurposed for COVID-19-related activities, as this was a government priority.

Separate outbreaks of bird flu (September through December) and yellow fever in October 2021 (peak for bird flu) in particular diverted the responsibilities of OIE/FAO colleagues, hampering collective decision-making and their engagement with the AMR MPTF project.

Competing interests from implementing partners (government agencies) played a role when restrictions were partially eased in the second half of 2021, resulting in slow feedback and kick-off of activities.

These challenges delayed implementation of activities by 6 months, and the country Tripartite team had to devise a way to get the project started. On a positive note, the COVID-19 pandemic has significantly raised awareness of the need for IPC- and WASH-related activities, which will be leveraged for project purposes.

To scale up the implementation of activities throughout 2022, the following strategies are being put in place:

- Explore parallel implementation of activities, identifying multiple agencies with the capacity to implement activities throughout the year. These agencies will be tasked with a number of activities per the indicators, supported and monitored by the Tripartite focal points and the AMR Secretariat.
- Assign focal points and agencies with specific capacities to activities to facilitate implementation and reporting.
- Form a smaller unit made of key members of the core implementation group to drive the implementation process.
- Use the opportunity of the COVID-19 pandemic to increase awareness among implementing partners and the AMR national platform about the increasing threat of AMR to One Health.

Finally, while preparing for implementation, the Tripartite initiated a concept/proposal writing workshop to get most all of year 1 activities in draft-proposal-ready mode.

Log frame outputs where progress has been made

MPTF OUTPUT	INDICATORS	PROGRESS DESCRIPTION (ACTIVITIES STARTED/COMPLETED)	INDICATOR % MET
Improved capacities for designing and implementing AMR-related policy frameworks, investment plans and programmes	Fully functional One Health Multisectoral Coordination Group (MCG) established.	Concept note/proposal to research economic costs and implications of AMR in One Health drafted and under review. Preparations made to roll out activity in April 2022. Public forum on the economic case for investment into AMR concept drafted and under review. This activity will kick off in 2022 once the activity above has been completed.	1–25%
	Operational plan for implementing AMR-NAP developed or updated with associated budget consideration.	Two AMR platform meetings were held in July and November 2021, and updates on the project were provided. Draft concept note for a data-mapping exercise to support the M&E framework and identify cost-effective (efficient) means of monitoring and evaluating the NAP. Concept note for monitoring implementation of the AMR-NAP in Ghana every 6 months drafted.	1–25%

MPTF OUTPUT	INDICATORS	PROGRESS DESCRIPTION (ACTIVITIES STARTED/COMPLETED)	INDICATOR % MET
Improved capacities for mainstreaming and costing AMR as well as changes in practices to minimize AMR	AMR-NAP with estimation of the costs of implementation of the NAP by year has been established or reviewed.	Zero draft of NAP mainstreaming guidelines available, to be reviewed and finalized.	1–25%
	Assessment of investment needs, existing resource finance and funding gaps for implementing NAP conducted with the involvement of all relevant sectors.	Draft concept note prepared for conducting assessment of barriers, bottlenecks and gaps to inform effective mainstreaming and implementation of AMR-NAP activities in relevant sectors.	1–25%
Systems for generating, analysing and interpreting data on AMR, AMU/AMC patterns developed or strengthened	Percentage of targeted laboratories with capacity to perform AST and bacterial isolation and identification according to international standards.	Draft concept note for assessing current capacity of laboratories for conducting culture and sensitivity testing, and capacity for hospital-based surveillance developed and under review. Three regional veterinary laboratories selected. Laboratories have been assessed using FAO ATCLASS (Assessment Tool for Laboratories and Antimicrobial Resistance Surveillance Systems), and gaps have been identified.	26–50%
	National surveillance system for AMR supported in human health, animal health, plant health, food and environment.	Concept notes developed and being reviewed for: <ul style="list-style-type: none"> • technical workshop series on generation, analysis, interpretation and use of quality resistance and consumption data (AMU/AMC/AMR data quality); • supporting the ESBL integrated surveillance protocol in one region of Ghana (met with focal points to begin action on this activity); • developing indicators for monitoring AMU/AMR across all affected sectors; • developing monitoring tools for AMU in terrestrial animals and aquaculture; • monitoring AMU in health facilities; and • facilitating collection and review of sales data on antimicrobials for animal use. 	1–25%
Systems for biosecurity and IPC strengthened	National plans developed or reviewed to ensure good production practices.	Concept note developed and being reviewed for developing national biosecurity and IPC standards to enhance AMS at farm level.	1–25%
	National IPC programme supported in line with IPC core components.	Focal point and agency to handle this activity identified; proposal being prepared.	1–25%
Systems for optimized use of antimicrobials strengthened in critical human/ animal sectors	Guidelines for responsible and prudent use of antimicrobials based on international standards are developed or revised.	Concept note developed and being reviewed for adapting the WHO classification list of antimicrobials to Ghana and ensuring optimized prescribing and dispensing based on laboratory results.	1–25%
Improved capacity to design awareness-raising, behaviour change and educational activities	Number and list of communication strategies developed or implemented to support improved capability for communication and behaviour change initiatives on AMR.	Running the annual WAAW, including extensive public education on AMU/AMR, was done in 2021.	26–50%

INDONESIA

Overview

Project: Combatting AMR in Indonesia through multisectoral approaches to infection reduction and improved stewardship (ID: 00124431)

- Duration: 24 months (1 January 2021 to 30 December 2022)

Activities focused on strengthening systems for optimized use of antimicrobials between and within ministries and regulating IPC and WASH in the human and animal health sectors, as well as developing communication and advocacy strategy for engagement with key stakeholders on AMR. Key activities include:

- joint review of IPC (including WASH) in human and animal sectors in pilot areas;
- developing and piloting IPC initiatives in health care facilities and farming systems using complementary parallel approaches on IPC, Agri-IPC, WASH and farm biosecurity;
- joint review/assessment of AMS practices in humans and animals in pilot areas;
- developing AMS guidelines for human and animal health;
- developing standard treatment guidelines and a user-friendly application (for both human and animal health) using the AWaRe classification for health care professionals and veterinarians and VPPs;
- creating a coordination mechanism for monitoring and inspecting AMU in human and animal health;
- jointly assessing implementation of AMU stewardship in selected farms and communities through a KAP survey (towards the end of the project);
- developing M&E plans for NAP implementation in pilot areas; and
- developing a communication and advocacy strategy for engaging key stakeholders.

Highlights of the project so far

The AMR MPTF project in Indonesia focuses on strengthening cross-sectoral collaboration to control AMR in animal and human health through AMS and IPC activities in health care facilities and livestock. Following a review of the WHO core components for IPC programmes and recently adopted biosecurity guidelines for the poultry production sector in Indonesia, the IPC/WASH and AMS assessment tools were finalized in 2021. In addition, joint assessments of IPC/WASH and AMS by enumerators from the human and animal health sectors at selected hospitals and poultry farms in pilot areas (East and Central Java) are being planned. The country Tripartite organizations conducted a kick-off meeting and workshop with government representatives from the Ministry of Health, the Ministry of Agriculture and the Provincial Animal Health Service, as well as experts from professional organizations (Indonesian Veterinary Medical Association, IVMA; Indonesian Veterinary Drug Association, IVDA) and universities to finalize the tools and prepare the required technical and administrative issues.

The development of an app for standard treatment guidance in both the animal and human health sectors started with coordination meetings between the country Tripartite organizations and FAO Bangladesh. FAO Bangladesh has been working with BARA to develop a user-friendly app with treatment guidelines for human and animal health that informs professionals from both sectors on AMU and priorities on either side. The app will be adapted to align with Indonesia's context.

To strengthen a coordination mechanism for monitoring antimicrobial supply chains in human and animal health, discussions have been held to generate and obtain inputs and reviews from ministries (Indonesian FDA, Ministry of Health, Ministry of Agriculture, Ministry of Marine Affairs and Fisheries) and professional organizations (IVMA, IVDA). Draft standard operational procedures for joint inspection of antimicrobial supply chains in the human and animal health sectors are being developed. These standards aim to assess the integrity of distribution and circulation of raw materials and finished antimicrobials which are used in both the human and animal (and/or fishery) sectors and to assess where inappropriate antimicrobial switching occurs.

Main challenges, impacts and solutions

The budget registration process with the Ministry of Agriculture and the Ministry of Finance took 6 months.

The directorate of the Ministry of Health responsible for AMR changed, and it took some time to process the new memorandum of understanding between WHO and the new directorate for MPTF activities. Because of the surge of COVID-19 cases in the country, the Ministry of Health had to prioritize COVID-19 response activities over other activities, including AMR. Moreover, the Ministry of Agriculture and the Ministry of Health had to cancel many on-site meetings and workshops.

A newly assigned director of animal health in the Ministry of Agriculture assumed responsibility for the AMR programme. Time was needed to brief her on the background of the MPTF project and for advocacy.

OIE faced challenges related to national representation but finally contracted CIVAS (Centre for Indonesian Veterinary Analytical Studies) to implement its activities. It is difficult to convene all related ministries during this COVID-19 pandemic, since they have prioritized agendas related to the COVID-19 response.

Implementation was delayed by more than 6 months, and stakeholder coordination meetings to initiate project discussions and preparations were problematic.

The Tripartite held discussions with the focal point in the Ministry of Agriculture (the director general and Bureau of International Cooperation) on how to accelerate project registration and meet the challenges. They communicated closely with the Ministry of Finance to follow up the registration process and briefed the new directorate responsible for AMR. They also followed up the process of establishing a new memorandum of understanding for the MPTF work plan between WHO and the Ministry of Health. The modality of activity transitioned from on-site meetings/workshops to virtual/hybrid platforms. The Tripartite tried to conduct two different MPTF activities in one meeting where important stakeholders/related ministries were gathered.

Learning innovation

Adapted IPC/WASH assessment tools for human health from the *Infection prevention and control assessment framework (IPCAF) (6) at the facility level and the Water and sanitation for health facility improvement tool (WASH FIT) (7)*.

Adapted Agri-IPC and Agri-WASH assessment tools for animal health from IPCAF and layer farm assessment tools.

Reviewed integrated standard treatment guidelines for human and animal health from BARA. Included gender, equity and human rights in the instruments, planning and training.

Log frame outputs where progress has been made

MPTF OUTPUT	INDICATORS	PROGRESS DESCRIPTION (ACTIVITIES STARTED/COMPLETED)	INDICATOR % MET
Systems for biosecurity and IPC strengthened	Number of provinces (pilot area) that are supported to implement and/or scale up minimum requirements for infection prevention (e.g. husbandry and biosecurity) for food animal production, in accordance with international standards.	Following a kick-off meeting of the ministries and consultations with FAO, OIE and WHO regional focal points, a tool was developed for the joint review of IPC in the human and animal sectors in pilot areas. The tool is being reviewed by the Ministry of Health, the Ministry of Agriculture, IVMA and universities.	26–50%
System for optimized use of antimicrobials strengthened in critical human/ animal sectors	Guidelines for responsible and prudent use of antimicrobials based on international standards are developed or revised.	<p>For the joint review/assessment of AMS practices in human and animal health in pilot areas, a series of consultations with FAO, OIE and WHO regional focal points on developing AMS tools were held from January to June 2021. A series of meetings to develop tools for AMS in the human and animal health sectors with the Ministry of Agriculture, the Ministry of Health, the WHO Regional Office for South-East Asia, the FAO Regional Office for Asia and the Pacific, and the OIE regional office (in English and Bahasa) were held from July to October 2021.</p> <p>WHO guidance on AMS in health-care facilities in LMICs (8) has been reviewed and adapted, and AMS guidelines in the human and animal health sectors were reviewed.</p> <p>A coordination meeting with FAO Bangladesh on the BARA concept was held to start work on standard treatment guidelines and a user-friendly app (for both human and animal health), using the AWaRe classification for health care professionals and veterinarians and VPPs.</p> <p>Work on creating a coordination mechanism for monitoring and inspecting AMU in human and animal health has started. National instruments on monitoring the antimicrobial supply chain in the human and animal health sectors were reviewed. Meetings were held to develop standardized operational procedures for joint inspection with the Indonesian FDA, the Ministry of Agriculture, the Ministry of Health, Ministry of Marine Affairs and Fisheries, FAO, OIE and WHO.</p>	1–25%
Engagement plans with stakeholder groups implemented	Number and list of stakeholder engagement plans developed and/ or implemented at the national level.	Support for developing M&E plans for NAP implementation in pilot areas started with a review by the Ministry of Agriculture, the poultry association and the private sector of the targets and indicators for the animal health sector of Indonesia's AMR-NAP 2020–2024.	1–25%

KENYA

Overview

Project: Preventive approaches to containment of AMR in Kenya (ID: 00124994)

- Duration: Two years (1 December 2020 to 1 December 2022)

Kenya's activities under the AMR MPTF project set out to strengthen biosecurity and IPC, monitor AMC and improve stewardship, as well as implement awareness-raising and educational activities. Among the main activities being undertaken by Kenya are:

- capacity building on HAI surveillance and strategies for IPC;
- development and dissemination of farm biosecurity guidelines;
- development of a reporting system and database to support county-level AMC in humans as well as improved reporting of AMU in animals;
- scaling up implementation of national AMS guidelines; and
- publication/development of newsletters and peer articles on AMR progress and NAP implementation.

Highlights of the project so far

The AMR MPTF project in Kenya was officially launched on 18 February 2021, with representatives of donors, the government, the Tripartite Secretariat and the three organizations in attendance. Activities began with joint development of the MPTF project's M&E plan together with data collection tools to facilitate monitoring of progress made. The M&E plan and data collection tools were finalized by February 2021.

These activities were followed by a baseline survey for the three output areas that are the focus of the project, to identify current status and document gaps in IPC, AMS, the existing systems for AMU as well as the capacity to design messaging on AMR awareness-raising and educational activities targeting behaviour change. The baseline report was finalized in October 2021.

The baseline assessment of IPC and AMS practices was carried out in May to September 2021 in six counties, namely Kiambu, Embu, Machakos, Mombasa, Uasin Gishu and Busia. The assessment was carried out by staff from the Ministry of Health (Division of Patient and Health Worker Safety), county health management and individual health facilities.

The IPC assessment was done using a national infection control assessment tool to assess the current IPC situation in the target facilities. AMS assessment was done using a standardized checklist adapted from WHO to identify existing and missing core elements for AMS programmes at the county and facility level.

Joint efforts between OIE and FAO were made towards developing a set of management and physical measures designed to reduce the risk of introduction, establishment and spread of animal diseases, infections or infestations to, from and within an animal population. A workshop in March 2021 brought together veterinarians drawn from the national Directorate of Veterinary Services (DVS), County Directorates of Veterinary Services (CDVSs) and other expert field veterinarians working in the poultry, pig and dairy cattle value chains to develop biosecurity guidelines. The draft farm biosecurity guidelines were developed in reference to existing regulations, OIE international standards, reference texts and best practice.

This was followed by a national stakeholder's workshop in May 2021 to review and validate the farm biosecurity guidelines. Wider agricultural sector representation, including the DVS, the Kenya Dairy Board, the Department of Livestock Production, other expert field veterinarians, industry representatives and private animal health practitioners working in the identified poultry, pig and dairy cattle value chains, contributed to the process. The adoption of biosecurity measures proposed in the guidelines is expected to contribute to improved and sustainable animal husbandry and AMU-associated behaviours and practices among the three livestock value chains, and consequently reduce the need for antimicrobials during production and minimize AMR risks attributed to foods.

The validated farm biosecurity guidelines have been used to train 29 VPPs who play an important role in animal disease surveillance, prevention and control as well as providing basic clinical services. A training trainers event in October 2021 aimed to create an understanding among the 30 public and private VPPs about the link between implementation of farm biosecurity measures and reduced emergence and spread of AMR and how to share this information in the course of their work. The participants were drawn from 15 counties with a high potential for production of dairy cattle, pigs and poultry. The counties included Kiambu, Baringo, Nairobi, Kakamega, Laikipia, Kirinyaga, Kajiado, Trans Nzoia, Nyeri, Kericho, Narok, Murang'a, Nakuru, Nyandarua and Isiolo. The objective of the training was to build a pool of competent instructors and to prepare the selected VPPs as future trainers for continued dissemination and implementation of farm biosecurity measures.

Training was organized in December 2021 for county veterinarians in recognition of their critical role in regulating and supervising use of antimicrobials, including offering professional advice on AMU to farmers and animal keepers. The participants were drawn from both the public and private sectors in the same 15 counties mentioned earlier. The objective of the training was to ensure that competent public and private veterinarians are at the forefront in implementing the AMR-NAP.

Main challenges

Due to the increasing cases of COVID-19 during the first quarter of 2021, restrictions on holding physical meetings were introduced in the country. This resulted in postponement of some activities as well as a smaller number of participants attending workshops. The stakeholder review and validation workshop for farm biosecurity guideline documents was delayed by three months.

There was clear guidance from the Ministry of Health on COVID-19 measures to be observed and guidance regarding the continued implementation of activities relating to the Ministry of Health. The postponed activities were successfully held at later dates when restrictions on physical gatherings were lifted.

Key stakeholders who were affected by COVID-19 were given the opportunity to provide comments to working documents virtually. Their input was later integrated into the documents under development, just as it would have been during workshops. Having recovered and been declared healthy, these participants were also able to join the other stakeholders during the review and validation session for the farm biosecurity workshop.

Learning innovation

Gaps in IPC knowledge among professionals emerged which varied across facilities and departments. Progress in establishing AMS programmes and AMS structures differed in different counties. Generally, AMS committees are part of medicines and therapeutic committees in most facilities. Knowledge gaps on AMR and the link between AMR and IPC exist among health care workers and leadership across all levels of health care delivery.

Leadership support and existing governance structures play a key role in IPC and AMS.

Carrying out some activities required more time than originally planned, especially those that required broad stakeholder engagement (such as development, review and validation of farm biosecurity guidelines). Ideally, the activity should have been a three-step activity and not a two-step activity as planned.

Developing guidance materials for stakeholders requires considerable effort. Going forward, planning sufficient time for editing, formatting and printing is required.

County government colleagues are eager and look forward to receiving support from the national government in implementing the AMR-NAP.

Log frame outputs where progress has been made

MPTF OUTPUT	INDICATORS	PROGRESS DESCRIPTION (ACTIVITIES STARTED/COMPLETED)	INDICATOR % MET
Systems for biosecurity and IPC strengthened	National biosecurity practice guidelines developed and disseminated.	Farm biosecurity guidelines for dairy, poultry and pig value chains were: <ul style="list-style-type: none"> developed in a workshop in March 2021 involving multisectoral public and private sector experts; validated during a review workshop in August 2021; and disseminated to veterinarians and VPPs during training sessions where trainees were also asked to further disseminate the guidelines to stakeholders in their respective networks. 	100%
	National IPC guidelines disseminated.	Guidelines have been published on the Ministry of Health website, and the ECHO platform was used for further dissemination.	25–50%
	Number of professionals trained on IPC.	Baseline assessments for AMS and IPC completed in the six counties and selected facilities.	100%
	Number of professionals (training trainers) and farmers trained in biosecurity.	Thirty county VPPs (14 men, 16 women) trained as trainers of trainers on farm biosecurity measures in October 2021. Twenty-nine county veterinarians (22 men, 7 women) trained on AMR-NAP implementation, responsible use of antimicrobials and farm biosecurity in December 2021. One hundred and fifty farmers were sensitized in Bungoma County during WAAW 2021 celebrations.	50–75%
Systems for optimized use of antimicrobials strengthened in critical human/ animal sectors	Guidelines for prudent use of antimicrobials in animals disseminated to veterinarians and VPPs.	Guidelines on prudent use of antimicrobials and guidelines on farm biosecurity in dairy, poultry and pig production shared with county veterinarians and VPPs during various training events.	50–75%
Improved capacity to design awareness-raising, behaviour change and educational activities	Support delivery of two nationwide AMR campaigns targeting stakeholder groups based on targeted messaging within sectors.	Supported WAAW 2021 celebrations: <ul style="list-style-type: none"> At national level with a 1-day meeting to train the media on AMR and a high-level meeting to launch WAAW. Launched documents to support implementation of Kenya's AMR-NAP. At subnational level by enabling the Bungoma County AMS Interagency Committee (CASIC) to hold a farmer field day that sensitized more than 150 farmers and other key stakeholders. During WAAW 2021, various awareness-creation materials (banners, branded T-shirts and caps) were distributed at the national level as well as to five CASICs.	50–75%
	Communication strategy harmonized.	Joint and sector-specific awareness activities with joint AMR messages were developed, organized and communicated.	50–75%

MOROCCO

Overview

Project: Support the implementation of the AMR-NAP through a One Health approach in Morocco (ID: 00124432)

- Duration: 24 months (16 December 2020 to 16 December 2022)

The project sets out to improve the country's governance capacities, strengthen surveillance and information systems, support systems for biosecurity and IPC, as well as increase awareness-raising and behaviour change among key stakeholders and the public. All activities included in the MPTF project are anchored in the country's AMR-NAP (2019–2021), and the results of the project will provide a basis for developing the next NAP, intended for 2022.

The project will be carried out by the country Tripartite organizations (WHO, FAO, OIE) in close collaboration with the Ministry of Health and Social Protection; the Ministry of Agriculture, Marine Fisheries, Rural Development and Water and Forests; and the Ministry of Energetic Transition and Sustainable Development. Implementation of project activities started in January 2021, and activities are set to conclude by December 2022.

Highlights of the project so far

The project was officially launched on 18 March 2021 with a public commitment to fight AMR. The environment department joined as a new institutional partner. During this launch workshop, national and international project partners established a technical coordination committee, validated its ToRs and agreed the project's work plan. Since then, six meetings of the technical coordination committee have been held by videoconference to discuss progress and to coordinate and plan project activities.

The public commitment to fighting AMR resulted in the signing in October 2021 of a convention on AMR between the Ministry of Agriculture and public and private professional partners and organizations operating in the livestock sector and in the food chain.

A national Progressive Management Pathway for AMR (PMP-AMR) workshop was organized in June 2021 to assess the level of implementation of the NAP in the country. Stakeholders were identified and mapped, and there was agreement on actions to be taken to take AMR management to the next level. Subsequently, technical committees to set up integrated AMR surveillance systems were established within the Ministry of Health, the Ministry of Agriculture and the Ministry of Environment (ONSSA).

With the support of the project's international partners Decree No. 2-82-541, approved for application of Law No. 21-80 relating to the private practice of veterinary medicine, surgery and pharmacy, was revised. Along with the project's scheduled consultation on AMR legal frameworks, this revision will update existing legislation and regulation in the human and animal health sectors and the environment sector to specifically include AMR. This will result in designing and implementing AMR plans and programmes.

A national health AMR surveillance meeting was organized by the Ministry of Health, and the AMR surveillance system protocol was validated. The self-evaluation of the sentinel laboratory was launched, and the road map for implementing this AMR surveillance developed.

In parallel, regularly collected data on AMU and AMC in the veterinary sector was shared, and data from 2019 and 2020 on human AMR for bacterial pathogens was shared in the Global Antimicrobial Resistance and Use Surveillance System (GLASS) for the first time by Morocco.

A national HAI prevalence study is being implemented. The study protocol – including sampling, which was finalized through several meetings involving WHO, the Ministry of Health and the national consultant – was finalized. Data collection and analysis are scheduled for May 2022 after training of the investigators and finalization of the computer app.

Prior to the WAAW 2021 celebrations, a concept note for a national joint communication plan for AMR awareness was finalized and a private communication agency was contracted to develop AMR/AMU awareness materials. During WAAW, a professional webinar for environmental, human and animal health professionals was organized, an awareness-raising campaign using different media was conducted, and good media coverage on AMR at the national level was achieved.

In preparation for implementing project activities, ToRs for several consultations were drafted and/or validated and calls for expression of interest were published on websites of concerned international partner organizations. Included among these consultations were: analysis of legal frameworks for human and veterinary and environmental systems, including laboratories; establishment of an AMR governance mechanism; joint assessment and analysis of human, veterinary and environmental laboratory capacities; analysis of national quality management systems specific to AMR at the level of public health and veterinary institutions; and development and implementation of norms, standards and good practice guidelines on biosecurity and IPC for the dairy, poultry and aquaculture sectors.

Main challenges, impacts and solutions

The COVID-19 pandemic resulted in many restrictions (e.g., international travel, in-person meetings) and caused a shift in government priorities (particularly the Ministry of Health and the Ministry of Agriculture). The pandemic also restricted opportunities to engage international consultants, travel internally and conduct face-to-face workshops.

Levels of knowledge and capacity on AMR among environment department staff are still low.

At the start of the project, some difficulties were encountered in developing a common vision between the three national departments (the Ministry of Health, the Ministry of Agriculture and the environment department) regarding some activities.

As a result of these challenges, especially those relating to the pandemic, implementation of some project activities was delayed by 6 months and it proved difficult to recruit international consultants.

The Tripartite overcame these challenges through virtual meetings and discussions, relying on qualified national consultants and organizing consultation and harmonization meetings to reach a common vision among the three departments.

Log frame outputs where progress has been made

MPTF OUTPUT	INDICATORS	PROGRESS DESCRIPTION (ACTIVITIES STARTED/COMPLETED)	INDICATOR % MET
Improved capacities for designing and implementing AMR-related policy frameworks, investment plans and programmes	Joint Expert Technical Advisory Committee on Antimicrobial Resistance established.	A national PMP-AMR workshop was held to assess the level of implementation of the AMR-NAP, and stakeholders agreed on ways to take AMR management to a higher level. Consultation related to establishing an AMR governance mechanism was carried out, and ToRs for a consultation on establishing a robust and effective governance mechanism to steer and support AMR policy has been finalized. A consultant has also been identified.	51–75%
	The AMR-related legal framework is reviewed and amendments proposed.	Decree No. 2-82-541 approved for application of Law No. 21-80 relating to the private practice of veterinary medicine, surgery and pharmacy was revised with the support of FAO and OIE. ToRs prepared for: <ul style="list-style-type: none"> Formulating recommendations for legal frameworks for human, veterinary and environmental systems, including laboratories. Call for expression of interest launched by OIE. Analysing the national quality management system specific to AMR at the level of public health and veterinary facilities. A national expert has been identified. 	26–50%
Systems for generating, analysing and interpreting data on AMR, AMU/AMC patterns developed or strengthened	National AMR and AMU surveillance networks designed and established.	ToRs for a joint assessment and analysis of human, veterinary and environmental laboratory capacity have been drafted. A technical committee to set up an AMR surveillance system was established in the Ministry of Health. The national human health AMR surveillance system protocol was finalized and validated by the technical committee members, and the surveillance system was officially launched. A functional technical committee for AMR surveillance in the veterinary sector was established within ONSSA.	26-50%
	Data on AMR and AMC/AMU is regularly collected and shared.	Data on AMU and AMC in the veterinary sector has been regularly collected and shared since 2015. Data on AMR of <i>Mycobacterium tuberculosis</i> has been regularly collected. Partial data on AMR of some human or veterinary bacterial pathogens is available.	26–50%
Systems for biosecurity and IPC strengthened	Proportion of farms implementing biosecurity measures.	A convention on AMR between the Ministry of Agriculture and professional partners operating in the livestock sector and the food chain was signed. ToRs to develop and implement norms, standards and good practice guidelines on biosecurity and IPC have been drafted for the dairy, poultry and aquaculture sectors.	26–50%
	Update of the national strategy for the prevention of HAI.	ToRs for updating the national strategy for preventing HAI has been drafted. ToRs for supporting the national survey on the prevalence of HAI have been finalized and a consultant recruited.	26–50%
Improved capacity to design awareness-raising, behaviour change and educational activities	Number of beneficiaries from awareness programme.	A professional webinar to celebrate WAAW 2021 was organized, with 85 professionals participating. Good media coverage on AMR WAAW at the national level was achieved.	26–50%
	Number of communication tools developed.	A concept note on AMR communication was finalized. A private communication agency has been contracted to develop AMR/AMU awareness materials (leaflets, posters, social media, capsules) and several communication materials (press release, circular, roll-up) have been developed.	51–75%

TAJIKISTAN

Overview

One Health capacity building to support priority actions for combatting antimicrobial resistance in Tajikistan (ID: 00127141)

- 24 months (31 September 2021 to 31 September 2023)

The AMR MPTF project activities aim to support the establishment and strengthening of systems for:

- collecting, analysing and interpreting data on AMR and AMU;
- optimizing use of antimicrobial medicines in critical sectors;
- biosecurity and IPC in the country to reduce the incidence of infections;
- targeted awareness-raising, behaviour change and educational activities;
- coordinating, developing, implementing and monitoring AMR-related policy frameworks, investment plans and programmes.

Highlights of the project so far

On 22 September 2021, a hybrid kick-off meeting brought together over 60 stakeholders, including those from the Tripartite organizations (FAO/OIE/WHO) at headquarters, regional and country level, to initiate the AMR MPTF project.

A mission to assess the country's capacity to implement the WHO AMR Tricycle protocol on surveillance of ESBL-producing *E. coli* in humans, animals and the environment visited national and subnational bacteriological laboratories and met with relevant staff to assess the capacity, needs and interest regarding work in this direction. The draft mission report was shared with the Tripartite at all levels.

WAAW 2021 started with a joint meeting between AMR stakeholders from all sectors and Tripartite representatives focusing on the AMR MPTF project and AMR-NAP implementation in Dushanbe, Tajikistan, on 18 November 2021. The aim of the meeting was for sector partners and stakeholders to update and share information on what they are doing on AMR and to call on them to join the WAAW 2021 celebrations. The Tripartite organizations supported the WAAW 2021 national campaign with over 20 broadcast events (daily news and separate TV and radio programmes) at the national and subnational level in the country between 18 and 30 November. Due to the growing and unnecessary use of antimicrobials, particularly due to the COVID-19 pandemic, AMR and IPC messages for humans, animals and the environment were included in WAAW 2021 information materials in Tajik and Russian.

The Republican Clinical and Educational Center for Family Medicine of the Ministry of Health and Social Protection of Population conducted four 1-day training courses on AMR facts and actions at the country, regional and global level and on WHO recommendations on rational use of antimicrobials for family physicians, pharmacists and provisors, representing primary health care centres located in Dushanbe. These trained family doctors will work as mentors for other family doctors working in Dushanbe in 2022. The postgraduate medical institute of the Ministry of Health and Social Protection of Population also published articles on AMU/AMC and AMR/WAAW 2021 in Tajik and Russian in local newspapers. Public health and veterinary students at the Tajik medical and agrarian universities received education materials (presentations, videos, leaflets and posters) on AMR and rational use of antimicrobials.

The Republican Centre for Healthy Lifestyle (RCHLS) of the Ministry of Health and Social Protection of Population involved stakeholders and partners (journalists, pharmaceutical associations, veterinarians, PHC and hospital staff) in round-table discussions held in Dushanbe and five regions. RCHLS held training sessions to strengthen volunteers' knowledge and to help its staff to conduct the campaign.

Main challenges, impacts and solutions

COVID-19 has partly restricted opportunities to engage potential service providers for assigned activities, as they are overloaded with other assignments and are frequently sick.

The start of implementation of activities was delayed. However, because the project started only recently, the delays have not yet impacted the project deliverables.

OIE divided the ToRs of one international consultant into two more manageable assignments. The consultant to support ARM/AMU surveillance and to increase awareness-raising activities has been hired and has begun her duties at the OIE regional office located in Nursultan, Kazakhstan. The consultant will be responsible for the animal health and veterinary-related project activity plan implementation at the country level. Recruitment of the second international consultant is ongoing.

Log frame outputs where progress has been made

MPTF OUTPUT	INDICATORS	PROGRESS DESCRIPTION (ACTIVITIES STARTED/COMPLETED)	INDICATOR % MET
Systems for generating, analysing and interpreting data on AMR, AMU/AMC patterns developed or strengthened	National surveillance system for AMR supported in human and animal health.	A mission to assess the country's capacity to implement the AMR Tricycle protocol on surveillance of ESBL-producing E. coli in humans, animals and the environment was conducted in October–November 2021.	1–25%
Improved capacity to design awareness-raising, behaviour change and educational activities	Communication strategy developed to support improved capability for communication and behaviour change initiatives on AMR.	<ul style="list-style-type: none"> • Provided support to celebration of WAAW 2021 information campaign, workshops and meetings conducted for professionals in all sectors in Tajikistan. 	1–25%
Improved capacities for designing and implementing AMR-related policy frameworks, investment plans and programmes	Full functional MCG established with representatives from all sectors.	<p>Supported the National Coordination Committee in holding a hybrid kick-off meeting to bring together over 60 stakeholders to initiate the AMR MPTF project.</p> <p>Supported development of an operational plan to review the NAP and budget execution. Supported the inclusion of additional agriculture and veterinary stakeholders in the MCG, including private sector representatives (completed).</p>	1–25%

ZIMBABWE

Overview

Project: Combatting the rising global threat of AMR through a One Health approach in Zimbabwe (ID: 00127114)

- 24 months (31 June 2021 to 31 June 2023)

The AMR MPTF project focuses on strengthening biosecurity and IPC, optimizing use of antimicrobials and improved capacity to design awareness-raising, behaviour change, and educational activities and materials. Its key activities include:

- promoting use of vaccines as an alternative to irrational use of antibiotics for theileriosis in cattle and typhoid in humans;
- upscaling the Farmer Field Schools in the broiler value chain to promote the adoption of good husbandry practices;
- revising the national IPC policy and strategic plan, and the national IPC guidelines and training programme, to strengthen evidence-based practices to address AMR transmission;
- strengthening the national IPC programme by supporting a pilot surveillance system for HAI in selected health facilities;
- conducting spot checks on SF and illegal drugs at ports of entry, especially the northern border posts; and
- developing and piloting a behaviour change community of practice.

Highlights of the project so far

To strengthen the AMR Secretariat, the Tripartite (FAO, OIE and WHO) country and regional offices worked collectively to recruit an AMR project coordinator. The coordinator started in December 2021 and is seconded to, and housed in, the Ministry of Health & Child Care and is now providing technical support to the One Health AMR Secretariat.

The AMR MPTF project in Zimbabwe was launched on 15 December 2021.

One hundred and twenty people attended the launch in person, and 60 joined virtually. The event was attended by the deputy minister of health, the minister of Harare Province and representatives of the ambassador for the United Kingdom, the ambassador for Sweden, WHO (country office), OIE, FAO, the Ministry of Environment and the Ministry of Agriculture.

AMR was included in the United Nations Sustainable Development Cooperation Framework (2021–2026) under Strategic Priority 1 (People-centred – inclusive, equitable human development and well-being) and associated Outcome 1 (By 2026, all people in Zimbabwe, especially women and girls and those in the most vulnerable and marginalized communities, benefit from equitable and quality social services and protection).

The Department of Veterinary Services, with support from OIE, developed a theileriosis vaccine production implementation plan which was adopted by the Tripartite. Testing kits to enable production were procured, and the vaccine production process started in October 2021. The first batch of vaccine vials will be available in September 2022.

As part of upscaling the Farmer Field Schools in the broiler value chain to promote adoption of good husbandry practices, training was conducted for 10 Farmer Field School facilitators from five districts and a pilot on collecting AMU data and economic data on broiler value chains was initiated.

Main challenges, impacts and solutions

The COVID-19 pandemic disrupted AMR MPTF project implementation due to lockdowns and restricted opportunities to engage service providers for activities, since most were assigned to work on the COVID-19 pandemic response. Reassignments also contributed to a delay in recruiting an MPTF coordinator. Implementation was delayed by about 6 months. The full-time AMR MPTF project coordinator has now started, which will accelerate implementation of planned activities. The COVID-19 situation in Southern Africa is currently stable, with lowering of lockdown levels to facilitate accelerated implementation of planned activities.

Log frame outputs where progress has been made

MPTF OUTPUT	INDICATORS	PROGRESS DESCRIPTION (ACTIVITIES STARTED/COMPLETED)	INDICATOR % MET
Systems for biosecurity and IPC strengthened	% decrease in the number of human infections with typhoid as a proxy for reduced AMU.	Fourteen typhoid sentinel sites identified in Harare.	1–25%
	% decrease in the number of cattle infections with theileriosis in intervention herds as compared with control herds as a proxy for reduced AMU.	Finalized and adopted the theileriosis vaccine production implementation plan. Purchased laboratory supplies and testing kits.	1–25%
	% increase in number of farmers trained in good husbandry and biosecurity measures in the broiler value chain.	Five districts have been identified and facilitators have been trained. The collection of economic data has been initiated.	1–25%
	% reduction in the proportion of HAI among hospital patients resistant to methicillin.	Reported cases of HAI in two central hospitals.	1–25%
Improved capacity to design awareness-raising, behaviour change and educational activities	KAP study on AMR conducted among health care professionals in the human and animal health sectors as well as in the dairy value chain.	KAP studies were identified, and a call for proposals to universities to be sent so the project partners can generate the KAP data with them.	1–25%

Global programme reports

LEGAL

Overview

Project: Development and piloting of a Tripartite One Health assessment tool for AMR-relevant legislation (ID: 00126136)

- 24 months (12 March 2021 to 12 March 2023)

This AMR MPTF project focuses on the development and piloting of a One Health legislative assessment tool for AMR. The key activities include:

- development of the tool by a group of international experts backstopped by the Tripartite and with the support of UNEP;
- conducting expert review meetings to support finalization of the tool;
- piloting the tool in three AMR MPTF priority countries;
- two regional workshops (one virtual, one in person depending on COVID-19 travel situation);
- developing an e-learning method (new activity); and
- validating the tool.

Highlights of the project so far

Development of the tool

The tool builds on and expands the *FAO Methodology to analyse AMR-relevant legislation in the food and agriculture sector* (9). The content and preliminary structure of the tool was agreed by the three organizations (FAO, OIE and WHO) along with the style, reference terminology, approach and internal structure of the sections. Each organization commissioned the development of its assigned chapters to external consultants, with a total of seven experts working on the various chapters along with a coordinator.

Once the first drafts of the chapters were ready, they were shared with peer reviewers and experts inside and outside of the organizations, with each chapter being assigned its own group of experts and peer reviewers. Following several discussions on the length of the tool and prioritization of topics, the final structure of the tool has changed from the version originally agreed, with more attention being paid to governance and cross-cutting issues. Separate chapters on pesticide and plant protection were also created. Translation of the tool into French will be initiated in February 2022.

Review meetings

The review meetings took place from mid-October to mid-November 2021. There were dedicated meetings for the chapters of human health (12 October), animal health (13 October), food safety (22 October), feed (4 November), the environment (15 October) and pesticide management (12 November). A final meeting to review the entire tool was organized on 9 December 2021.

While the initial idea was that the review meetings would be a one-time activity, it was agreed that new meetings with different experts will take place at different moments of the project life cycle and that an additional meeting for the chapter on governance and cross-cutting issues would take place at a later stage. Review meetings with the donors and other AMR MPTF actors could also be useful.

Pilot projects

The tool will be piloted in at least three AMR MPTF countries. Pilot missions will involve recruitment of a national legal consultant for each country and three international experts (one per organization). The pilot missions will take place virtually or in person depending on the pandemic situation.

Following a meeting with the Tripartite MPTF coordination team, the project team organized different meetings with various MPTF priority countries. The first occasion to present the project and the

pilot missions took place at the general AMR MPTF workshop between the global programmes and countries on 5 March 2021. Following that meeting, the project team held meetings with Morocco (June 2021), Peru (9 September 2021), Tajikistan (29 September 2021) and African countries (Ghana, Kenya, Zimbabwe) on 6 October 2021. Follow-up meetings with Zimbabwe, Tajikistan, Kenya and Morocco took place in October 2021.

Morocco was identified as the first pilot project. The country programme already included significant legal work, and a national legal consultant has been recruited under the national budget. The international experts will provide support to the national consultant on the use of the tool relative to their specific areas of expertise during the preparation of the national consultant's report. All the international experts will then participate in a mission at the national level to present and discuss lessons learned. The recruitment of the international consultants will be funded by the global legal project.

Zimbabwe was also identified as a pilot project. The country conducted the first assessment of legislation using the FAO methodology in 2019. The WHO Zimbabwe Country Office is currently working on the revision of human health legislation through a national legal consultant supported by the Fleming Fund. WHO headquarters under the MPTF is actively supporting the WHO country office using the draft tool so that there will be no overlap between projects. Under the global project, the same consultant will continue with the analysis using the tool (if performance is satisfactory). The mission will take place in Q2/Q3 2022. A third pilot country has not yet been identified, though several candidate countries are being considered.

Organization of the regional workshops

The project foresees two regional workshops (virtual or in-person, depending on the pandemic situation) in the second half of 2022, one organized by OIE and one by FAO. The OIE workshop will be organized in South-East Asia, while the FAO workshop could be organized either in Central America or in West or East Africa. Collaboration with regional organizations will be prioritized in arranging these meetings.

Outreach activities

On 19 November 2021, as part of WAAW 2021 in Africa, the project team led a session titled "Overview of the legal framework relevant for AMR". The session consisted of presentations on legislation as an effective tool in the fight against AMR using a One Health approach and the One Health AMR legal assessment tool, as well as a panel discussion among regional economic communities on implementing AMR-relevant legislation at the national and regional level.

The project team has also organized a meeting with the MPTF environment global project team to explore possibilities for collaboration. As a result of this meeting, colleagues from the MPTF environment project participated in the review and provided comments on the environment chapter of the tool.

Main challenges, impacts and solutions

The development of the tool took longer than originally foreseen. The process of simplifying and collating a complex set of cross-cutting regulatory instruments was challenging from a logistical, technical and human resources perspective. Significant work ended up being put into the chapters by the Tripartite organizations directly, and more changes are expected in later stages of the project.

Given the complexity of the tool, the expert meetings were postponed and some of them required follow-up work and meetings. Additional challenges related to the evolving and diverse scientific understanding of AMR in relation to the interface between AMR and the environment, as well as of the role of certain antimicrobials (e.g. biocides, food additives) in the development of AMR.

Originally the pilot projects were not going to be AMR MPTF participating countries only, but a decision to focus on the small number of MPTF participating countries meant that pilot countries faced a difference in opinions from the three organizations. Moreover, in some countries there are outstanding political challenges among representatives from the different sectors. Two countries have been selected, and the choice of a third is ongoing.

On average, there has been a delay of 3–4 months from the original work plan. This has particularly impacted the regional workshops (the virtual workshop was foreseen to be held in late 2021), but it has also affected the pilot missions (the first pilot mission was scheduled for late 2021/early 2022).

To help manage this delay, the contract of the tool coordinator, who has also redrafted several chapters, was extended.

Learning innovation

The drafting of the tool has brought to light several technical points that were unclear or where there is a diversity of opinion among the technical experts. As a very dynamic and relatively new area, the evolution of the science and the different focus on and prioritization of areas are likely to continue during the duration of the project and beyond. To address these challenges, the tool must remain flexible, flag all issues considered relevant and focus on priority topics. Prioritization in particular is essential to keep the tool from becoming cumbersome and to facilitate its use.

The success of the pilot missions will depend on the interest and agreement of the country representatives of the three organizations as well as of the national representatives of the different sectors. In conducting the missions, due attention must be paid to existing or potential conflicts across government institutions as well as to other potential challenges.

Log frame outputs where progress has been made

MPTF OUTPUT	INDICATORS	PROGRESS DESCRIPTION (ACTIVITIES STARTED/COMPLETED)	INDICATOR % MET
Improved capacities for designing and implementing AMR-related policy frameworks, investment plans and programmes	Internationally applicable tool developed to support legislation review and revision.	The draft tool is nearly finalized. Translations will be initiated in February 2022.	76–100%
	Number of countries where the regulatory framework has been reviewed in line with international standards on AMU and AMR,	Two of the three pilot countries (Morocco, Zimbabwe) have been identified. The subregion (South-East Asia – ASEAN region) where one of the regional workshops will take place has been identified.	1–25%

ENVIRONMENT

Overview

Project: Strengthening capacity and actions on the environment within AMR National Action Plans, sector policy and global partnership as part of a multi-organization cross-sectoral One Health approach (ID: 00126136)

- 24 months (12 March 2021 to 12 March 2023)

Activities under the AMR MPTF Environment programme are focused on increasing understanding of, cooperation in and capacity to act on the environmental dimensions of AMR among key stakeholders. Its activities include:

- clarifying roles and responsibilities among FAO, OIE, UNEP and WHO on actions related to the environmental dimensions of AMR to efficiently work as one across the UN system;
- demystifying the topic and increasing technical awareness and capacity among AMR stakeholders globally on the environmental dimensions of AMR;
- targeted capacity building on selected subtopics targeted to MPTF countries;
- supporting improved NAP implementation and sustained action on the environmental dimensions of AMR; and
- increasing political engagement and commitment on the part of politicians and policymakers to tackle the environmental dimensions of AMR.

Highlights of the project so far

The AMR MPTF Environment programme team started by organizing collaboration, communication and management and meets fortnightly to discuss next steps, actions and responsibilities. The team created an AMR MPTF Environment Steering Committee to provide strategic and political guidance as well as to assist the team in decision-making and implementation. The AMR MPTF Environment Steering Committee meets with the AMR MPTF Environment team focal points every 6 months. The ToRs for the AMR MPTF Environment Steering Committee were approved by all members during the first meeting held on 18 April 2021.

Clarifying collaboration – interagency document

Given the immense challenge the environment poses and the breadth of action needed, clarity on how agencies work best to exercise their mandates and capacities in a coordinated manner and ensure that all internal and external stakeholders have a common understanding is key to efficiently delivering as one across the UN system. To assist in clarifying the activities carried out by FAO, OIE, UNEP and WHO related to the environmental dimensions of AMR, the team drafted a document on inter-organizational co-operation on environmental dimensions of AMR. This was sent to each agency at the headquarters and regional level and the AMR MPTF Environment Steering Committee for review. A consultation meeting with regional focal points will be organized to allow for an open discussion on the content and context of the document. Following the regional consultation and refinement of the document, a final high-level interagency consultation involving directors and assistant director generals will be organized.

Awareness raising and capacity building

By the end of 2021, two consultants had been engaged and three recruitments are in process: (i) environmental AMR capacity-building specialist; (ii) environmental AMR information and knowledge specialist; (iii) AMR technical specialist; (iv) AMR communications expert; and (v) environmental risk assessment consultant.

Awareness-raising activities included a webinar held in December 2021 on unpacking the environmental dimensions of AMR in food and agriculture. The webinar aimed to: raise awareness of the importance of addressing AMR in the environment and highlight the need for action in the food and agriculture sectors; use case studies to demonstrate actions taken and existing gaps in mitigating AMR risks in environment; and raise awareness of actions taken by FAO, OIE, UNEP and WHO through support from the AMR MPTF and advocate for resources. The webinar was attended by over 100 participants.

Awareness-raising activities also included a webinar series planned for 2022, starting with a hybrid event at World Water Forum 9 in Dakar, Senegal. A calendar of global and regional AMR-related events has been developed, and mapping of communication materials is underway. These activities will continue to help in developing a communication plan going forward and will be used by the project team to specify webinar topics for upcoming event opportunities.

To fully understand the context and needs of MPTF countries, the project will work with a survey of the needs of LMICs that is being developed. This survey is intended to promote careful planning of awareness raising and capacity building tailored to audience, format and subtopics, making use of existing materials with highlighted AMR links where possible.

Interviews with MPTF country teams are underway to initiate communication and to better understand the status and priorities of the MPTF country projects. The knowledge gained from this information gathering will be used to select target countries for developing awareness-raising and capacity-building road maps.

A literature review on the environmental dimensions of AMR has been undertaken by the specialist in environmental AMR capacity building to map existing capacity-building interventions. The literature review will inform the capacity-building approach by providing information on what actions/mitigation measures are available and create a wide menu of options/actions. The literature review will also simultaneously inform available actions for tailoring to country contexts and support strengthening of the environmental component of the FAO PMP-AMR tool.

Engaging with critical stakeholder groups

The project team has been working to raise the visibility of the environmental dimensions of AMR with the highest governing bodies in each agency through the leadership of a “friends against AMR in the environment” Member States group.

The team has strengthened engagement with the One Health GLG on AMR in raising awareness of the environmental dimensions of AMR. In this context, the team has provided support to prioritizing key issues as well as inputs to the to the GLG’s call to action on reducing antimicrobial discharges from food systems, manufacturing facilities, and animal and human health systems into the environment.

The team has also provided inputs to the forthcoming UNEP report on the environmental dimensions of AMR, making sure to align planned project activities and communications with the report. To further raise the visibility of the environmental dimensions of AMR, the team also submitted a side event proposal for the Fifth session of the UN Environment Assembly.

As the AMR MPTF progresses in implementation overall, the MPTF Environment team has been increasingly collaborating with the other global programmes. In this area, the project provided support to the AMR MPTF Legal project through the environmental review meeting for the Tripartite One Health assessment tool for AMR-relevant legislation.

Main challenges, impacts and solutions

The ongoing COVID-19 pandemic caused difficulties in proposing side events on the environmental dimensions of AMR at in-person events due to event-planning disruptions, delays and postponements. However, online and virtual events were explored and opportunities taken.

Transforming the FAO PMP-AMR tool into a One Health PMP-AMR tool for all organizations within the timeframe of the project has proven difficult due to the complexities of the tool, and briefings were required. This topic will be taken up in the future.

As the potential expansion of the FAO PMP-AMR tool would require further time and discussion, the project will instead focus on strengthening the environmental component of the tool and piloting it in selected countries.

These challenges and recruitment delays in turn meant that development of the awareness-raising and capacity-building road map was delayed by 3 months.

Incurring delays are being addressed through the engagement of two to three additional consultants to support implementation of awareness raising and communications, capacity building and webinars.

Learning innovation

The method and mode of inter-agency and inter-organizational collaboration has continued to be pleasant and effective. This form of working together has created true collaboration in the sense that ideas, activities, outputs and tasks are done jointly, and communication is easy, fast and effective.

Improved and efficient communication across the different teams and organizations helps greatly in effectively aligning anticipated project outputs with ongoing Tripartite and UNEP strategic planning and work plans.

Log frame outputs where progress has been made

MPTF OUTPUT	INDICATORS	PROGRESS DESCRIPTION (ACTIVITIES STARTED/COMPLETED)	INDICATOR % MET
Strategic global-level governance advocacy initiatives on AMR implemented	Number of online meetings discussing inter-agency roles and responsibilities.	Headquarters-level inter-organizational meeting conducted. Regional consultation involving regional counterparts of each agency are being organized.	50–75%
	Report summarizing discussions and next steps of inter-agency roles and responsibilities on AMR and the environment.	Document outlining inter-organizational cooperation on the environmental dimensions of AMR drafted. Headquarters-level inter-organizational consultations completed and inputs incorporated. Regional inputs from each organization being gathered.	75–99%
Improved capacities for designing and implementing AMR-related policy frameworks, investment plans and programmes	Awareness-raising and capacity development approach developed.	Environmental AMR knowledge and information consultant engaged. Environmental AMR capacity-building consultant engaged. Awareness-raising road map and calendar of global AMR-related events drafted. Survey to understand MPTF countries' awareness and capacity needs in the area of environmental dimensions of AMR drafted.	25–50%
	Inter-agency awareness-raising series of webinars conducted.	Environmental AMR knowledge and information consultant engaged. Environmental AMR capacity-building consultant engaged. First webinar held in December 2021: "Unpacking the environmental dimensions of AMR in food and agriculture".	25–50%
	Number of MPTF countries receiving targeted capacity development activities.	Environmental AMR capacity-building consultant engaged. Literature review on environmental dimensions of AMR and available capacity-building interventions drafted. Consultations with MPTF country teams to best inform country-level capacity-building activities currently being organized.	25–50%
	Strengthened environmental component of FAO PMP-AMR tool.	Environmental AMR capacity-building consultant engaged. Literature review on environmental dimensions of AMR and available capacity-building interventions drafted. AMR programme specialist and quantitative risk assessor engaged to strengthen FAO PMP-AMR tool.	25–50%
Engagement plans with stakeholder groups implemented	Number of Member States joining in "friends against AMR in the environment" group	Provided support to the One Health GLG on AMR on environmental dimensions of AMR discussions and prioritizing. Assisted with the GLG statement on reducing antimicrobial discharges.	1–25%
	Number of side events increasing visibility of the environmental dimensions of AMR.	Submitted proposal for UNEA side event including the environmental dimensions of AMR.	1–25%

TISSA

Overview

Project: Tripartite Integrated System for Surveillance on Antimicrobial Resistance and Use (TISSA) (ID: 00126136)

- Duration: 24 months (12 March 2021 to 12 March 2023)

The TISSA IT platform intends to make available to FAO, OIE and WHO the official and validated data provided by countries on patterns and trends in AMU and AMR in humans, animals, food, plants and the environment. The platform aims to provide access to such data in a user-friendly way on a global and regional basis.

The key activities are defining requirements, IT development and management, development and roll-out of a shared data collection and visualization platform to display data for AMR and AMU data, and development and expansion of in-house IT systems to help organizations' surveillance programmes in meeting the needs of TISSA.

Highlights of the project so far

Representatives of the Tripartite met 10 times between March and September 2021 to define the high-level needs and requirements for TISSA. An IT company was appointed by a joint Tripartite selection panel, and between September 2021 and March 2022 the company has been working on the IT system. The company is currently testing the system to ensure that it is fit for purpose.

Project management – both internally between organizations as well as externally with the IT vendor – was carried out by WHO. WHO also organized and purchased the hosting domain, and services is managing the technical hosting of the system. FAO carried out inception work for the development and pilot of the International FAO Antimicrobial Resistance Monitoring platform/system (InFARM), including specifications for building interoperability with TISSA. OIE developed an AMU system, which included integration and export files for TISSA.

Main challenges

The major issue for TISSA is standardizing countries and regions between the three organizations. It is currently impossible to use a common map for regions, and a further review of a standard map at the country level between the organizations is needed. Until this issue is resolved, TISSA will need to display separate maps for AMU and/or AMR data per organization. This lack of cohesion may cause confusion.

Another critical challenge that TISSA faces is individual agreements between each organization and its Member States, as some organizations require specific agreements to share data in TISSA in addition to the respective organization database/platform. Another critical point is the level of data submission and reporting. Due to rules in each organization, the data will be submitted either at the country or regional level. Moreover, data will be reported at the country or regional level independently of the submission level. The long-term objective of the three organizations is to report country-level data and compare sectors

One of the challenges for FAO has been developing data models and indicators in the absence of AMR data in the food and agriculture sectors. This problem has been solved by building on FAO surveillance initiatives and projects that have harmonized templates for AMR data collection and by discussions with WHO colleagues who shared their experience in reporting and sharing indicators used in GLASS AMR reporting.

FAO is establishing a data platform hosting AMR data from the food and agriculture sectors at the global level. The organization has initiated work with an external vendor to develop an IT solution for InFARM and to have the first version finalized by the end of 2022. However, it is unlikely that FAO will be able to share aggregated AMR data with TISSA before its launch.

For OIE, one of the challenges has been to find a harmonized way of providing reports for TISSA, as AMU data from OIE at the country level are confidential. With the launch of the future OIE-AMU

system (end of 2022), OIE will start asking its members for their desired level of confidentiality for their AMU data. However, it will take at least 2 years for OIE to define together with their members how the data should be shared and displayed. This will mean that for countries for which access to AMU at the country level is not an option, OIE must assure their confidentiality even if countries in the same region decide to make their AMU data public. Under these conditions, AMU data will then be displayed in TISSA at the regional level.

As project manager, WHO mostly encountered administrative challenges related to procuring the IT company through a “joint” contract between WHO and other organizations and hosting a Tripartite website by one agency, including cybersecurity, architectural and maintenance considerations. Integrating the notion of the Tripartite organizations in contractual procedures would clarify the work of the technical and administrative teams.

The project is still on track to be delivered within the original timeline, thanks to planning changes made early on.

The main way to overcome the challenges relating to standardization is for TISSA to manage extra functionalities, mostly around countries and maps. As a result, the system has grown in complexity to fulfil legal requirements from the three organizations. Challenges with the website layout and hosting have been resolved mostly through multiple exchanges with the Tripartite Joint Secretariat on AMR and the WHO IT department.

Learning innovation

There has been substantial learning during this project. In particular, the organizations have learned a great deal about the data platforms and software available as well as data harmonization and standardization between the organizations and surveillance areas. Such lessons could be used as guidance for countries as they set up their own data platforms.

Log frame outputs where progress has been made

MPTF OUTPUT	INDICATORS	PROGRESS DESCRIPTION (ACTIVITIES STARTED/COMPLETED)	INDICATOR % MET
Evidence-based/ representative data on AMR/ AMU improved for policymakers and sectors implementing AMU practices	Information on AMU available and harmonized across sectors provided on a regional level.	The specifications as agreed by all parties are being implemented in TISSA. To define the AMR and AMU data models and data harmonization points of the system, the project embarked on an extensive requirements-gathering phase, whereby WHO, FAO and OIE representatives held many meetings to define exact data specifications for all surveillance programmes to be displayed on the system.	50–75%
	Number of countries for which data across sectors will be available on the TISSA platform.	The system is currently undergoing development, and data has not yet been submitted. However, each organization’s surveillance programmes already collect data that will be submitted to TISSA. WHO, for example, collects data on AMR from over 100 countries.	1–25%
Systems for generating, analysing and interpreting data on AMR, AMU/ AMC patterns developed or strengthened	Development of the TISSA platform	The selected IT company is at an advanced stage of creating the TISSA data platform. Representatives and technical experts from each organization will soon test the functionality provided by the platform to check its appropriateness. Upon completion, this platform will provide the functionality to upload, visualize, analyse and interpret AMR and AMU data from all four current surveillance programmes.	25–50%
	Display of harmonized data across sectors at the regional level.	The data visualization needs have been defined for each surveillance programme. However, during this exercise, issues have arisen regarding the potential to harmonize the data, as the regions for each organization are distinct. Thus, it will be difficult to display such data on one common map at the regional level.	25–50%

M&E

Overview

Project: AMR Global Action Plan Monitoring and Reporting (ID: 00126136)

- Duration: 24 months (12 March 2021 to 12 March 2023)

The purpose of this intervention is to drive implementation of the AMR M&E framework at the global and national level through the Tripartite's management and delivery of global-level monitoring. The intervention will also provide targeted technical assistance for five MPTF grant recipient countries to support the establishment or improvement of AMR-NAP M&E capabilities. These two intervention levels will contribute to higher-quality evidence/data for improved decision and policy prioritization on AMR, and the development of the biennial AMR GAP report. The key activities within the project include:

- global level monitoring and aggregation of indicator data at the sectoral level;
- technical advisory services for country-level multisectoral M&E of AMR-NAP implementation; and
- biennial global reporting on AMR under the GAP M&E framework.

Highlights of the project so far

Global level monitoring and aggregation of indicator data at the sectoral level

The Tripartite M&E teams developed and published the M&E framework and recommended indicators for the GAP on AMR in 2019. Many of these indicators rely on data from the TrACSS. Detailed technical reference sheets for each of the indicators have been published to facilitate country-level progress on M&E.

The AMR MPTF provides fairly small but important support to developing and revising the TrACSS by recruiting M&E staff in the Tripartite agencies. Despite COVID-19-related challenges in most countries, year 5 of TrACSS has had the highest participation rate (163 countries). The data was published in November 2021.

OIE compared the OIE Global Database AMU data with the TrACSS data returns and noted a 48% margin of error, with countries both over- and underreporting their AMU animal health. This indicates that both TrACSS administration and country-level coordination need to engage more effectively with key officials from all relevant sectors in the national TrACSS response process. OIE followed up with countries that showed data inconsistencies between OIE AMU validated data returns and TrACSS self-assessment data.

In consultation with Tripartite regional and subregional office focal points, the Tripartite M&E team undertook a year 5 review of TrACSS to improve the relevance of the questionnaire. Key revisions include restructuring based on sectors, disaggregation of terrestrial and aquatic data, inclusion of human health laboratory diagnostic questions and strengthening of the section on AMR in the environment in collaboration with UNEP. TrACSS data collection and the database website are being updated to facilitate data collection and enhance data quality. UNEP's logo has been added, and UNEP will also be included as a signatory to the letter from senior management that accompanies the TrACSS.

Technical advisory service for country-level multisectoral M&E of NAP implementation

FAO and OIE have recruited M&E experts to support the core M&E functions of the Tripartite. A country-level M&E needs assessment has been initiated in 11 grant recipient countries that will lead to tailored M&E technical assistance for five grantees. The delivery of country-level M&E technical assistance and tools development will take place from June 2022, but guidance to help countries to develop an M&E framework for their AMR-NAP is still being drafted.

Biennial global reporting on AMR under the GAP M&E framework

This report will:

- summarize the actions by Member States; FAO, OIE, UNEP and WHO; the Tripartite and UNEP Joint Secretariat (and progress in MPTF countries) as well as progress in global governance structures and their activities;
- highlight emerging issues, including AMR and environment; and
- provide a brief summary of prioritized policy directions and areas for action in the various sectors and in the interface between sectors.

Main challenges, impacts and solutions

Lack of regular communication processes among sectors in countries, and incentives for more effective coordination between sectors, hinder cross-sectoral working on NAPs, including M&E.

The growing complexity and length of the TrACSS questionnaire might have a negative impact on the response rates and/or the quality of country responses.

The appointment of full-time consultants will ensure a higher-quality set of deliverables and more opportunities for retaining and disseminating institutional learning.

Learning innovation

A meeting with the regional and subregional focal points of all the organizations to receive feedback on TrACSS dissemination and its completion and submission process was invaluable. The feedback will help strengthen inter- and intrasectoral coordination.

Log frame outputs where progress has been made

MPTF OUTPUT	INDICATORS	PROGRESS DESCRIPTION (ACTIVITIES STARTED/COMPLETED)	INDICATOR % MET
Improved capacities for designing and implementing AMR-related policy frameworks, investment plans and programmes	Number of countries that have developed or updated operational plans for implementing AMR-NAPs with associated budget considerations.	The guidance to help countries develop M&E frameworks for their AMR-NAPs was refined.	1–25%
	Number of LMICs where national staff have been trained in M&E framework development, prioritization of activities, collecting indicator data for monitoring and reporting of AMR-NAP implementation.	This activity has begun, and expressions of interest have been invited to conduct a needs assessment to inform the kind of support targeted countries would require.	1–25%
	Annual AMR-NAP implementation progress reports produced in LMICs based on country-level analysis of M&E data.	A country-level M&E needs assessment has been initiated in 11 grant recipient countries.	1–25%

MPTF OUTPUT	INDICATORS	PROGRESS DESCRIPTION (ACTIVITIES STARTED/COMPLETED)	INDICATOR % MET
Evidence-based, cost-effective priority actions developed for different contexts	Number and list of studies undertaken to support prioritization of actions on addressing AMR.	FAO and OIE have both recruited M&E experts to carry out this work. WHO has produced and disseminated practical tools to support prioritization and costing of activities.	1–25%
	Annual publication by the Tripartite of the joint review and analysis of countries' TrACSS submissions by sector to show trends, benchmark country progress, provide evidence of critical gaps and identify target priority actions.	2021 survey data was analysed and published, and the Tripartite is following up with countries to reconcile data inconsistencies and improve the questionnaire. Further, regional representatives of the Tripartite were consulted to provide suggestions to improve use of TrACSS data and the data collection process.	100%
	Tripartite data collation, analysis and reporting of progress against GAP-recommended multisectoral indicators, including relevant SDG indicators.	The project outline (2020–2021) has been developed and approved. A call for a writer has been issued to help collate the materials. A design and layout firm has been recruited to support the activity.	50–75%

Profiles of new country programmes

PERU

Key statistics

- Population: 32.97 million (2020) [\(10\)](#)
- Main livestock and fishing sectors: National Agricultural Health Service (SENASA-MIDAGRI), National Fishery Health Agency (SANIPES-PRODUCE)
- Human Health Agency: National Institute of Health (INS-MINSA)
- Human Development Index: 0.777, rank 79 [\(11\)](#)
- Income level (GDP per capita in current US\$): 6126.9 (2020) [\(12\)](#)

AMR situation

The situational study of AMR and AMU has shown increasing resistance to antimicrobials and expansion of resistant clones among the environmental, animal and human microbiomes [\(13, 14, 15, 16, 17, 18, 19, 20, 21\)](#). Therefore, constant surveillance and monitoring of AMR and AMU are essential in Peru. In human health, antibiotic resistance in microorganisms causing community and hospital infections is also reported to be increasing. The most worrying example is the increase in resistance of Gram-negative bacilli to carbapenems and their dissemination in various hospitals [\(13, 16, 22\)](#). In animal health, no substantial research has been associated with AMR/AMU to date. However, the prohibition of colistin in veterinary use in 2019 is considered a significant advance by MIDAGRI in preventing the development and spread of colistin resistance.

During the COVID-19 pandemic in Peru, infections associated with health care doubled. A high percentage of these microorganisms are resistant to antimicrobials, which has led to an increase in resistance levels and the appearance of Gram-negative bacteria co-producers of carbapenemases and the introduction of *Candida auris* in Peru [\(23, 24\)](#).

Additionally, as a result of concomitant projects sponsored by the Korean International Cooperation Agency and the European Union in Peru, the country is currently participating in GLASS, reporting on AMR and AMC in human health at the national level, and engages in collaborative international activities investigating AMR patterns among bacteria. Additionally, SENASA provides information on AMU in animals to OIE on a yearly basis.

National response to AMR

In 2019 Peru developed its AMR-NAP (2019–2021) and created a permanent multisectoral commission to combat AMR in Peru (CMS). To date, the country has worked hard to implement the AMR-NAP, evidencing good coordination between actors despite the very limited resources of the CMS. One limitation in implementing and executing the AMR-NAP is that the responsible entities still have no financing from the public treasury/state. One key activity under Peru's MPTF project is to update the AMR-NAP, incorporating a stronger One Health approach.

Project: Fighting AMR in Peru under the One Health approach (ID: 00130055) [\(25\)](#)

- Duration: 24 months (11 January 2022 to 11 January 2024)
- Peru's activities under the MPTF project focus on updating the AMR-NAP (which originally ended in 2021), developing integrated surveillance systems for AMR and AMU, improving AMU in human and animal health and agriculture, and strengthening awareness and advocacy efforts across different stakeholder groups.

OBJECTIVE	KEY ACTIVITIES
Improved capacities for designing and implementing AMR-related policy frameworks, investment plans and programmes	Support updating of the AMR multisectoral plan, strengthening the One Health approach.
	Analyse the regulatory framework on AMR in line with international standards and develop a work plan to update it.
Systems for generating, analysing and interpreting data on AMR, AMU/AMC patterns developed or strengthened	Analysis of installed capacity (human resources, infrastructure, equipment, services and others) for the integrated surveillance of AMR, using available tools (e.g. ATCLASS), with an emphasis on animal health, food for human consumption and the environment.
	Development and implementation of protocols and procedures for the integrated surveillance of AMR (human health, terrestrial and aquatic animal health, in prioritized chains), as a technical basis for the development of a normative base.
	Development and implementation of protocols and procedures for the integrated surveillance of AMU (human health, terrestrial and aquatic animal health, in prioritized food chains), as a technical basis for the development of normative base.
	Strengthening capacity for the microbiological diagnosis of sentinel bacteria (<i>E. coli</i> , <i>Salmonella</i> spp., <i>Campylobacter</i> spp. and <i>Vibrio</i> spp.
	or others) under the One Health approach, with emphasis on prioritized food chains for strengthening integrated surveillance of AMR.
	Diagnosis of existing computer platforms and development of a proposal for an interoperable pilot platform for the integrated surveillance of AMR and AMU.
Systems for optimized use of antimicrobials strengthened in critical human/animal sectors	Strengthening of capacity in the analysis and interpretation of information generated from the integrated surveillance of AMR under the One Health approach.
	Preparation and implementation of two guides on the responsible and prudent use of antimicrobials in animal health and agriculture.
Improved capacity to design awareness-raising, behaviour change and educational activities	Awareness and advocacy on AMR/AMU under the One Health approach for specific prioritized groups at the national, regional and local level.
	Awareness and advocacy in higher education institutions, professional associations and scientific societies.

Budget

US\$ 999 709 – US\$ 451 592 (FAO) / US\$ 285 306 (OIE) / US\$ 262 811 (WHO)

Expected outcomes

The AMR MPTF project will strengthen multisectoral governance, integrated surveillance and awareness of AMR/AMU in critical sectors of Peru under the One Health approach. These results need to be promoted in the short term, since the AMR-NAP does not yet have specific funding from national resources. It is expected that, with the project's contribution, AMR will be prioritized on the national political agenda and resources from the public treasury consequently will be allocated. The participation of the Tripartite in the MPTF project will increase the visibility of the AMR issue in all sectors, including those in which it is less recognized (food safety, plant health, environment), up to the highest political levels, positively influencing the inclusion of AMR in national policies and promoting a collaborative, intersectoral approach. The project activities will have an impact on improving AMC and AMU practices, since it will promote behaviour change among critical stakeholders and the population.

Main challenges

- Extension of the COVID-19 pandemic could make it difficult to implement the project.
- The current political situation in Peru could be a threat to the timely implementation of the programmed activities.

Outlook for 2022

To overcome the main challenges, we propose to position AMR containment on the national political agenda, generating evidence of impacts on human and animal health, food systems, safety, the environment and the country's economy, to trigger decision-making at a high level.

Key activities to be initiated in 2022:

- support the update of the AMR Multisectoral Plan, strengthening the One Health approach;
- analyse the regulatory framework on AMR in line with international standards and develop a work plan to update it;
- develop and implement protocols and procedures for integrated surveillance of AMU (human health, terrestrial and aquatic animal health, in prioritized food chains), as a technical basis for developing a normative base;
- prepare a plan and early implementation of the Programme for Optimizing the Use of Antimicrobials in human health;
- prepare and implement two guides on the responsible and prudent use of antimicrobials in animal health and agriculture; and
- promote awareness and advocacy on AMR/AMU under the One Health approach for specific prioritized groups at the national, regional and local level.

SENEGAL

Key statistics

- Population: 16.7 million (2020) [\(26\)](#)
- Main livestock and fishing sectors: poultry; small ruminants; bovine, aquaculture, fish
- Human Development Index: 0.512, rank 168 [\(27\)](#)
- Income level (GDP per capita in current US\$): 1471.8 (2020) [\(28\)](#)

AMR situation

Despite a lack of formal data, levels of AMR are thought to be high and rising given the high level of infectious disease. In 2013, a national survey on the prevalence and resistance profile of bacteria was organized in 29 public and private laboratories. The antibiogram was carried out in 11 regions of Senegal. In the human health sector, 45 out of 165 laboratories (public and private) are involved in detecting and monitoring AMR. As a result of this investigation, a list of priority bacteria to be monitored has been established, training sessions to strengthen laboratory capacity have been organized, and a monthly data reporting system of bacterial resistance to antibiotics has been implemented.

In 2019, the Senegalese Directorate of Veterinary Services of the Ministry of Livestock and Animal Production estimated the total amount of antimicrobials (such as antibiotics) imported at 14 461 kg in the animal health sector. Tetracyclines were the main therapeutic class imported (7046 kg). These were followed by sulfonamides (4420 kg), macrolides (916 kg) and fluoroquinolones (665 kg).

The total value of authorized imports of veterinary drugs and vaccines, animal feeds, materials for veterinary use and storage materials for animal nutrition products during 2015 was XOF 7,550,178,369. This represents an increase of approximately 2.7% over 2014, amounting to XOF 2,098,265,526.

National response to AMR

In 2016 Senegal carried out its joint external evaluation, which revealed low scores on AMR detection, surveillance and stewardship, and IPC. As a result, several priority activities of AMR were outlined: (i) development of an AMR national multisectoral action plan, (ii) strengthening multisectoral surveillance on AMR and (iii) capacity strengthening of stakeholders engaged in AMR. With the technical and financial support of the Tripartite (led by WHO) and technical support from experts from different ministries and sectors, the Ministry of Health of Social Action developed the first multisectoral AMR-NAP for 2017–2021. In 2017 the office of the prime minister issued a decree to institutionalize One Health in Senegal and designated the High Council of Global Health Security One Health as the highest institution in charge of managing multisectoral and One Health issues. A national One Health platform was established which includes different TWGs, one of which is focused specifically on AMR.

Project: Senegal One Health Antimicrobial Resistance Multi-Partner Trust Fund (MPTF) project (ID: 00130122) [\(29\)](#)

- Duration: 24 months (17 January 2022 to 17 January 2024)

Senegal's activities under the MPTF project focus on developing an integrated national AMR/AMU surveillance system across sectors, strengthening IPC and biosecurity measures, assessing the quality of antimicrobials as well as ensuring the rational use of antimicrobials. The following objectives and key activities will be undertaken by the Senegal Tripartite over the next 2 years:

OBJECTIVE	KEY ACTIVITIES
Systems for generating, analysing and interpreting data on AMR, AMU/AMC patterns developed or strengthened	Build an M&E and lesson learning system for AMR and AMU data collection, sharing and reporting at the national level for the MPTF project.
	Assess capacity of 10 laboratories for AMR detection in the human, animal and environment sectors using the One Health approach.
	Develop a strategic, integrated national AMR/AMU surveillance system for the human, food and agriculture, and environment sectors to support cohesive One Health collection and reporting of AMR/AMU data.
	Support laboratory training on AST and data analysis and reporting.

OBJECTIVE	KEY ACTIVITIES
Systems for biosecurity and IPC strengthened	Support revision of national health plans in animals, the environment and humans to reinforce IPC aspects and to improve biosecurity, hygiene and sanitation and vaccination coverage of key infectious diseases.
	Support the development and dissemination of good practice measures on biosecurity and biosafety in the human, animal (terrestrial and aquatic), agriculture and environment sectors.
	Develop, validate and disseminate guidelines and tools to evaluate professional IPC practices at the national level.
Systems for optimized use of antimicrobials strengthened in critical human/animal sectors	Provide support to the National Medicines Commission and the National Pharmacovigilance One Health Commission for regulation and registration of antimicrobial drugs and conduct training of government officials to act as auditors on points of distribution of antimicrobials.
	Support 15 joint missions of the National Committee to control, collect and test the quality of medicines in markets, including mislabelled and relabelled medicines using a One Health approach.
	Train trainers on AMR/AMU awareness and communication activities using a One Health approach.
	Provide support to organize stakeholder awareness and advocacy campaigns on the rational use of antimicrobials.

Budget

US\$ 1 million – US\$ 417 269 (FAO) / US\$ 280 208 (OIE) / US\$ 302 523 (WHO)

Expected outcomes

The proposed activities will make a significant contribution to meeting the goals outlined in the AMR-NAP as well as complement activities of other AMR-related projects carried out by the Fleming Fund in the United Kingdom and the Global Health Security Agenda/United States Agency for International Development. One of the key principles of the MPTF project is to showcase for stakeholders in Senegal the benefits of intersectoral coordination in addressing AMR/AMU, with the government leading by example (TWGs and high-level intersectoral coordination bodies) supported by the private sector, civil society and the public. Thus, at the end of the project, it is envisaged that these key stakeholders will appreciate the value of working together and complementing each other's initiatives in addressing AMR/AMU issues.

Main challenges

COVID-19 could have a negative impact on the implementation of field operational activities. Some sectors, such as front-line health, could prioritize COVID-19 response activities to the detriment of AMR MPTF programme activities. Adaptation strategies such as workshops and virtual meetings will need to be developed. Mobilization of stakeholders working in many other programmes is challenging but key events will be planned and advertised in advance with the coordination of the One Health platform and the AMR TWGs.

Outlook for 2022

The main activities that have been identified for the first year of the project are as follows:

- Build an M&E and lesson learning system for AMR and AMU data collection, sharing and reporting at the national level.
- Assess the capacity of 10 laboratories for AMR detection in the human, animal and environment sectors.
- Develop an integrated surveillance strategy for AMU/AMR data collection and reporting.

- Support training in AST in labs and for data analysis and reporting.
- Revise national IPC and biosecurity plans for animals, humans and the environment, and develop and disseminate good practice measures on biosecurity and biosafety in humans, animals (terrestrial and aquatic), agriculture and the environment
- Define support to the National Medicines Commission and the National Pharmacovigilance One Health Commission on regulation and registration of antimicrobial drugs.
- Prepare to support National Committee joint missions to control, collect and test the quality of medicines in markets, including mislabelled and relabelled medicines.
- Identify stakeholders to support awareness and advocacy campaigns on AMU.

Annex 4

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