MULTI-SECTORAL ACTION PLAN ON ANTIMICROBIAL RESISTANCE IN CAMBODIA 2025-2029

December 2025

TABLE OF CONTENT

ABBREVIATIONS

AAR	After Action Review
AMR	Antimicrobial Resistance
AMU	Antimicrobial Use
AMS	Antimicrobial Stewardship
C-CDC	Cambodian Communicable Disease Control
CamLIS	Cambodia Laboratory Information System
DHS	Department of Hospital Services
EQA	External Quality Assurance
FAO	Food and Agriculture Organization
GAHP	Good Animal Husbandry Practices
GAqP	Good Aquaculture Practices
GDAHP	General Directorate of Animal Health and Production
GHP	Good Hygiene Practices
GMP	Good Manufacturing Practices
HACCP	Hazard Analysis Critical Control Point
IMCC	Inter-Ministerial Coordination Committee
IMCC-OH	Inter-Ministerial Coordination Committee for One Health
IPC	Infection Prevention and Control
IQC	Internal Quality Control
KAP	Knowledge, Attitudes, and Practices
MAFF	Ministry of Agriculture, Forestry and Fisheries
M&E	Monitoring and Evaluation
MEF	Ministry of Economy and Finance
MoE	Ministry of Environment
MoH	Ministry of Health
MoI	Ministry of Interior
MoJ	Ministry of Justice
MSAP	Multi-Sectoral Action Plan
MS AMR TWG	Multi-Sectoral Antimicrobial Resistance Technical Working Group
NAP	National Action Plan
NIPH	National Institute of Public Health
OH	One Health
PVS	Performance of Veterinary Services
RCCE	Risk Communication and Community Engagement
RGC	Royal Government of Cambodia
SOPs	Standard Operating Procedures
SPAR	State Party Self-Assessment Annual Reporting
ToR	Terms of Reference
TrACSS	Tripartite AMR Country Self-Assessment Survey
UNEP	United Nations Environment Programme
US-CDC	United States Centers for Disease Control and Prevention
WASH	Water, Sanitation, and Hygiene
WHO	World Health Organization
WOAH	World Organization for Animal Health

As Ministries of the Royal Government of Cambodia, we are steadfast in our commitment to a collaborative, coherent, comprehensive, and integrated approach toward the prevention and containment of antimicrobial resistance (AMR) in Cambodia for the period 2025-2029. We reaffirm our dedication to sustainable action against AMR, recognizing its vital contribution to Cambodia's socioeconomic development and our achievement of the Sustainable Development Goals. We acknowledge the grave public health threat posed by microbial resistance to antimicrobials, primarily driven by their inappropriate use in human health, food, agricultural and environmental sectors.

Reflecting on the previous Multi-Sectoral Action Plan on Antimicrobial Resistance (MSAP-AMR) 2019-2023, we celebrate the significant strides made in enhancing our national AMR response capabilities. A major development during this period was the establishment of the Inter-Ministerial Coordination Committee for One Health (IMCC-OH), which has proven instrumental in fostering a unified response to AMR challenges across different sectors. This cross-sectoral body has enhanced our strategic alignment and operational efficacy in tackling AMR, setting a strong foundation for continued progress.

Building upon these gains, we now endorse the MSAP-AMR for Cambodia 2025 –2029 . This updated plan is strategically aligned with Cambodia's national development priorities and the Global Action Plan on Antimicrobial Resistance. Our goal is to mobilize human and other essential resources to develop and execute the comprehensive strategies and activities outlined in this MSAP-AMR.

In recognition of the significant contributions required from each sector for effective implementation, we will continue to support the robust function of the IMCC-OH. This committee will coordinate and monitor the progress of the MSAP, ensuring a united front against AMR across all relevant sectors.

We hereby call upon all stakeholders, including government agencies, development partners, and the private sector, to support the implementation of the MSAP-AMR for Cambodia 2025-2029. We express our profound gratitude to the collaboration of the World Health Organization (WHO), the Food and Agriculture Organization of the United Nations (FAO), the World Organization for Animal Health (WOAH), United Nations Environment Programme (UNEP) as well as to bilateral agencies, development banks, and both international and national non-governmental organizations for their ongoing technical and financial support in the development of this crucial five-year action plan.

Phnom Penh, ...23/12/2025

Minister of Health	Minister of Agriculture, Forestry and Fisheries	Minister of Environment
Prof. CHHEANG RA	DITH TINA	EANG SOPHALLETH

ACKNOWLEDGEMENTS

This publication, detailing the MSAP-AMR for 2025-2029, represents the culmination of extensive collaborative efforts from numerous professionals and organizations across various sectors. We extend our deepest gratitude to all those involved for their invaluable contributions and expertise.

I. Inter-Ministerial Coordination Committee (IMCC)

1.	H.E. Dr. Youk Sambath	Secretary of State, Ministry of Health
2.	H.E. Sen Sovann	Secretary of State, Ministry of Agriculture Forestry and Fisheries
3.	H.E. Dr. Sabo Ojano	Secretary of State, Ministry of Environment
4.	H.E. Dr. Hok Kimcheng	Director General for Health, Ministry of Health
5.	H.E. Dr. LY Sovann	Director of Communicable Diseases Control Department, Ministry of Health
6.	Dr. Krang Sidonn	Deputy Director of Communicable Diseases Control Department, Ministry of Health
7.	Prof. Dr. Chou Monidarin	Deputy Director General, Ministry of Environment
8.	Mr. Sophal Laska	Director, Department of Hazardous Substances Management, Ministry of Environment

II. Ministry of Health (MoH)

1.	H.E. Dr. LY Sovann	Director of Communicable Diseases Control Department
2.	Dr. Krang Sidonn	Deputy Director of Communicable Diseases Control Department
3.	Asst. Prof. Chau Darapheak	Chief of National Public Health Laboratory, NIPH
4.	Prof. Kim Savuon	Deputy Director of the Department of Hospital Services
5.	Asst. Prof. Yang Daravuth	Deputy Director of the Department of Drug and Food
6.	Dr. Te Vantha	Director of Takeo Referral Hospital
7.	Dr. Thai Savuth	Chief of Prevention and Control Bureau, Department of Communicable Disease Control
8.	Asst. Prof. Bory Sotharith	Director of University Hospital, University of Health Sciences
9.	Prof. Chhor Bunna	Deputy Director of National Pediatric Hospital
10.	Dr. Nay Touch	Officer of Prevention and Control Bureau, Department of Communicable Disease Control
11.	Ph. Lay Sokreaksa	Quality Officer at National Public Health Laboratory
12.	Dr. Koy Sophanny	Officer of Medicine Ward A, Calmette Hospital
13.	Dr. Chea Sereywattana	Officer, Department of Hospital Services

III. Ministry of Agriculture, Forestry and Fishery (MAFF)

1.	H.E. Sar Chetra	Secretary General, Ministry of Agriculture Forestry and Fisheries
2.	H.E. Tan Phannara	Director General, General Directorate of Animal Health and Production
3.	H.E. Sorn San	Advisor, Ministry of Agriculture Forestry and Fisheries

4.	Mr. Moek Kimroy	Deputy Secretary General, Ministry of Agriculture Forestry and Fisheries
5.	Dr. Chheang Dany	Deputy Director General, Forestry Administration
6.	Dr. Mak Soeun	Deputy Director General, General Directorate of Agriculture
7.	Dr. Tum Sothyra	Director of National of Animal Health and Production Research Institute, General Directorate of Animal Health and Production
8.	Mr. Thay Somony	Director of Department of Aquaculture Development
9.	Dr. Chay Chhim	Director of Department of Agro-Industry
10.	Dr. Ker Monthivuth	Director of Department of Plant Protection, Sanitary, and Phytosanitary
11.	Mr. Neang Savuthdy	Deputy Director of Department of Aquaculture Development
12.	Mr. Rath Vicheth	Deputy Director, Department of Agriculture Legislation
13.	Mrs. Sa Sophirak	Deputy Director of Department of International Cooperation
14.	Mr. Chap Piseth	Deputy Director, Department of Processing Technology and Quality, Fisheries Administration
15.	Mr. Cheav Sopheaktra	Deputy Director, Department of Wildlife and Biodiversity, Forestry Administration
16.	Dr. Chuon Mony Rath	Head of Laboratory (Cambodia Laboratory of Agricultural Products and Foods) Department of Agro-Industry.
17.	Mr. Khan Chan Dara	Chief of Aquatic animal health and Disease Management Office, Fisheries Administration
18.	Dr. Meak Pramol	Chief of Animal Feed Control, General Directorate of Animal Health and Production
19.	Mr. Pang Phanit	Chief of Office, Forestry Administration
20.	Mr. Van Chivoan	Chief of Office, Forestry Administration
21.	Dr. Nouv Sophorn	Vice chief of Veterinary Inspection office, Department of Animal Health and Veterinary Public Health
22.	Dr. Ven Vutey	National of Animal Health and Production Research Institute, General Directorate of Animal Health and Production
23.	Dr. Chea Bunna	Lecturer at Royal University of Agriculture
24.	Mr. Chea Sokun	Vice-Chief of Office, Department of Administration
25.	Mr. Chea Sovannara	Vice-chief of Office, General Directorate of Animal Health and Production
26.	Dr. Chea Rortana	Vice-Chief of Bacteriology and Mycology Laboratory, National of Animal Health and Production Research Institute
27.	Mr. Sak Pheap	Officer, Department of Administration

IV. Ministry of Environment (MoE)

1.	H.E. Dr. Sabo Ojano	Secretary of State, Ministry of Environment
2.	Prof. Dr. Chou Monidarin	Deputy Director General
3.	Mr. Sophal Laska	Director, Department of Hazardous Substances Management
4.	Dr. Dek Vimean Pheakdey	Deputy Director, Department of Hazardous Substances Management

5.	Mr. Tem Sokchann	Chief of Bureau, Department of Hazardous Substances Management
6.	Ms. Huot Syradet	Chief of Burea, Department of Water Quality Management
7.	Mr. Sourn Punlork	Vice Chief of Bureau, Department of Hazardous Substances Management
8.	Ms. Noun Rydo	Vice Chief of Bureau, Laboratory
9.	Ms. Yin Voleak	Vice Chief of Bureau, Laboratory
10.	Dr. Sum Samuth	Technical Official, Department of Hazardous Substances Management

V. Development Partners

1.	Dr. Patel Sarika	Technical officer, WHO
2.	Mr. Ieng Vanra	Technical officer, WHO
3.	Ms. Lisa Smyth	Technical officer, WHO
4.	Mr. Nov Vandarith	AMR Project Coordinator, WHO
5.	Dr. Hak Makara	Technical advisor, FAO
6.	Dr. Alyssa Finlay	Program Director, US-CDC
7.	Dr. Bun Sreng	Public Health Specialist, US-CDC
8.	Dr. Emmanuel Eraly	Consultant, GIZ
9.	Dr. Bettina Ruehe	Health Advisor, GIZ
10.	Dr. Ung Prahors	Health Advisor, GIZ
11.	Mr. Chhuong Sythol	Admin Officer, GIZ
12.	Prof. Paul Turner	Director, Cambodia Oxford Medical Research Unit
13.	Dr. Miliya Thyl	Clinical Microbiology, Angkor Hospital for Children

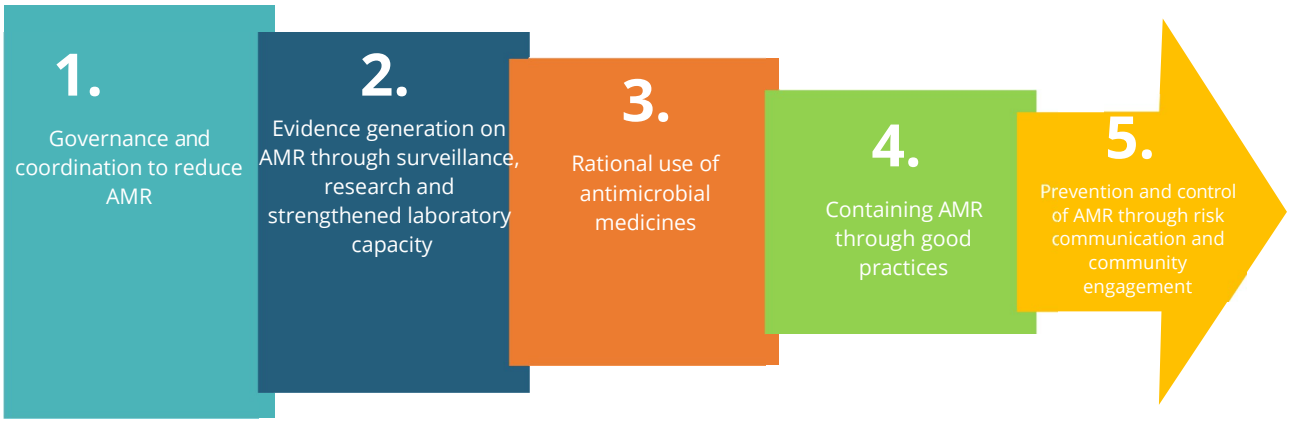
We are immensely grateful to AMR TWG at MOH, MAFF and MOE for their strongly support and our partners including WHO, FAO, WOAJ, UNEP, GIZ, KfW and the World Bank for their technical and financial support in organizing stakeholder consultations.

EXECUTIVE SUMMARY

The MSAP-AMR for Cambodia 2025-2029 articulates a comprehensive strategy to address the growing AMR threat through a OH approach that encompasses human, animal, food, plant, and environmental health sectors. This plan builds on previous strategies (MSAP-AMR 2019-2023), aiming to integrate efforts across sectors to create a unified response to AMR.

AMR remains a significant global health and development challenge, with misuse and overuse of antimicrobials across various sectors accelerating the resistance that makes common infections increasingly hard to treat. Globally, AMR was directly responsible for approximately 1.27 million deaths annually. The economic implications are profound, with potential healthcare costs and GDP losses projected to reach trillions by 2050. The global strategy, supported by organizations like WHO and FAO, emphasizes a coordinated, multisectoral approach under the One Health umbrella to manage and mitigate AMR risks effectively.

Cambodia has significantly improved its health and development indicators over recent years, yet AMR poses a severe threat capable of reversing these gains. The MSAP-AMR 2025-2029 is structured around five strategic areas:



Each area contains multiple targeted interventions designed to address specific aspects of AMR, totaling over 170 detailed action points across the plan for the next five years.

This MSAP-AMR is the first of its kind in Cambodia to include a costed budget plan, totaling approximately
17,246,000 USD. It is a pivotal tool for resource mobilization, aiming to secure funding from external donors and the state budget of the Royal Government of Cambodia (RGC). This budgetary planning is critical for implementing the outlined strategies effectively.

The document is primarily intended for decision-makers across various ministries, including MoH, MAFF, MoE, and Ministry of Economy and Finance (MEF), who are instrumental in the national response to AMR. Additionally, it serves as a crucial reference for development partners and donors, providing a clear framework for collaboration and financial support.

The MSAP-AMR for Cambodia 2025-2029 presents a strategic and integrated approach to managing AMR, with clearly defined objectives, interventions, and a detailed budget plan. This comprehensive strategy addresses the immediate challenges posed by AMR and aligns with global health priorities to safeguard Cambodia's health advancements. The plan's successful implementation will depend on the committed engagement of all stakeholders, emphasizing the importance of a united and well-resourced response to the AMR crisis.

CHAPTER 1

BACKGROUND

GLOBAL CHALLENGE

AMR stands as a formidable global public health and development threat. In 2019, bacterial AMR was directly responsible for approximately 1.27 million deaths and played a role in nearly 4.95 million. The misuse and overuse of antimicrobials in humans, animals, and plants are central to the development of drug-resistant pathogens, leading to a situation where even standard medical procedures and treatments become increasingly risky.

AMR is not confined by geographical or economic boundaries, affecting all regions and income levels. Its impact is particularly severe in low- and middle-income countries, where poverty and inequality intensify both the causes and effects of AMR. This global challenge threatens the significant advances made in modern medicine, complicating the treatment of infections and heightening risks associated with surgeries and cancer therapies.

Economically, AMR poses a stark threat, with projections suggesting up to USD 1 trillion in additional healthcare costs by 2050 and annual GDP losses between USD 1 trillion and USD 3.4 trillion by 2030. To address this, priorities include preventing infections that lead to the inappropriate use of antimicrobials, ensuring universal access to quality diagnostics and treatments, and fostering strategic information and innovation, like surveillance of AMR and antimicrobial consumption, and developing new vaccines, diagnostics, and medicines.

The rise in antibiotic resistance globally is diminishing the efficacy of commonly used antibiotics against widespread bacterial infections. The 2022 Global AMR and Use Surveillance System (GLASS) report points to alarming resistance rates among prevalent bacterial pathogens. For instance, resistance rates to third-generation cephalosporin in *Escherichia coli (E. coli)* and to methicillin in *Staphylococcus aureus* are particularly worrying. In 2020, urinary tract infections caused by *E. coli* showed a concerning reduction in susceptibility to standard antibiotics like ampicillin and fluoroquinolones.

Furthermore, *Klebsiella pneumoniae*, typically found in the intestinal tract, is showing elevated resistance levels against critical antibiotics, leading to an increased reliance on last-resort drugs like carbapenems. However, resistance to these drugs is also on the rise. The Organization for Economic Cooperation and Development (OECD) projects a doubling in resistance to these last-resort antibiotics by 2035 compared to 2005, underscoring the urgent need for robust antimicrobial stewardship practices and enhanced surveillance.

GLOBAL RESPONSE

The fight against AMR necessitates a unified and coordinated global response, recognizing the complexity of the issue that spans across various sectors, such as human health, food production, animal health, and environmental care. This approach, termed as the OH approach, is pivotal in addressing AMR effectively. It fosters an integrated approach, aiming for sustainable health outcomes for people, animals, and ecosystems, understanding the interdependence of the health of humans, domestic and wild animals, plants, and the environment.

To formalize this approach, the Global Action Plan on AMR was adopted during the 2015 World Health Assembly. This plan, later endorsed by key international organizations like FAO, WOAH and UNEP emphasize the development and implementation of multisectoral national action plans with a One Health perspective. This collaborative effort aims to tackle AMR while attaining improved health and economic outcomes.

A critical element in this coordinated effort is the Quadripartite Joint Secretariat on AMR, comprising WHO, FAO, WOAH and UNEP. This secretariat is instrumental in driving multi-stakeholder engagement in AMR and has supported the establishment of the Global Leaders Group on AMR and the Multi-Stakeholder Partnership Platform. These initiatives, along with several technical working groups, began their work in recent years, marking significant progress in the global fight against AMR.

Furthermore, the United Nations General Assembly Resolution A/RES/76/257, passed in March 2022, set the stage for a second High-level Meeting on AMR to be held in 2024. This meeting presents a significant opportunity for countries to make ambitious commitments and set targets to combat AMR.

The global response to AMR hinges on a concerted, multi-sectoral effort, aligning actions and strategies across human, animal, agricultural, and environmental domains. This collaborative approach addresses the current challenges of AMR and paves the way for sustainable health solutions and policies, reinforcing the crucial role of international cooperation and coordination in public health.

REGIONAL CHALLENGES

The Western Pacific Region faces a significant challenge with AMR, which is expected to cause an estimated
5.2 million deaths by 2030. This sobering statistic comes from the first WHO regional assessment on the health and economic impact of AMR in this area, released in June 2023. The assessment reveals that AMR will have a devastating effect on health and impose a heavy economic burden, costing the region around
148 billion USD between 2020 and 2030. This figure represents nearly 10% of the region's total health expenditure in 2019 due to lost productivity and additional healthcare expenses due to prolonged hospitalizations. By the end of 2030, patients with antimicrobial-resistant infections are projected to spend an additional 172 million days in hospital.

The report, "Health and Economic Impacts of AMR in the Western Pacific Region 2020–2030[1]," produced by WHO in the Western Pacific Region, highlights the critical nature of this "silent pandemic." In 2020, deaths caused by AMR in the region surpassed those from tuberculosis or HIV/AIDS, with numbers comparable to deaths from diabetes, liver cirrhosis, and breast cancer. The report highlights seven key bacterial pathogens, such as methicillin-resistant *Staphylococcus aureus* (MRSA) and *E. coli*, which are projected to be responsible for more than 80% of related fatalities in the coming decade.

REGIONAL RESPONSE

Addressing AMR is a key priority in the region, as reflected in the vision of "For the Future: Toward the Healthiest and Safest Region ", which aims to make the Western Pacific the world's healthiest and safest region. The Regional Framework for Accelerating Action to Fight AMR outlines WHO's strategy in collaboration with Member States to mitigate AMR's impact[2]. However, progress has been hindered by inadequate data. This report marks a significant step in providing local intelligence for effective interventions against AMR and advocating for improved data collection to understand future threats more accurately.

Countries in the region, such as Cambodia, are urged to accelerate the implementation, monitoring, and revision of national AMR action plans. This necessitates sufficient allocation of financial and human resources, enhancement of national AMR surveillance systems, promotion of antimicrobial stewardship to minimize overuse and misuse, and improvement in IPC measures. Investments in controlling and combating AMR now will save future healthcare costs and protect workforces and economies, emphasizing the need for policy and financial commitment proportional to AMR's impact.

[1] WHO WPRO, Health and Economic Impacts of Antimicrobial Resistance in the Western Pacific Region 2020–2030.

[2] WHO WPRO, Framework for Accelerating Action to Fight Antimicrobial Resistance.

CAMBODIA'S GENERAL HEALTH AND DEVELOPMENT STATUS AND IMPORTANCE OF AMR

Cambodia has witnessed remarkable progress in its general health and development status over the past five years, driven by steady economic growth that has translated into poverty reduction and improved living standards for many Cambodians. Consequently, more Cambodians now have access to essential healthcare services, and there have been notable declines in child mortality and infectious diseases[3].

POSITIVE HEALTH OUTCOMES

Life expectancy in Cambodia has increased by two years in the past five years, rising from 64.5 years in 2018 to 66.5 years in 2023[4]. This improvement is attributed to various factors, including enhanced access to healthcare, better nutrition, and increased economic development[5].

ENHANCED ACCESS TO HEALTHCARE

The percentage of Cambodians with access to healthcare has increased from 75% in 2018 to 85% in 2023[6]. This increase is attributed to various factors, including the construction of new hospitals and clinics, the expansion of health insurance coverage, and the training of more healthcare workers[7].

The 2021-2022 Cambodia Demographic and Health Survey (CDHS) reveals significant improvements in maternal and child health across the country. The maternal mortality rate has decreased to 154 deaths per 100,000 live births, continuing a positive trend of declining maternal deaths in recent years. Infant and child mortality rates have also seen substantial reductions, with the infant mortality rate dropping from 28 deaths per 1,000 live births in 2014 to 12 deaths per 1,000 live births in 2021-2022[8]. Similarly, the under-5 mortality rate has decreased from 35 to 16 deaths per 1,000 live births over the same period[9]. In terms of maternal health, teenage pregnancy is reported among 9% of women aged 15-19, with a higher prevalence in rural areas. Additionally, the percentage of women aged 15-49 who have experienced pregnancy loss has decreased from 12% in 2014 to 9% in 2021-2022. The survey also highlights that there are four abortions per 1,000 women[10].

Access to antenatal care (ANC) has greatly improved, with 99% of women receiving care from a skilled provider at least once during their most recent pregnancy. The percentage of women attending four or more ANC visits has also increased to 86%, demonstrating better utilization of maternal health services. Overall, these indicators reflect Cambodia's successful efforts in

[3] UNICEF, Cambodia Statistics.

[4] WHO, Cambodia Health Profile.

[5] World Bank, Cambodia Economic Growth.

[6] World Bank, Cambodia Healthcare Access.

[7] UNICEF, Cambodia Healthcare Expansion.

[8] UNICEF, Cambodia Infant Mortality Rate.

[9] UNICEF, Cambodia Under-5 Mortality Rate.

[10] WHO, Cambodia Maternal Mortality Rate.

enhancing healthcare accessibility and quality, contributing to better health outcomes for mothers and children across the country.

NUTRITION AND ACCESS TO CLEAN WATER

The 2021-2022 Cambodia Demographic and Health Survey (CDHS) also provides crucial insights into the nutritional status of children under five and the state of household water and sanitation in Cambodia. Nutrition Status: The survey highlights that 22% of children under the age of five are stunted, showing a marked improvement from 32% in 2014. However, malnutrition remains a concern with 16% of children being underweight, 10% experiencing wasting, and 4% being overweight. Notably, stunting is more prevalent in rural areas, with a rate of 24.7%, compared to 16.8% in urban areas. This disparity underscores the ongoing challenges in rural health and nutrition, despite overall improvements in children's nutritional status across the country. Household Water and Sanitation: The survey also reveals progress in access to basic drinking water services, with 89% of the population having access during the dry season and 92% during the rainy season. However, a small percentage of the population, about 2% during the dry season and 1% during the rainy season, still faces limited access to drinking water. Availability of sufficient drinking water is high in both rural and urban areas, with 89% of households reporting adequate water when needed. Additionally, 68% of the population lives in households that use appropriate water treatment methods, with urban areas slightly outperforming rural areas in this regard. This data reflects ongoing efforts to improve water and sanitation services, which are vital for public health and wellbeing in Cambodia. These findings underscore the significant strides Cambodia has made in improving nutrition and access to water and sanitation, while also highlighting areas where further efforts are needed, particularly in rural communities.

ECONOMIC GROWTH

Cambodia's economy has grown by an average of 7% per year in the past five years[11]. This economic growth has led to increased poverty reduction and improved living standards for many Cambodians[12]. In 2022, Cambodia's economy grew by 5.2%, rebounding from the impacts of the COVID-19 pandemic. This recovery was primarily driven by the resumption of economic activities, particularly in the manufacturing, construction, and services sectors. The agricultural sector also contributed positively, although to a lesser extent.

Overall, Cambodia's general health and development status has shown significant improvements over the past five years. While the country still faces challenges, it is on the path to becoming a healthier and more prosperous nation.

While Cambodia's progress in improving health outcomes is commendable, it is crucial to acknowledge the growing threat of AMR in the country. The misuse and overuse of antibiotics, particularly in human and animal medicine, is a major driver of AMR[13].

Cambodia's improving health status has led to increased demand for antibiotics, contributing to the rise in AMR. Additionally, factors such as poor infection prevention and control practices and the use of antibiotics in animal agriculture further exacerbate the issue[13].

[11] World Bank, Cambodia GDP Growth.

[12] World Bank, Cambodia Poverty Reduction.

[13] Center for Disease Dynamics, Economics & Policy, Antimicrobial Resistance in Cambodia.

The consequences of AMR are far-reaching and can have a significant impact on Cambodia's development. AMR can lead to longer illnesses, higher healthcare costs, and increased mortality. It can also hinder economic development by reducing productivity and increasing the cost of doing business[14].

CAMBODIA'S CURRENT AMR STATUS

The Cambodia Technical Working Group on Antimicrobial Resistance undertook a comprehensive review in 2019[15] to understand the current state of AMR in Cambodia.

The group's systematic review focused on published AMR data, especially antimicrobial susceptibility testing (AST) for organisms identified by the Global Antimicrobial Resistance and Use Surveillance System (GLASS). This review encompassed an analysis of 24 papers published between 2000 and 2018, predominantly featuring human isolates. The findings revealed alarming resistance rates across various key pathogens.

High resistance levels were noted in *E. coli* against antibiotics like ampicillin, 3rd generation cephalosporins, fluoroquinolones, and gentamicin. In the case of *K.-pneumoniae* and *S.-aureus*, significant resistance was observed to fluoroquinolones, co-trimoxazole, and gentamicin. Additionally, *Acinetobacter baumannii* showed resistance to carbapenems, gentamicin, and amikacin, whereas *Salmonella* spp. displayed notable fluoroquinolone resistance, particularly in *Salmonella* Typhi strains.

The review also shed light on *Shigella* spp. and *Neisseria gonorrhoeae*, *Shigella* spp. exhibited no resistance to ciprofloxacin or azithromycin, in contrast to *N. gonorrhoeae*, which showed high resistance to ciprofloxacin and penicillin but not to 3rd generation cephalosporins. However, the interpretations of these findings are constrained by the limited number of isolates and the absence of detailed classification metadata, highlighting the need for more robust data to form conclusive insights.

In conclusion, the review by the Cambodia AMR TWG has identified a substantial increase in AMR-related research outputs from Cambodia, especially post-2010. Despite this progress, significant gaps in data persist. The initiation of national GLASS-compatible AMR surveillance systems marks a pivotal step towards bridging these gaps. These systems are poised to enhance our understanding of AMR patterns in Cambodia, contributing significantly to the formulation of effective strategies to mitigate the impact of this growing global health challenges.

In November 2017, the MoH endorsed and launched the National Laboratory-Based Antimicrobial Resistance (AMR) Sentinel Surveillance system. This system was established across eight sites including three in Phnom Penh and five in other provinces. All laboratories involved perform AST and participate in external quality assurance (EQA) schemes. The National Institute of Public Health acts as the national reference laboratory, receiving EQA from the Pacific Pathology Training Center in New Zealand and The Royal College of Pathologists of Australasia Quality Assurance Programs in Australia. This surveillance network is integral to GLASS and focuses on six high-priority

[14] World Economic Forum, The Global Risks Report 2023

[15] Antimicrobial resistance in Cambodia: a review DOI:https://doi.org/10.2026/j.ijid.2019.05.036

pathogens from blood specimens[16].

In 2024, a surveillance bulletin was published by the MoH to highlight the initial findings of the surveillance system. From 2019 through 2022, data was collected from 697,429 in-patients admitted to the eight surveillance sites over four years. A notable fraction of these patients, averaging 15.6%, underwent blood sample collection for AMR testing. The findings indicate a steady positivity rate of approximately 10% for identified pathogens throughout the surveyed timeframe, indicating a persistent yet worrisome degree of AMR within the population.

The variability in the collection of blood samples and pathogen positivity rates among different sites is notable. For instance, Angkor Children's Hospital showed a markedly higher rate of sample collection (73.2%) compared to Kampong Cham (4.8%). Similarly, pathogen positivity rates were significantly higher at the Calmette site (ranging from 14.4% to 18.0%) and Siem Reap (8.9% to 11.0%) compared to other locations. These differences underscore the heterogeneity in healthcare practices and the prevalence of AMR across regions, suggesting a targeted approach might be necessary for more effective AMR management.

The early results of the surveillance also provide detailed insights into the distribution of various pathogens and their resistance patterns. Notably, *E. coli* and *K. pneumoniae* were among the most frequently detected pathogens. The data also pointed out significant resistance to both 'Access' and 'Watch' category antibiotics. The demographic analysis revealed that certain pathogens exhibited preferences for age and gender. For example, *Salmonella* spp. and *Burkholderia pseudomallei* were predominantly found in adults between 15 and 65 years, whereas *K. pneumoniae* and *Acinetobacter* spp. were more prevalent in infants under one year.

The use of antimicrobial drugs (AMU) in animals in Cambodia is not well-regulated. Data on AMU is currently available only from importers, veterinary drug re-packers, and feed mills, but not from secondary distributors or end-users, such as farmers (Sar et al., 2021). Although regulations are being developed to improve oversight, there are still significant knowledge gaps and inappropriate practices among key stakeholders, including pig and poultry farmers, veterinary health professionals, and veterinary drug retailers (Chea et al., 2022, 2023; Heyman, 2020; Om & McLaws, 2016; Ström et al., 2018). Additionally, farm biosecurity practices are often inadequate, contributing to the misuse of antimicrobials (Chea et al., 2020).

A recent pilot study surveyed 80 fish farmers across four provinces in Cambodia to assess their understanding and practices regarding antimicrobial use. The results showed that most farmers have a limited understanding of what antibiotics and antimicrobials are. Many could only recall the names of antibiotics that they routinely use, but they lacked deeper knowledge about these drugs (GDAHP, 2024).

Alarmingly, many fish farmers do not follow the recommended course of treatment when using antibiotics. Instead, they rely on their own experience or incomplete knowledge without seeking advice from aquatic animal health experts. The study found that the majority of farmers self-administer antibiotics and antimicrobials without any prescription or professional guidance (MAFF, 2024).

[16] Escherichia coli, Klebsiella pneumoniae, Acinetobacter spp, Staphylococcus aureus, Streptococcus pneumoniae and Salmonella spp. and another pathogen of importance in Cambodia: Bukholderia pseudomallei.

The National Residues Monitoring Plan for Aquaculture Products in 2020 detected 94.5 µg/kg of doxycycline in one out of 50 snakehead fish samples from aquaculture farms across Cambodia. This level is close to the maximum residue limit (MRL) of 100 µg/kg allowed in the European Union. Additionally, inspections under the Good Aquaculture Practice (GAqP) guidelines revealed that many farms need to improve their practices to meet the required food safety standards. Another challenge identified was the lack of knowledge about fish diseases, which leads to incorrect and non-targeted treatments (GDAHP, 2024).

In Cambodia, animals raised for human consumption are often slaughtered in simple, traditional, and unsanitary conditions. This practice can lead to cross-contamination of animal products with bacteria, including those that cause diarrhea. The spread of antimicrobial resistance (AMR) has been detected among several bacterial species found in carcasses during animal housing, slaughter, and marketing processes. Some of the bacteria identified include Klebsiella pneumoniae, Escherichia coli, Staphylococcus aureus, Streptococcus suis, Campylobacter spp., Salmonella enterica serovar Typhi, Salmonella spp., Salmonella choleraesuis, Shigella spp., Pseudomonas aeruginosa, and Vibrio parahaemolyticus (CIRAD, 2024).

A recent study on AMR in pig samples revealed high-level resistance to cefotaxime (25%), low-level resistance to ceftazidime (10%), and high-level resistance to ciprofloxacin/nalidixic acid (both 42%). These antimicrobials are classified by the World Health Organization (WHO) as “Highest Priority Critically Important Antimicrobials.” Furthermore, very high levels of resistance were detected for ceftiofur (30%), cefotaxime (31%), ceftazidime (26%), enrofloxacin (67%), and ciprofloxacin (81%). The study also found that 74% of samples in the first part and 95% in the second part showed resistance to three or more antimicrobial classes. These findings indicate widespread improper use of antimicrobials in the pig sector, underscoring the need for enhanced antimicrobial stewardship. This data is crucial as Cambodia continues to build its AMR surveillance capacity under the national action plan (GDAHP, 2022).

The early results from the AMR surveillance emphasizes the ongoing challenges in combating AMR in Cambodia, including the need for improved laboratory capacity, standardized treatment protocols, and enhanced surveillance mechanisms. Continuous backing from both governmental and international entities is imperative in tackling these challenges. This emphasizes the significance of a synchronized strategy involving healthcare institutions, policymakers, and the community at large.

CAMBODIA’S CURRENT AMR APPROACH

HISTORIC OVERVIEW (2013-2018)

Cambodia's journey in addressing AMR has been marked by significant policy development and strategic initiatives, laying a foundation for the country's ongoing efforts against this global health challenges. The cornerstone of these efforts was the AMR Country Situation Analysis Report in 2013, which led to the formulation of the National Policy to Combat AMR in 2014 and the National Strategy to Combat AMR for 2015–2017. These key documents were developed through collaborative efforts involving various departments of the MoH, public and private hospitals, laboratories, and professional societies, all playing vital roles in AMR-related functions.

The National Policy and Strategy were structured around a seven-point strategic framework,

tailored to meet Cambodia's specific needs from 2015 to 2017. The strategic areas included developing a comprehensive national plan, strengthening laboratory capacity and AMR surveillance, ensuring access to quality antimicrobial medicines, regulating and promoting rational use of medicines, enhancing infection prevention and control, and fostering innovation and research for new tools.

Parallel to these efforts in the health sector, MAFF, with support from FAO, concentrated on engaging the food and agriculture sector in AMR efforts during 2016–2017. This collaboration resulted in the development of the One Health Roadmap and Action Plan, focusing more on food and agriculture. The Roadmap outlined seven action areas: coordination mechanisms, information sharing, legislation, surveillance, research and laboratory practices, rational use, and advocacy and awareness. The MSAP-AMR, initiated in 2017, incorporated several agencies, including the General Directorate for Animal Health and Production (GDAHP) and the Fisheries Administration (FiA), coordinated by the MAFF AMR TWG formed in October 2017 with FAO and OIE technical support.

MSAP-AMR 2019-2023:

The formulation and adoption of the MSAP-AMR 2019-2023 represented a significant milestone in Cambodia's public health policy. The plan, a first of its kind in terms of the breadth of its collaborative approach, laid the foundation for the forthcoming strategy for 2025-2029.

The 2019-2023 Action Plan was underpinned by a pledge from three Cambodian Ministries to integrate a comprehensive, cohesive, and synergistic approach to AMR prevention and containment. The Ministries committed to fostering sustainable actions against AMR that would fortify socioeconomic progress and contribute to achieving the Sustainable Development Goals (SDGs). Recognizing that AMR emanated chiefly from the misuse and overuse of antimicrobials in healthcare, agriculture, and food industries, the plan acknowledged the advancements since the institution of the 2014 National Policy and the 2015-2017 National Strategy against AMR.

This past plan was congruent with Cambodia’s developmental objectives and the Global Action Plan on AMR. It set out to harness human and other vital resources to develop and execute the plan's strategies and actions. An integral component of its implementation was the establishment of a multi-sectoral committee dedicated to overseeing and monitoring the plan's progression, a testament to the unprecedented level of interdisciplinary cooperation.

The TWG undertook a comprehensive situation analysis that resulted in seven strategic focal points endorsed for concentrated action:

1. **Building human capacity for AMR**
2. **Containing AMR through good practices**
3. **Evidence generation through surveillance and laboratories**
4. **Governance and coordination to reduce AMR**
5. **Increasing public awareness**
6. **Rational use of antimicrobial medicines**
7. **Research and innovation for AMR**

The 2019-2023 MSAP-AMR served as a navigational tool for the Cambodian government and its partners to pinpoint priority areas for collaborative work. It aimed at a wide range of stakeholders, including government officials, influential policymakers, researchers, educators, journalists,

professional organizations, community advocates, and international allies, all working together to address the challenge of AMR.

In tandem with the development and execution of the MSAP- AMR in Cambodia, the country received substantial support from the Antimicrobial Resistance Multi-Partner Trust Fund (AMR-MPTF)[17]. This funding played a pivotal role in the practical implementation of the MSAP-AMR, effectively acting as a de facto implementation vehicle for the plan.

The AMR-MPTF, with its designated funding, underpinned the core activities outlined in the MSAP-AMR. It facilitated the establishment of the necessary governance structures and coordination mechanisms that the MSAP-AMR envisioned. For instance, the creation of a national One Health AMR coordination mechanism under the umbrella of IMCC was a critical step that aligned with the MSAP's emphasis on cross-sectoral governance and collaboration[18].

The synergy between the MSAP-AMR and the AMR-MPTF is evident in the project's focused objectives, such as support for AMS and developing guidelines for antimicrobial use and consumption—all of which are integral components of the MSAP-AMR framework.

Moreover, the AMR-MPTF's efforts in raising awareness and promoting the responsible use of antimicrobials across human, animal, and agricultural health sectors directly complemented the MSAP's strategic areas. The educational workshops, training sessions, and communication materials funded and disseminated by the AMR-MPTF extended the reach and depth of the MSAP's initiatives.

Challenges such as the complex nature of AMR and limited resources were addressed in part through the strategic deployment of the MPTF's resources, ensuring that the execution of the MSAP-AMR did not stall despite potential resource constraints.

[17] Cambodia-Enhancing Governance | MPTF Office: https://mptf.undp.org/project/00124430

[18] Antimicrobial Resistance Multi-Partner Trust Fund annual report 2021, UNDP.

EVALUATING THE IMPLEMENTATION OF THE 2019-2023 MSAP-AMR

2024 IHR JOINT EXTERNAL EVALUATION

The Joint External Evaluation (JEE) for Cambodia assessed the country's capacity to manage AMR under the Prevent category, providing a detailed review of various related indicators. The evaluation yielded mixed results, with the scores reflecting both strengths and areas needing improvement. Specifically, the scores for
P.4.1 to P.4.5 ranged between 1 and 4. The highest scores, 4, were achieved in P.4.2, indicating strong advocacy and securing of domestic AMR funding; and in P.4.3, reflecting effective use of the One Health approach to formalize governance and implementation of the MSAP on AMR.

To address the identified gaps and further enhance AMR management, the JEE recommended several actions:

Advocacy and Funding: Continue advocating for and securing domestic AMR funding by working with development partners and established resource mobilization mechanisms.

One Health Approach: Utilize the One Health approach to formalize governance and implementation of the National AMR Multisectoral Action Plan and ensure relevant data sharing.

SOP Updates: Update Standard Operating Procedures (SOPs) to identify priority Multi-Drug-Resistant Organisms (MDRO) in the human and animal sectors.

Best Practices: Promote best practices at the institutional level in applying AMR data to clinical practice and IPC investigations.

Surveillance: Expand AMR surveillance in the animal sector to the subnational level and conduct regular, supportive spot-checks at surveillance sites. For human sector, expanding AMR Community Surveillance is required.

The MSAP-AMR is actively taking forward these recommendations as laid out by the JEE in May 2024. By doing so, Cambodia aims to enhance its national capacity to combat AMR effectively, ensuring a comprehensive and coordinated response across all relevant sectors.

High-level Monitoring through TrACSS

The Tripartite AMR Country Self-Assessment Survey (TrACSS) serves as a standardized, high-level monitoring and evaluation (M&E) framework for National Action Plans (NAPs) addressing AMR. This annual survey, jointly administered by FAO, WOAH, WHO, and UNEP, gathers data across various sectors, including human health, animal agriculture, and the environment[19].

Unlike traditional, often sector-specific M&E approaches, TrACSS takes a holistic view. It employs a set of standardized questions and benchmarks to assess countries' progress in implementing their NAPs. This allows for direct comparison between countries and identification of strengths and weaknesses across various areas, such as policy development, surveillance systems, and antimicrobial use practices.

While TrACSS provides valuable insights, it's acknowledged that a more granular, in-country M&E framework remains essential. The standardized nature of TrACSS sacrifices some context and

[19] Global Database for Tracking Antimicrobial Resistance (AMR) Country Self- Assessment Survey (TrACSS).

detail, potentially overlooking country-specific nuances and challenges. Therefore, TrACSS functions best as a high-level compass, guiding countries towards areas needing deeper investigation and the development of more detailed, context-specific M&E plans.

In essence, TrACSS offers a standardized snapshot, highlighting areas for celebration and areas crying out for a closer look. It's a starting point, not a destination, paving the way for more tailored M&E frameworks that ensure comprehensive and effective monitoring of NAP implementation, ultimately driving progress in the fight against AMR.

Cambodia has proactively participated in TrACSS for several years[20], consistently submitting data and contributing to the global knowledge base. This active engagement allows for an initial, high-level assessment of the country's NAP implementation. Early insights suggest promising developments:

Policy and coordination:
Cambodia has established a dedicated AMR unit and inter-ministerial coordination committee, demonstrating a commitment to tackling the issue from multiple angles.

Surveillance:
Efforts to strengthen surveillance systems for both human and animal health are underway, aiming to gather critical data on AMR patterns.

Antimicrobial use:
Initiatives to promote prudent use of antimicrobials in both human and animal healthcare are being rolled out, a crucial step in slowing down resistance development.

However, challenges remain, as is typical in the complex fight against AMR. Areas requiring further attention
include:

- **Laboratory capacity: For human and animal sectors, ensuring adequate laboratory infrastructure and expertise is essential for accurate diagnosis and AMR monitoring. However, the environmental sector needs to establish and/or strengthen the laboratory capacity to fully participate in AMR surveillance.**
- **Public awareness: Educating the public about AMR and responsible antibiotic use is vital for long-term success.**
- **Data analysis and utilization: Transforming collected data into actionable insights to guide future interventions is key to maximizing impact.**

Sector Specific Analysis TrACSS: Human Health

The latest comprehensive data comparison of Cambodia's response to AMR within the human health sector against global averages is from the year 2023. This assessment utilizes the TrACSS indicator, which scrutinizes national capacity and advancement on a scale from A, signifying 'no capacity', to E, indicating 'sustained capacity'.

[20] Tracking AMR Country Self-Assessment Survey (TrACSS) 2022 Country Report Cambodia.

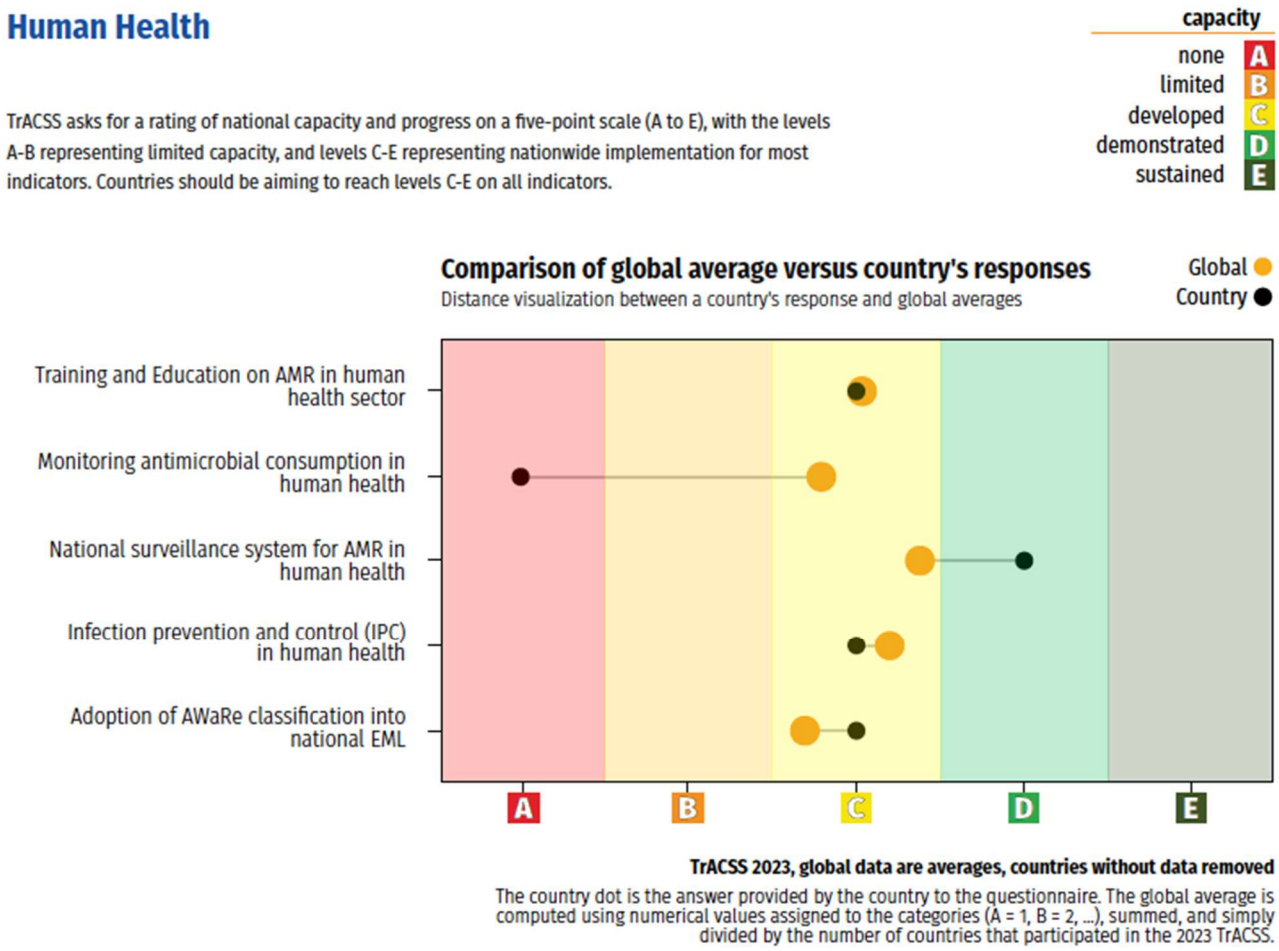


Figure 1: Tracking AMR Country Self Assessment Survey (TrACSS) 2022 Country Report Cambodia: Human Health

The evaluation of Cambodia's performance against global averages in 2023 encompassed several critical public health domains:

- **Training and Education on AMR: Cambodia was rated at level C, reflecting developed. This is consistent with the global average, which was positioned also at level C.**
- **Monitoring Antimicrobial Consumption: Here, Cambodia demonstrated very limited capacity (A), which is significantly below the global mean (C).**
- **National Surveillance System for AMR: The country showed a higher level of capacity (D), outperforming the global average that held at a developed stage (C).**
- **Infection Prevention and Control (IPC): Cambodia's efforts matched the global average, both rated at a developed stage (C).**
- **Adoption of AWaRe Classification: Cambodia's response was evaluated at level C for limited capacity, whereas the global average achieved a higher developed status (C).**

In summary, Cambodia's response in 2023 displayed congruence with the global average in terms of training and education on AMR and infection prevention and control. The country demonstrated strong performance in national surveillance for AMR, indicating a strong and effective system. Nonetheless, areas such as monitoring antimicrobial consumption and the incorporation of the AWaRe classification into the national Essential Medicines List (EML) showcased potential for growth, with Cambodia lagging behind global benchmarks.

SECTOR SPECIFIC ANALYSIS TRACSS: ANIMAL HEALTH

The TrACSS indicator also provides an evaluation of Cambodia's approach to managing AMR within the animal health sector, with a direct comparison to the global average. The system categorizes the national capability and progression using a spectrum from A, denoting 'no capacity', to E, representing 'sustained capacity'.

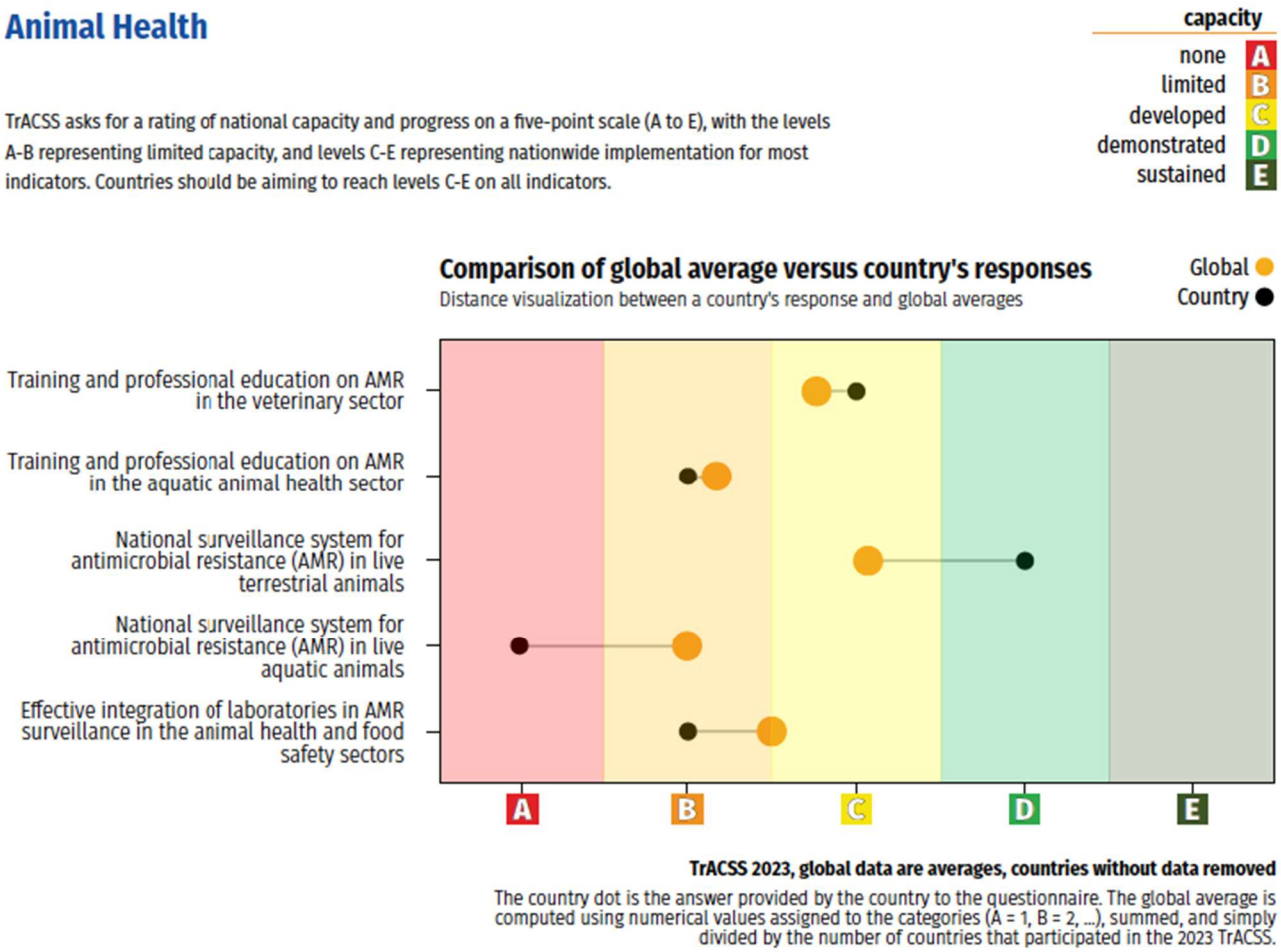


Figure 2: Tracking AMR Country Self Assessment Survey (TrACSS) 2022 Country Report Cambodia: Animal Health

In reviewing the 2023 data, Cambodia's efforts in combating AMR in the animal health sector is measured

against global standards across various indicators:

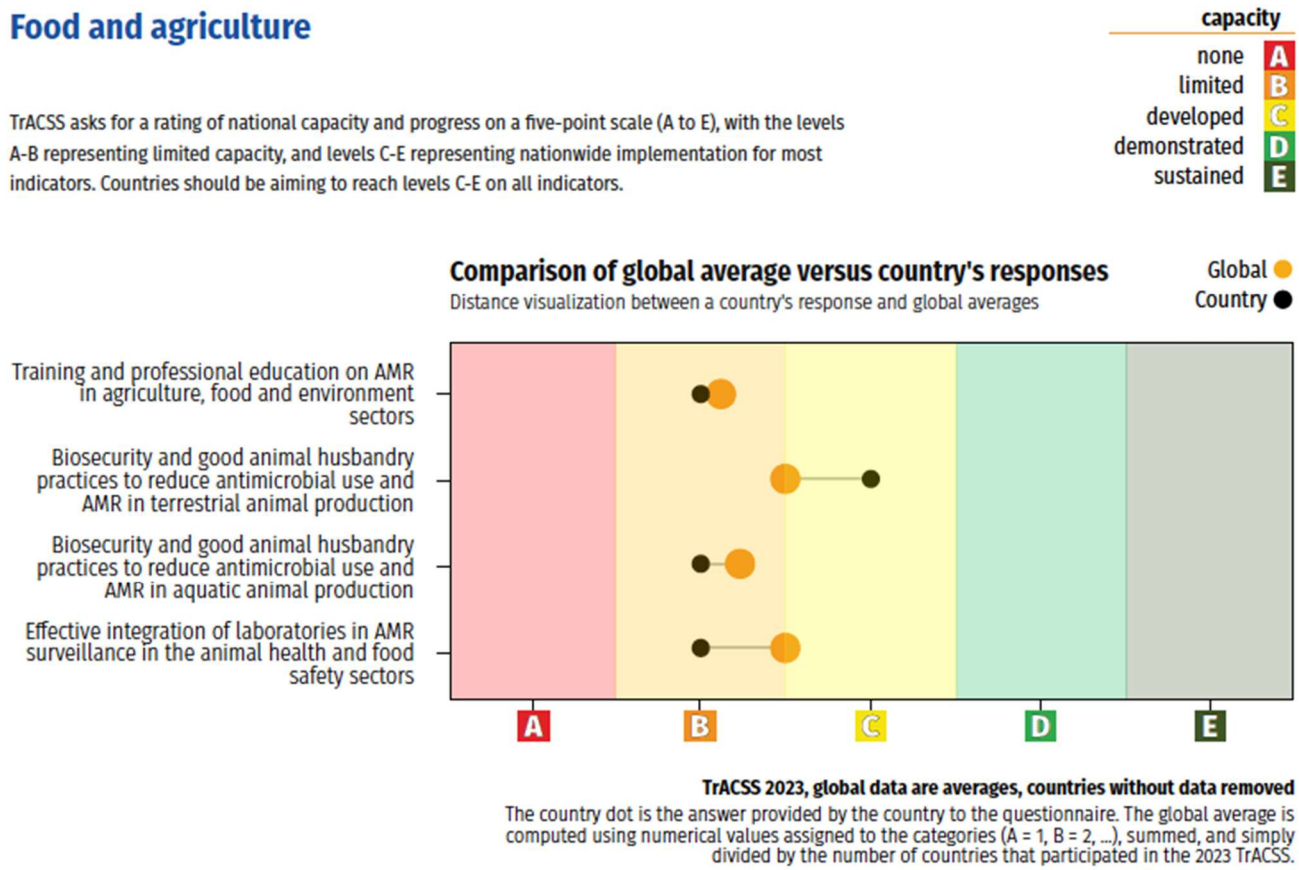
- **Training and Professional Education on AMR in the Veterinary Sector: Both Cambodia and the global average are on level C, indicating a shared challenge in boosting capacity in this vital area.**
- **Training and Professional Education on AMR in the Aquatic Animal Health Sector: Similarly, Cambodia finds itself on level B, parallel to the global average, pointing to a universal need for enhanced educational frameworks.**
- **National Surveillance System for AMR in Terrestrial Animals: Cambodia shows commendable progress, attaining a level D for demonstrated capacity, which notably exceeds the global average, and placed at a level C for developed capacity.**
- **National Surveillance System for AMR in Aquatic Animals: Cambodia is at level A, highlighting the need to develop capacity in this area.**
- **Effective Integration of Laboratories in AMR Surveillance: The country is rated at level B, suggesting limited capacity in integrating laboratories effectively for AMR surveillance, which is a step behind the global average at a developed level C.**

The 2023 comparative analysis indicates that Cambodia's strategies in the animal health sector align with the global average in the areas of training and professional education, both in the veterinary and aquatic sectors. However, it outperforms the global average in surveillance systems for terrestrial animals, showcasing a robust national approach. Nonetheless, there is a

notable gap in the effective integration of laboratories in AMR surveillance, where Cambodia's efforts are not quite up to the global standard.

SECTOR SPECIFIC ANALYSIS TRACSS: FOOD AND AGRICULTURE

In assessing Cambodia's approach to AMR within the food and agriculture sector, we utilize the TrACSS 2023 data to compare the nation's capacity and progress against global averages. TrACSS



rates on a scale from

A to E, with A indicating 'no capacity' and E representing 'sustained capacity'.

Figure 3: Tracking AMR Country Self Assessment Survey (TrACSS) 2022 Country Report Cambodia: Food and Agriculture

For the food and agriculture sector, the indicators assessed include:

- Training **and Professional Education on AMR in Agriculture, Food and Environment: Cambodia is rated at level B, showcasing a limited capacity that aligns with the global average.**
- **Biosecurity and Good Animal Husbandry Practices to Reduce Antimicrobial Use and AMR in Terrestrial Animal Production: Here, Cambodia is rated at level B, reflecting limited capacity, whereas the global average is at a developed stage (C).**
- **Biosecurity and Good Animal Husbandry Practices to Reduce Antimicrobial Use and AMR in Aquatic Animal Production: Cambodia is at level B, demonstrating limited capacity, and again, the global average stands also at a limited level B.**
- **Effective Integration of Laboratories in AMR Surveillance in the Animal Health and Food Safety Sectors: Cambodia is at level B, suggesting limited capacity. This is a little bit below the global average, which stands in between limited and developed capacity (B/C).**

The analysis reveals that Cambodia is on par with global averages in the realm of training and education for AMR in the agricultural, food, and environmental sectors. However, the country exhibits a need for improvement in biosecurity and good animal husbandry practices in both

terrestrial and aquatic animal production, as well as in the integration of laboratories in AMR surveillance. These areas show Cambodia trailing behind the global average.

For Cambodia to elevate its AMR response in the food and agriculture sector, a targeted approach is needed to enhance biosecurity measures, husbandry practices, and laboratory capacities. This strategic focus would align Cambodia with global standards and potentially set a precedent for exceeding them in the future.

MONITORING OF THE MSAP-AMR IMPLEMENTATION THROUGH THE M&E FRAMEWORK

The M&E framework for the MSAP-AMR was established through a consultative process, engaging stakeholders from human health, animal health, agriculture, and environmental sectors. Reflecting the One Health approach, the framework's development was guided by ministerial leadership and the diligent contributions of all participants involved.

Supported by the quadripartite collaboration of the WHO, FAO, WOAH and UNEP, and financed by the MPTF, the AMR TWG from the MoH, MAFF, and MOE played a central role in its inception.

The intent behind the M&E framework was to create a functional tool for generating data to guide operational and strategic decisions on AMR within Cambodia. It was designed to support the MSAP's implementation, enhance data quality and availability, combine various data sources, and promote accountability.

This framework was designed to be multi-sectoral, encompassing methodologies and indicators applicable to human, animal, plant, and environmental health, with some activities planned for collaborative execution and others tailored to specific sectors. However, the framework was only finalized in late 2023. This framework is adapted and utilized for the MSAP-AMR 2025-2029.

The M&E framework is comprised of two monitoring and evaluation components: one focuses on the processes and outputs to monitor stakeholder progress, and the other evaluates the outcomes and goals to assess the impact on AMR trends and disease burden.

CHAPTER 2

GOAL, PURPOSE AND OBJECTIVES

GOAL, PURPOSE, AND OBJECTIVES

The revision of Cambodia's MSAP-AMR underscores the commitment to an established vision, as the core goal, objectives, and purpose of the original plan are carried forward unchanged. This updated plan builds on the groundwork of its forerunner, aiming to refine and amplify the strategies and activities previously established.

Goal

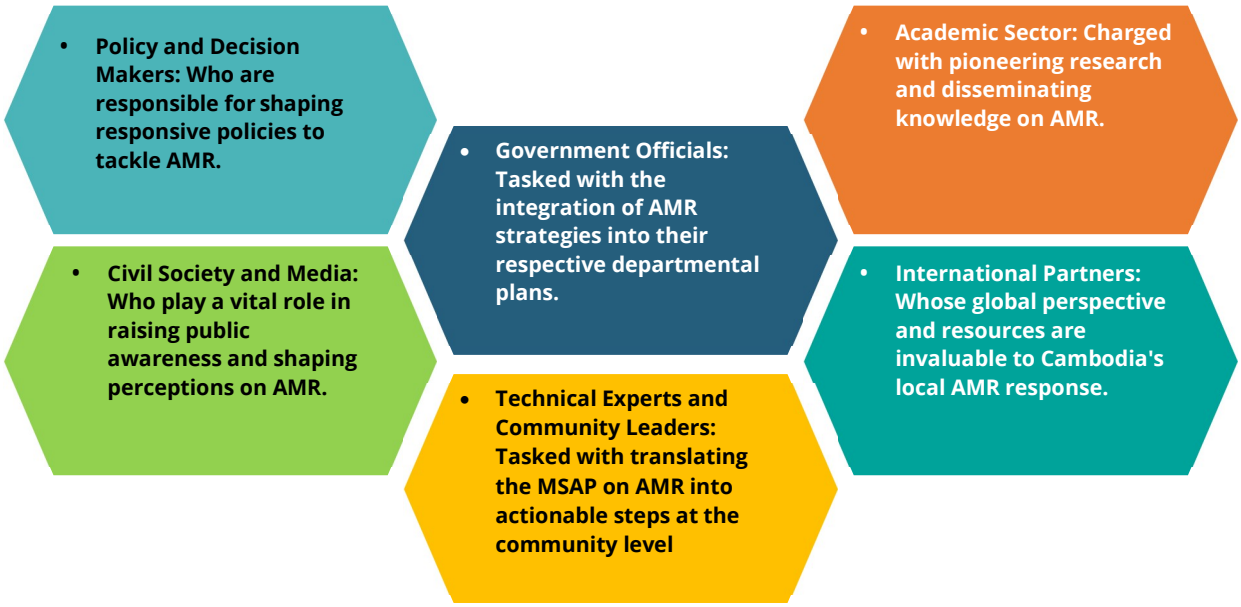
The Multi-Sectoral Action Plan envisions a country with a healthy population and robust governance systems, working collaboratively to prevent and control the threat of AMR, a crucial step towards achieving health security, and the sustainable development goals across human, animal, food, and environmental health sectors.

Objectives:

1. Establishment of a Unified Framework: the plan continues to foster a collaborative infrastructure and governance mechanisms that empower ministries and stakeholders to work in concert against AMR.
2. Identification of Gaps and Challenges: the objective to pinpoint and address the specific issues impacting AMR remains a priority, ensuring that the MSAP is responsive and adaptive to the evolving landscape of antimicrobial threats.
3. Strategic Planning and Coordination: the revised plan is committed to setting clear strategic areas, objectives, and activities that guide all stakeholders through coherent annual planning, communication, and resource allocation.

Purpose: To guide the concerted efforts of the RGC, alongside its partners and donors, as they delineate and tackle priority areas crucial for the AMR prevention and containment.

This guidance is meant for:



The strategies, activities, and tasks identified in the MSAP-AMR require the concerted effort of all parties involved. Each stakeholder is encouraged to contribute within the scope of their expertise based on their organization’s mandate.

The revision of the MSAP-AMR is not a reinvention but an enhancement, ensuring continuity with the established goal, objectives, and purpose. It represents Cambodia's commitment to ongoing improvement, learning from the past to inform future actions, and adapting to new challenges as the nation strives to maintain its position in the global fight against AMR.

CHAPTER 3

HOW THE PLAN WAS DEVELOPED AND STAKEHOLDER ENGAGEMENT

The process of developing the updated MSAP-AMR was initiated in September 2023, under the leadership of the MoH, MAFF and MoE. This collaborative effort aimed to build on the achievements of the first MSAP-AMR, addressing AMR through a renewed and integrated strategy that involved key stakeholders from three ministries.

The initial phase in September 2023 began with an extensive stakeholder consultation designed to assess and take stock of the achievements from the first MSAP-AMR. This evaluation was crucial to understand the progress made and identify gaps the new MSAP-AMR needed to address. In addition to desktop research, development partners were also consulted to align the plan with new or revised global guidance.

In December 2023, the first significant stakeholder workshop took place in Kampong Cham. During this two-day workshop, participants engaged in a detailed stocktaking exercise, discussing the zero-order draft of the MSAP-AMR. The workshop fostered a collaborative environment where the vision statement, objectives, and high-level activities were refined and agreed upon, laying the foundational elements of the action plan.

Following this workshop, the drafting process progressed with the creation of the first comprehensive draft of the MSAPAMR, which was circulated for comments among all stakeholders in February 2024. Feedback received was integral to shaping the plan, ensuring it was responsive to the needs and insights of all parties involved. A subsequent in-person workshop in March 2024 allowed stakeholders to delve deeper into specific activities and assign a tentative budget for each, further detailing the plan's operational aspects.

As the drafting phase concluded, the refined MSAP-AMR was shared with key stakeholders for a final round of inputs. This step guaranteed that every perspective was taken into account and incorporated into the final document, ready for widespread acceptance and implementation. The final stages involve the three ministries working together to socialize the plan among key national stakeholders and to seek its endorsement by mid to late 2024.

CHAPTER 4

STRATEGIC AREAS, OBJECTIVES AND KEY RESULTS AREAS

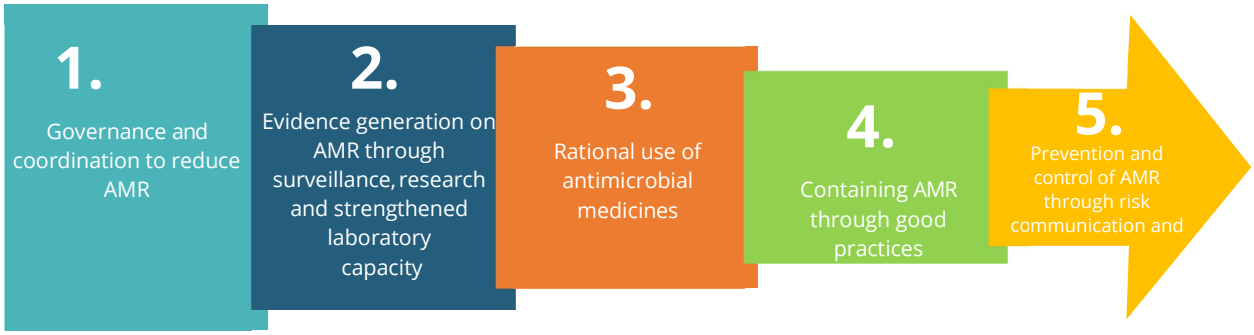
STRATEGIC AREAS, OBJECTIVES AND KEY RESULTS AREAS

The 2019-2023 MSAP-AMR in Cambodia delineated seven strategic areas:

- **Governance and coordination to reduce AMR**
- **Evidence generation through surveillance and laboratories**
- **Rational use of antimicrobial medicines**
- **Containing AMR through good practices**
- **Increasing public awareness**
- **Building human capacity for AMR**
- **Research and innovation for AMR**

For the 2025-2029 period, Cambodia is reconfiguring the MSAP on AMR, consolidating these seven areas into five. This restructure aligns Cambodia's AMR strategy more closely with global action plans.

As such, the MSAP on AMR 2025-2029 has the following 5 strategic areas:



The core objectives of the first five areas are to maintain their integrity, continuing the commitment to robust governance, effective surveillance, rational antimicrobial use, good practice containment, and amplified public awareness. However, the plan integrates the essential elements of the last two areas into this existing structure:

Building human capacity, the focus of the former sixth area, now infuses all strategic areas, ensuring comprehensive development of capabilities essential to every aspect of the AMR response.

Research and innovation, previously a standalone seventh area, merges with the second area to reinforce surveillance systems with cutting-edge research and to enhance laboratory capacities, driving a more informed approach to AMR.

This active integration exemplifies Cambodia's adaptive and holistic strategy, embedding capacity building and research across all AMR initiatives to create a synergistic and effective national response.

Strategic Area 1. Governance and coordination to reduce AMR

CURRENT SITUATION

The Cambodian government established an inter-ministerial coordination committee (IMCC-OH) in 2023. This committee brings together representatives from various ministries, including health, agriculture, environment, and education, to ensure a unified response across sectors.

The acknowledgment of AMR as a critical concern by top-tier leadership across various sectors, including the Ministries of Environment, Health, and Agriculture, Forestry, and Fisheries, has been a success. This recognition enabled a comprehensive review of existing laws and the identification of legislative gaps, aided by the One Health legislation tool, which facilitated the refinement of regulatory frameworks.

The establishment of the MS AMR TWG is also a significant achievement in Cambodia's fight against AMR. Set to be officially endorsed in 2024, this group represents a pivotal step towards a more coordinated and comprehensive approach to AMR. The MS AMR TWG is structured to foster synergy between the MoH, the MAFF, and the MoE, with each ministry providing a chair to ensure collaborative governance. The organogram further delineates roles with vice-chairs for each sector, ensuring a multi-layered leadership structure poised to guide AMR initiatives. The inclusion of secretariats, members, and facilitators, alongside the support from development partners, underscores the MS AMR TWG's robust composition. This collaborative framework is designed to streamline efforts across sectors, enhancing Cambodia's capacity to effectively address the complex challenges of AMR.

However, despite these advances, the road to effective AMR management is not without its challenges. Notably, there remains a shortfall in the regulatory domain, particularly concerning animal feed regulation, and a significant challenge persists in enforcing the established laws. The effectiveness of these regulations is further hampered by a widespread lack of awareness among key stakeholders at all levels. While the MoE is strongly committed to the cause, its limited capacity impedes progress. Moreover, the M&E framework crucial for tracking the MSAP’s impact was not developed at the outset, which has posed challenges in assessing the plan's efficacy throughout its implementation phase.

The country also has conducted a comprehensive review of existing regulatory frameworks, including legislation that governs the use of antimicrobials in humans, animals, plants, and the environment. This review has laid the groundwork for strengthening the oversight of antimicrobial use and curbing the spread of AMR. A significant step was integrating AMR-related items into the draft law on managing health products.

Looking forward, it is essential to broaden the scope of engagement by incorporating other ministries, such as MEF, Ministry of Interior (MoI), and Ministry of Justice (MoJ). Their involvement is anticipated to fortify the legislative aspect of AMR management and ensure better allocation of resources and funding. Such multi-ministerial collaboration is expected to enhance enforcement capabilities and overall governance, thereby strengthening Cambodia's response to the global threat of AMR.

Strategic objectives and proposed key interventions

Strategic Objective 1: Ensure AMR Governance through effective coordination and partnerships at subnational, national, and international levels

Key Interventions:

1.1 Implement guidance provided by MS AMR TWG, under leadership of IMCC-OH.

1.2 Enhance MS AMR TWG and expand scope and functions at national and subnational levels.

1.3 Strengthen capacity building on AMR for key decision-makers at national, subnational levels and enable key decision-makers to participate in international forums.

1.4 Establish and operationalize a multidisciplinary sub-working group involving relevant sectors, including human health, animal health, and environmental health, to provide technical guidance and propose feasible research methodologies on antimicrobial resistance, aligned with Cambodia's goals and context, in collaboration with various national and international institutions and partners.

Strategic Objective 2: Enhance Regulatory Enforcement and Compliance

Key Interventions:

2.1 Strengthen implementation of policy and legislative frameworks to support AMR prevention and control.

2.2 Enhance enforcement capacity and coordination mechanisms across all sectors through the development of human resources, key tools, and guidelines.

Strategic Objective 3: Mobilize resources to implement the MSAP

Key Interventions:

3.1 Advocate for funding for AMR prevention and control in each sector as part of the Government budget.

3.2 Encourage international donors' contributions through coordinated outreach and proposals.

Strategic Objective 4: Implement a robust M&E framework

Key Interventions:

4.1 Design and implement the agreed-upon M&E Framework for the MSAP-AMR.

4.2 Share M&E findings annually with line ministries, partners, the private sector, and the public to ensure transparency and build support for AMR prevention and control.

4.3 Conduct a mid-term review of the MSAP-AMR based on the M&E findings.

Workplan for strategic area 1

Strategic Objective 1. Ensure AMR Governance through effective coordination and partnerships at subnational, national and international levels

Key interventions

1.1 Implement guidance provided by MS AMR TWG, under leadership of IMCC-OH.

1.2 Enhance MS AMR TWG and expand scope and functions at national and subnational levels.

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2025-2029	Annual	Quarterly MS AMR TWG Meetings	Minutes and action items	MS AMR TWG Chair	25.000
2026	H1	Endorse ToR for MS AMR TWG & develop provincial coordination mechanisms	Approved ToR document	MS AMR TWG	15.000
2026 -2029	Annual	Organize annual AMR conference Organize annual AMR conference to monitor implementation of MSAP- AMR to monitor implementation of MSAP-AMR	Conference report circulated	MoH, MAFF, MoE (on a rotational basis)	75.000
2026-2029	Annual	Define Mechanisms of Communication between various TWGs and with IMCC-OH	Circular between different ministries	MS AMR TWG	10.000
2026-2029	Annual	Develop Policy Brief on AMR	Published policy brief	MS AMR TWG	15.000
2028	H1	Mid-term Review of MSAP on AMR	Mid-term evaluation report	MS AMR TWG	20.000
2026-2027	Annual	Establish One Health Committee at sub-national level under the leadership of Provincial Governors	Establish One Health Committee at provincial level	Selected provinces	30.000
2026-2029	On-going	Establish or strengthen digital information/data sharing platforms	Regular information or report shared	MS AMR TWG	100.000

1.3 Strengthen capacity building on AMR for key decision makers at national, subnational level and enable key decision makers to participate in international forums

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026-2029	Annual	AMR Policy Review Workshop Series	Workshop report with policy recommendations	MS AMR TWG	20.000
2027-2029	Annual	Sponsorship for participation in Global, Regional AMR forums	Report on international forum participation and key learnings	MoH, MAFF, MoE	50.000

1.4 Establish and operationalize a multidisciplinary sub-group involving relevant sectors, including human health, animal health, and environmental health, to provide technical guidance and propose feasible research methodologies on antimicrobial resistance, aligned with Cambodia's goals and context, in collaboration with various national and international institutions and partners.

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026-2029	H1	Establish a multidisciplinary sub-working group composed of nominated members from the three ministries including representatives from MOH such as AMR surveillance sites, the national laboratories (NIPH and Institut Pasteur du Cambodge), public health research experts (NIPH and UHS), representatives from the AMS/AMC and IPC working groups, and representatives from MAFF and MOE.	Endorse the nomination with roles and responsibilities to provide technical guidance and propose feasible research methodologies on antimicrobial resistance, aligned with Cambodia's goals and context, in collaboration with various national and international institutions and partners.	MS AMR TWG	20.000
2027-2029	On-going	Organize regular or ad hoc	Meeting minute and report	MoH, MAFF, MoE	50.000

		meetings of the sub-group in advance of the MS-AMR-TWG meeting, which convenes every six months.	submitted to MS-AMR-TWG		
2027-2029	On-going	Provide support to MS-AMR-TWG in evaluating the impact of AMR project implementation in Cambodia as needed	The evaluation report, including recommendations	MoH, MAFF, MoE	30.000

Strategic Objective 2. Enhance Regulatory Enforcement and Compliance

Key interventions:

2.1 Strengthen policy implementation and legislative frameworks to support AMR prevention and control

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026-2028	H1	Conduct or/and finalize and assess the recommendations from the One Health legal assessment report	One Health legal assessment report	MAFF, MoH, MoE	50.000
2027-2029	H2	Implementation of recommendations of the One Health legal assessment report	(depends on recommendations)	MoH, MAFF, MoE	100.000
2026	H2	Develop or/and revise regulations and guidelines related to AMR prevention & control	Revised drug management legislation	MS AMR TWG	80.000

2.2 Enhance enforcement capacity and coordination mechanisms across all sectors through the development of human resources, key tools, and guidelines

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026-2029	Annual	Update and strengthen existing AMR-related policies, guidelines, and SOPs across all sectors	Updated AMR-related guiding documents	MoH, MAFF, MoE	80.000
2027	H2	Strengthen regulations to impose fines/penalties for AMR-related infractions	Updated regulations for AMR-related infractions	MoH, MAFF, MoE, MoJ	15.000
2029	H2	Assess and evaluate the impact of AMR policies and regulations	AMR policy and regulation impact report	MS AMR TWG	30.000

Strategic Objective 3. Mobilize resources to implement the MSAP-AMR and advance AMR prevention and

control

Key interventions:

3.1 Advocate for funding for AMR prevention and control in each sector as part of the Government budget

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026-2029	Annual	Develop an innovation for investments in combating AMR	Comprehensive business case document	MS AMR TWG	100.000
2027	H2	Integration of AMR funding into national budgetary processes	Integrated AMR budget lines in national budgets	MoH, MAFF, MoE, MEF	15.000
2028	H2	Organize advocacy and resource mobilization workshops to fund activities to implement the MSAP-AMR	Workshops organized	MoH, MAFF, MoE	30.000

2028-2029	H1	Integration of AMR funding into subnational budgetary processes	Integrated AMR budget lines in subnational budgets	MoH, MAFF, MoE, MoI, MEF	50.000

3.2 Encourage international donor contributions through coordinated outreach and proposals and develop strategic partnerships with private sector bodies and development partners.

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026	H1	Assign a focal point within the MS TWG AMR for international partnerships and collaborations	Appointment letter and role description	MS AMR TWG Chair	3.000
2026-2028	Annual	Development of Memorandums of Understanding (MoUs) and technical partnerships with international partners	MoUs and partnership agreements	MoH, MAFF, MoE	10.000
2026-2029	Annual	Ministries collaborate on joint funding proposals such as a pandemic fund, Fleming Fund, KfW, ICARS and others	Joint funding proposal documents	MS AMR TWG	10.000

Strategic Objective 4. Implement a robust M&E framework

Key interventions:

4.1 Design and implement the agreed upon M&E Framework for the MSAP-AMR.

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026	H1	Hire an M&E consultant to finalize the M&E Framework	Contracted M&E consultant and finalized M&E Framework	MS AMR TWG	10.000
2026	H2	Develop and conduct M&E training workshops for relevant stakeholders	Conducted training workshops and training materials	MS AMR TWG	15.000
2026-2029	Annual	Collect annual M&E data to monitor MSAP-AMR progress (incl through SPAR, JEE, PVS or AAR)	Updated M&E data from each ministry transmitted to MS AMR TWG	MoH, MAFF, MoE	24.000

4.2 Share M&E findings annually with the government, partners, the private sector, and the public to ensure transparency and build support for AMR prevention and control.

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026-2029	H2	Publish and disseminate the annual M&E report	Published AMR MSAP M&E report	MS AMR TWG	30.000

4.3 Conduct a mid-term review of the MSAP-AMR based on the M&E findings.

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2027	H1	Identify and contract a consultant to undertake the mid-term review	Consultant contract signed	MS TWG AMR	15.000
2027	H2	Organize a series of workshops to review the MSAP-AMR	Workshops conducted and review findings documented	MS TWG AMR	15.000
2027	H2	Publish a status update on the implementation of the MSAP-AMR	Report on mid-term review of MSAP-AMR	MS TWG AMR	10.000

Strategic Area 2. Evidence generation on AMR through surveillance, research, and strengthened laboratory capacity

Surveillance: Current situation

The AMR sentinel surveillance network in human health in Cambodia is a structured effort to monitor AMR within the country. The key national AMR team consists of the Department of Communicable Disease Control (C-CDC), the Department of Hospital Services (DHS), and the National Institute of Public Health (NIPH). There are currently ten surveillance sites involved in the network including the National Pediatric Hospital, Calmette Hospital, Sihanouk Hospital Centre of HOPE, Khmer-Soviet Friendship Hospital, Cambodia-China Friendship Preah Kossamak Hospital, Siem Reap Provincial Referral Hospital, Battambang Provincial Referral Hospital, Kampong cham Provincial Hospital, and Angkor Hospital for Children.The data for this surveillance is sourced from and linked to the Cambodia Laboratory Information System (CamLIS), ensuring a centralized and systematic approach to gathering AMR data. The primary pathogens under surveillance in blood specimens, urine, cerebrospinal fluid (CSF) and aspirate from normal sterile sites include *Acinetobacter* species., *E coli*, *K. pneumonia*, *P. aeruginosa*, *S. aureus*, *S. pneumonia*, N. meningitidis, *H. influenzae*, *Salmonella* spp. (non-typhoidal), *S. enterica serovar Typhi, S. enterica serovar* Paratyphi, *B pseudomallei*.

Quality control of microbiology is maintained through internal quality control (IQC) and external quality assurances (EQA), ensuring the reliability and accuracy of the surveillance data. Funding support for the AMR sentinel surveillance network in Cambodia is provided mainly by external partners such US CDC.

The animal health sector in Cambodia has made considerable progress in AMR surveillance. The finalization of the Cambodia AMR Surveillance Plan in the Animal Health Sector (CASP-AH) has laid the groundwork for a more structured and focused approach to AMR surveillance. With a priority placed on terrestrial and aquatic species, the initiative has seen the piloting of surveillance programs in farmed animals, slaughtered settings, products of animal origin, companion animals, and farmed stripe catfish (*Pangasianodon hypophthalmus*). The AMR detection and studies were included *E. coli*, *Salmonella* spp. *S. aureus*, *Streptococcus suis*, *K. pneumonia*, *Pasteurella moltocida, Clostridium choevie, Enterococcus faecalis, E. faecium Aeromonas hydrophila* conducted by the NAHPRI and collaboration with the Department of Animal Health and Veterinary Public Health (DAHVPH), Department of Agro-Industry (DAI), the Department of Aquaculture Development (DAD), FiA, and Royal University of Agriculture (RUA). This concerted effort is bolstered by collaboration and networking between institutions under MAFF for underpinning the AMR surveillance with robust scientific and regulatory support. Hands-on training sessions further reinforce the capacity of local institutions to manage and respond to AMR effectively.

Laboratory capacity: Current Situation

Cambodia's laboratory system is undergoing significant development and refinement. The NIPH (MoH) holds the mantle as the national reference laboratory with the supportive network of provincial laboratories which are already in place. The NAHPRI (MAFF) functions as the central laboratory for AMR in animal health and products of animal origin, with additional other

laboratory serve as key partner for AMR surveillance in the future implementation. In MoE, there is a laboratory that performs isolation of a few bacteria species (*E. coli* and *Salmonella* spp.), however, the strains are not yet proceeded for AMR. The MoE contributes to this network with a laboratory focused mainly on chemical testing. Despite these advancements, there is a notable gap at the subnational levels, where microbiology labs are generally unavailable.

The human resource capacity in these laboratories is commendable, with highly competent personnel staffing both the national and subnational levels. However, the need for continuous capacity development, especially for laboratory technicians, on the operation of new equipment and in the nuances of AMR profiling and microbiology techniques, is keenly felt. This training is crucial for enhancing laboratory capacity to meet the growing demands of AMR surveillance.

Challenges persist in logistics and infrastructure. A standardized specimen referral system has not yet to be established, and the acquisition of reagents and essential materials remains a concern that needs addressing. Interestingly, the infrastructure in place for COVID-19 testing—equipped with state-of-the-art real-time PCR machines—presents an opportunity for repurposing to support AMR surveillance efforts. The limitation of molecular profiling of AMR in animal health (terrestrial and aquatic) and environmental sector need further improvement and/or establishment.

Quality assurance is another pivotal area, with NIPH actively collaborating with partners to assist other laboratories in achieving ISO 15189 accreditation, which is the benchmark for quality and competence in medical laboratories. EQA and Proficiency Testing programs receive substantial backing from international bodies like the WHO and FAO, suggesting a solid international support system. Moreover, initiatives to raise biosafety and biosecurity awareness and implement best practices are in their developmental stages, promising a future where quality and safety are paramount in laboratory processes. NAHPRI is in the process for accreditation with ISO/IEC 17025. Specifically, the NAHPRI is following its quality assurance and received the FAO- Assessment Tool for Laboratories and AMR Surveillance Systems (ATLASS) mission and conducts the regular AST Proficiency Testing program in collaborate with regional FAO-reference center for AMR.

Strategic objectives and proposed key interventions

Strategic Objective 5: Scaling-up existing AMR surveillance systems and networks across sectors to support AMR prevention and control

Key Interventions:

5.1 Develop and expand the coverage and scope of AMR surveillance networks in public and private sectors using a One Health approach.

5.2 Develop and improve surveillance data management platforms for collection, sharing, management, and analysis.

5.3 Promote surveillance data and knowledge dissemination at national, subnational, and international levels.

Strategic Objective 6: Bolster laboratory capacity to enable AMR surveillance across sectors

Key Interventions:

6.1 Enhance microbiology laboratory equipment, supplies, and infrastructure.

6.2 Develop and implement standardized AMR laboratory testing and reporting protocols (including participating in EQA programs) across sectors.

6.3 Enhance the capacity of clinical and laboratory personnel to conduct AMR pathogen surveillance and share data.

Strategic Objective 7: Strengthen research and outbreak surveillance of antimicrobial-resistant pathogens

Key Interventions:

7.1 Develop and roll-out protocols and guidelines for outbreak investigation of AMR pathogens at health care facilities and farms.

7.2 Conduct and publish research around the burden, mortality, and mechanisms of AMR.

Workplan for strategic area 2

Strategic Objective 5. Scaling-up existing AMR surveillance systems and networks across sectors to support AMR prevention and control

Key interventions:

5.1 Develop and expand the coverage and scope of AMR surveillance networks in public and private sectors using a One Health approach

Human Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026-2027	Annual	Establish protocol and pilot AMR surveillance in the community (lower-tier health facilities)	Surveillance protocol developed and list of identified potential sites to conduct a 6 months pilot. For each of these sites: • Assessment • Training • Materials • Samples transport • Supervision	C-CDC, NIPH, MoH	40.000
2027	H2	Evaluate 10 existing AMR surveillance sites in human health sector	Develop a set of national tools to help evaluate AMR surveillance implementation in Cambodia (Based on existing US-CDC, WHO tools)	AMR TWG , MoH	15.000
2028	H1	Establish a roadmap for improvement for each of the 10 strengthened sites	Roadmap documents for each site	C-CDC, MoH	30.000

Animal Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2025	H2	Finalizing AMR surveillance plan for the Animal Health Sector, focusing on food-producing animals (both terrestrial and aquatic animals)	Endorsed AMR surveillance plan for food-producing animals	MAFF (GDAHP andFiA)	25.000
2026-2029	On-going	Establish surveillance sites and conduct AMR surveillance in farms, slaughterhouses, and markets	Report of AMR surveillance	MAFF	500.000
2027-2028	Annual	Introduce AMR surveillance initiatives at universities/institutes	Universities/institutes to join AMR surveillance program	MAFF	150.000
2028	H2	Expand AMR surveillance to additional agriculture sectors (plant, farm environment, products of origin)	AMR surveillance plan to include additional sectors in agriculture	MAFF, MoE	200.000

Environmental health sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026	H1	Conduct surveys to identify potential environmental sites for AMR surveillance	Survey report with identified sites	MoE	25.000
2026	H2	Develop a basic AMR environmental surveillance plan for 3 pilot sites	Draft AMR surveillance plan for 3 pilot sites	MoE	15.000
2027-2029	On-going	Implement environment AMR surveillance at selected sites	Implementation report from 3 sites	MoE	65.000s

5.2 Develop and improve surveillance data management platforms for collection, sharing, management, and analysis

Human Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026-2029	On-going	Conduct data management and analysis training sessions at selected AMR surveillance sites	Training completion reports	AMR TWG, MoH	60.000
2027, 2029	Bi-annual	Conduct training on scientific writing on AMR	Training reports	AMR TWG, MoH	20.000
2026-2029	On-going	Supportive supervision to AMR surveillance sites	Supervision report	AMR TWG MoH	30.000
2026, 2029	H2	Perform AMR Data Quality Assessment (DQA)	DQA reports	AMR TWG, MoH	15.000
2026-2029	Annual	Implement third-party quality assurance processes (External Quality Assurance)	Quality assurance reports	NIPH, MoH	50.000
2027-2029	Annual	Roll out Laboratory Quality Management System assessment	Assessment reports	AMR TWG,MoH	35.000
2027-2029	H1	Develop an integrated AMR surveillance data sharing platform	Established surveillance data platform	AMR TWG, MoH	110.000

Animal Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026	H1	Assess current surveillance systems and activities and document findings	Surveillance audit report (internal and external)	MAFF	50.000
2027	H2	Integrate assessment findings into the surveillance plan and define IT requirements for Laboratory Information Management Systems (LIMS)	Updated surveillance plan and IT blueprint for electronic surveillance data and install facilities	MAFF	220.000
2026-2029	On-going	Produce LIMS systems for AMR surveillance and integrate with other system such as InFARM WHONET, PARS, and PACS	integrated the LIMS system into MAFF's website or part of AMR surveillance systems of MAFF	MAFF	220.000

2027-2028	H1	Procure and roll-out selected surveillance LIMS	LIMS rolled out at selected sites	MAFF	200.000
2027, 2029	Bi-annual	Conduct training on scientific writing on AMR	Training reports, publication, scientific visit.	MAFF	20.000
2027-2028	H2	Training and coaching on LIMS and other AMR surveillance IT systems for relevant staff	Training completion reports	MAFF	30.000
2029	H1	Repeat surveillance assessment on the use of LIMS and make recommendations for further improvements	Second surveillance assessment report	MAFF	25.000

Environmental Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026	H2	Develop data management system for data management, including collection, analysis, and reporting for environmental surveillance	Data management system and developed	GDEPA/MoE	100.000
2027	H1	Organize a foundational training on data collection and management for environmental surveillance	Training completion report	GDEPA/MoE	20.000
2028	H1	Implement a simple data management system at the pilot surveillance sites	Implementation report of data management system	GDEPA/MoE	15.000

5.3 Promote surveillance data and knowledge dissemination at national, subnational and international level

Human Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026-2028	Bi-Annual	Organize every two years scientific AMR national conference (jointly with other sectors)	Conference proceedings/report published	C-CDC- MoH, TCOHA, MAFF,MOE	50.000
2027-2029	Annual	Participate in international scientific conferences	Presentation delivered by AMR focal points	AMR-TWG	50.000
2027-2029	Annual	AMR National annual review / Joint One Health AMR surveillance report	Publication of joint One Health AMR Surveillance report	C-CDC, MoH, TCOHA, MAFF, MoE	10.000

Animal Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2027-2029	Annual	Conduct training workshops on scientific writing and draft publications in peer review journals (jointly with other sectors)	Draft scientific articles published/submitted	C-CDC, MoH, TCOHA, MAFF, MoE	50.000

2027	H2	Develop and disseminate a policy brief on AMR surveillance findings in the animal health sector	Policy brief distributed	TCOHA, MAFF	15.000
2027-2029	Bi-Annual	Organize every two years scientific AMR conference (jointly with other sectors)	Conference proceedings/report published	C-CDC, MoH, TCOHA, MAFF, MOE	30.000
2027-2029	Annual	Participate international scientific AMR conference	Conference proceedings/report published/ publication	TCOHA-MAFF	30.000

Environmental Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2027	H1	Produce and disseminate an informational brief on the importance of environmental AMR surveillance	Informational brief	GDEPA/MoE	10.000
2028	H2	Share findings from the pilot surveillance site with key environmental stakeholders	Dissemination report and stakeholder meeting	GDEPA/MoE	10.000
2027-2029	Bi-Annual	Organize every two years scientific AMR conference (jointly with other sectors)	Conference proceedings/report published	Department of Communicable Disease Control, MoH + TCOHA, MAFF + MOE	30.000
2027-2029	Annual	Participate international scientific AMR conference	Conference proceedings/report published/ publication	MoE	30.000

Strategic Objective 6. Bolster laboratory capacity to enable AMR surveillance across sectors

Key interventions:

6.1 Enhance microbiology laboratory equipment, supplies and infrastructure

Human Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026	H2	Identify a set of sites for improvements of infrastructure for AMR surveillance	List and assessment report of identified sites for infrastructure improvements	MoH	20.000
2027	H2	Define the costs for infrastructure upgrades for identified sites	Costed plan for infrastructure upgrades (including Bill of Quantities and blueprints)	MoH	35.000
2028-2029	H2	Undertake infrastructure improvements for AMR surveillance at the identified sites (includes civil works, construction works, procurement of equipment)	Progress report on infrastructure improvements	MoH + provincial authorities	3.500.000
2026-2029	Annual	Procure microbiology Lab reagents and consumables	Procurement report	MoH and provincial laboratories	450.000
2026-2029	Annual	Participate in ad-hoc trainings on using laboratory equipment and procure software updates	Training certificates and report	MoH	25.000

Animal Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026	H2	Identify a set of sites for improvements of infrastructure for AMR surveillance in animal health sector	List and assessment report of identified sites for infrastructure improvements	MAFF	20.000
2027	H2	Define the costs for infrastructure upgrades for identified sites	Costed plan for infrastructure upgrades (including Bill of Quantities and blueprints)	MAFF	30.000
2028-2029	H2	Undertake infrastructure improvements for AMR surveillance at the identified sites (includes civil works, construction works, procurement of equipment)	Progress report on infrastructure improvements	MAFF + provincial authorities	3.000.000
2026-2029	Annual	Procure microbiology Lab Reagents, cards, and consumables	Procurement report	MAFF and regional laboratories	450.000
2026-2029	Annual	Technical training sub-national laboratory and other laboratory under MAFF	Training certificates and report	MAFF	250.000

Environmental Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026	H1	Assess the current capacity and needs for infrastructure, equipment, and supplies in the existing labs and yet-to-be-constructed labs	Capacity assessment report	MoE	10.000
2026-2029	Annual	Build or renovate lab infrastructure and procure as well as install essential microbiology laboratory equipment and supplies	Procurement of equipment and construction of new infrastructure	MoE	3.000.000
2028	H2	Recruit and train/retrain laboratory personnel on the use of new equipment and proper environmental sampling techniques	Training completion reports	MoE	50.000
2026-2029	Annual	Procure microbiology Lab Reagents, and consumables	Procurement report	MoE	300.000

6.2 Develop and implement standardized AMR laboratory testing and reporting protocols (including participating in EQA programs) across sectors.

Human Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2025-2026	H2	Improve capacity and protocols to perform AST, including updating SOPs for identifying priority MDRO pathogens	Enhanced capacity to perform AST and updated SOPs for identifying priority MDRO pathogens	MoH	10.000
2026-2029	Annual	Enroll in an EQA program and establish Internal Quality Control mechanisms	EQA and IQC implementation reports	MoH	45.000

2027	H1	Begin the process of working towards ISO accreditation for Microbiology at NPHL	ISO accreditation plan	NIPH	20.000
2026-2029	Annual	Conduct training workshop on competency assessment microbiology staffs	Training report	NIPH	35.000

Animal Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2025	H2	Initiate the submission of AMR data using In Farm (possibly integrate with WHONET)	submission protocol In Farm	MAFF	20.000
2026	H1	Identify and establish a partnership between National and regional laboratories for capacity building	Partnership agreements	MAFF, National Agriculture Laboratory and selected laboratories	20.000
2027-2027	H2	Begin the process of working towards ISO and get accreditation for selected laboratories	ISO accreditation plan	MAFF, National Agriculture Laboratory and Selected laboratories	150.000
2027-2029	Annual	Implement proficiency testing among veterinary laboratories	Proficiency testing reports	MAFF, National Agriculture Laboratory Selected laboratories	100.000
2026	H2	Implement antimicrobial residue testing in products of animals origin	Testing report	Selected laboratories	200.000

Environmental Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2027	H1	Develop Standard Operating Procedures (SOPs) for testing of AMR samples from the environment	SOPs developed	MoE	20.000
2026	H1	Initiate a program for experience and knowledge exchange with laboratories abroad on environmental sampling	Knowledge exchange between labs in Cambodia and abroad	MoE	30.000
2028	H1	Begin upgrading laboratories to achieve ISO accreditation	Progress report on laboratories upgrades	MoE	100.000
2029	H1	Enroll in an EQA program and establish IQC mechanisms	Proficiency testing reports	Selected laboratories	50.000

6.3 Enhance capacity of clinical and laboratory personnel to conduct AMR pathogen surveillance and share data

Human Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026-2029	Annual	Conduct training workshops for clinical and laboratory personnel on AMR surveillance	Training reports of relevant trainings	MoH + provincial laboratories	50.000
2026-2029	On going	Establish a mentorship program pairing experienced infectious disease experts with junior clinicians on AMR surveillance	Mentorship program	MOH	20.000

2027	H1	Develop an e-learning platform for continuous AMR education for laboratory technicians	E-learning platform launch	MOH	30.000
2026-2029	Annual	Laboratories staff competency assessment	Staff were trained and assessment report	MoH	40.000

Animal Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026	H2	Implement a specialized training program on AMR pathogen surveillance techniques for veterinarian and laboratory technicians	Training program curriculum developed and trainings rolled-out	MAFF	20.000
2027	H2	Facilitate peer-to-peer learning sessions for laboratory personnel on AMR surveillance and laboratories best practices	Peer learning sessions held	MAFF	20.000
2028	Annual	Introduce a certification course on AMR surveillance for animal health professionals	Certification course materials and list of certified personnel	MAFF	20.000
2026-2029	Annual	Laboratories staff competency assessment	Staff were trained and assessment report	MAFF	30.000

Environmental Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026-2027	Annual	Build up the laboratory staff capacity	Training report	MoE	25.000
2028-2029	Annual	Laboratories competency assessment	Staff were trained and assessment report	MoE	20.000
2028-2029	Annual	Identify hotspots for suspected antimicrobial residues and collect waste samples from environment	Surveillance report on AMR in the environment	MoE	100.000

Strategic Objective 7. Strengthen research and outbreak surveillance of antimicrobial-resistant pathogens

7.1 Develop and roll-out protocols and guidelines for outbreak investigation of AMR pathogens at health care facilities and farms

Human Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026	H1	Formulation of SOPs for outbreak investigation of AMR pathogens	SOP developed	MoH	30.000
2026	H2	Organize training workshops on standardized protocols and guidelines for AMR outbreak investigations	Workshop summaries and protocol documents	MoH	20.000

2026-2029	Annual	Conduct AMR outbreak investigation and response activities in hospital setting.	Case report	MoH	40.000
2026-2029	Annual	Simulation exercise of AMR outbreaks and responses	Workshop summaries and protocol documents	MoH	24.000
2027	H1	After Action Review of AMR outbreaks	Workshop summaries and protocol documents	MoH	24.000

Animal Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2027	H2	Implement training sessions for veterinarians on outbreak investigation for AMR outbreak protocols	Training program curriculum in-service and pre-servise were developed and trainings rolled-out	MAFF	20.000
2027	H1	Develop SOPs for outbreak investigation of AMR pathogens in farms	SOP developed	MAFF	30.000
2027	H1	Organize training workshops on standardized protocols and guidelines for AMR outbreak investigations	Workshop summaries and protocol documents	MAFF	40.000
2027-2029	Annual	Conduct AMR outbreak investigation and response activities at farms and animal health care service setting.	Case report	MAFF	80.000
2026-2029	Annual	Simulation exercise of AMR outbreaks and responses	Workshop summaries and protocol documents	MAFF	24.000

Environmental Sealth Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2028	H1	Formulation of SOPs for outbreak investigation of AMR pathogens	SOP developed	MoE	30.000

7.2 Conduct and publish research around the burden, mortality and mechanisms of AMR

Cross-sectoral Activities

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026-2028	Annual	Initiate research studies to assess the burden and mortality due to AMR pathogens	Published research papers and policy briefs	Academic Institutions	20.000
2027	H1	Develop research agenda on AMR in Cambodia to take stock of existing research and identify key research gaps	Research agenda published and shared across all partners	Academic Institutions	20.000
2028	H1	Conduct study of the role of gender, equity and AMR in Cambodia	Study published	Academic Institutions	30.000

Strategic Area 3. Rational use of antimicrobial medicines

Current situation

The Cambodian MoH has demonstrated a commitment to managing the use of antimicrobial through the establishment of a comprehensive framework and guidelines. The National Guidelines for Antimicrobial Stewardship (AMS) rollout represents a critical step towards standardizing antimicrobial use across secondary and tertiary hospitals. The National Policy of AMS and the National Antimicrobial Consumption (AMC) Surveillance Guideline are pivotal in guiding healthcare providers toward more judicious use of antimicrobial. A draft AMS syllabus for Pre-service curriculum is set to enhance the education of future healthcare professionals in training institutions in health sector. Furthermore, the MoH has successfully rolled out the National AMS Guideline in 23 selected hospitals, which includes piloting Point Prevalence Surveys (PPS) to monitor antimicrobial use. Training programs, such as the refresher training on PPS, aim to keep healthcare professionals up-to-date with the latest practices. A landmark development is the adoption of the "AWaRe" classification of antimicrobial in the National Essential Medicines List, aligning Cambodia with international standards for antimicrobial use and AMR prevention.

Despite these efforts, the human health sector in Cambodia confronts significant hurdles. The adherence to antibiotic prescribing guidelines is suboptimal, with a considerable discrepancy between the actual prescription practices and the established national guidelines. This is exacerbated by the prevalent self-medication with antimicrobials among the public, further complicating the efforts to control antimicrobial use. The healthcare system is limited access to advanced diagnostic tools often results in antibiotic prescriptions without proper evident to make diagnosis, increasing the risk of antimicrobial resistance. Education and awareness regarding AMR are not adequately widespread, even among healthcare professionals, which is crucial for the effective implementation of AMS. Resource limitations and insufficient infrastructure also hinder the establishment of robust AMS programs in hospitals across the country.

In the animal health sector, the MAFF, specifically the GDAHP, has been proactive in regulating the use of antimicrobials medicine. There is a focus on developing and implementing a national plan for the surveillance of antimicrobial sales and use, particularly in terrestrial and aquatic animals. The GDAHP has been instrumental in fostering improved biosecurity and good animal husbandry practices aimed at reducing the dependency on antimicrobials. Moreover, the development of responsible antimicrobial use guidelines, influenced by recommendations from development partners, including, WOAH, CIRAD, signifies a movement towards more responsible practices in the animal industry. Treatment guidelines for poultry and pigs have been developed to guide farmers towards more prudent antimicrobial use. As for FiA, there are several efforts on minimizing the use of aquatic antimicrobial medicines in aquaculture through educating aquaculture technicians, trainers and farmers to apply Good Aquaculture Practices (GAqP) and biosecurity in aquaculture farms. Several fish farms have been audited and certified with GAqP certificates. On top of this in March 2024, FiA released two official technical orders on the use of aquatic veterinary medicines in aquaculture and Standard Operational Procedure (SOP) for monitoring of residues of veterinary medicines and environmental contaminants in products from

aquaculture. Farmers are trained and encourage to use alternatives to antimicrobials such as salt, lime, medicinal herbs, water quality recondition to improve health farm aquatic animals. Collaborative efforts with CIRAD have also led to a thorough review of the literature and existing guidelines related to antimicrobial use and resistance in animal health within Cambodia. These steps, along with the revision of the human and veterinary antimicrobials list in accordance with WHO's AwaRe and WOAH lists, reflect a comprehensive approach to managing AMR in the animal health sector.

Nevertheless, the sector is not without its challenges. There is a prevalent issue of antimicrobial overuse in animals and agriculture, notably for non-therapeutic purposes like growth promotion, especially in the poultry industry. The training in rational antimicrobial use is not widely available to veterinarians, which is a major oversight given their critical role in prescribing and managing these medications. This training gap extends to livestock and aquaculture farmers, where a limited percentage is aware of the risks associated with AMR. The situation is further complicated by the limited availability of alternative therapies to antimicrobial in animal health, which hampers efforts to reduce the dependency on antimicrobials. The sector also faces challenges in enhancing the capacity for biosecurity and good animal husbandry practices, especially in aquatic animal production, which is crucial for minimizing the development and spread of AMR.
Strategic objectives and proposed key interventions

Strategic Objective 8: Capacitate health professionals to implement relevant guidelines (SOPs, protocols) on rational use of antimicrobials in all sectors

Key Interventions:

8.1 Establish Continuous Professional Development programs on rational use of antimicrobials in all sectors.

8.2 Integrate principles of antibiotic stewardship and the rational use of antimicrobials into pre-service training of human, animal, and environmental health professionals.

8.3 Strengthen enforcement mechanisms to foster compliance of health professionals with guidelines and regulations on rational use of antimicrobials.

Strategic Objective 9: Establish antimicrobial monitoring consumption and use monitoring across sectors and use data for national and international reporting mechanisms

Key Interventions:

9.1 Establish a national monitoring program on antimicrobial use and consumption (in public and private sectors).

9.2 Establish sector-specific mechanisms and systems to analyze and use antibiotic use and consumption data to enhance the rational use of antimicrobials.

9.3 Share antimicrobial consumption and waste data through national, regional, and global platforms (GLASS, WPRACSS, ANIMUSE).

Strategic Objective 10: Develop and enhance sector-specific guidelines, regulations, and partnerships to advance AMR control and prevention

Key Interventions:

10.1 Develop public-private partnerships on the rational use of antimicrobials.

Workplan for strategic area 3

Strategic Objective 8. Capacitate health professionals to implement relevant guidelines (SOPs, protocols) on rational use of antimicrobials in all sectors

Key interventions:

8.1 Establish Continuous Professional Development programs on rational use of antimicrobials in all sectors

Human Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026	H1	Strengthen and expand AMS TWG WG within national hospitals, centers, referral hospitals of municipal, provinces, city and district	Formation of TWG-AMS	MoH	20.000
2026	H1	Develop SOP and national standards for AMS activities with easy, scalable, sustainable for healthcare facilities	Relevant SOPs and national standards available	MoH (TWG-AMS)	20.000
2027-2029	On-going	Roll-out the use of multi-disciplinary implementation of AMS guidelines including Point Prevalence Survey, other legislation tools and protocols related to AMS for implementations at all tertiary care facilities and selected provincial facilities	Expanded and selected health facilities implemented AMS guidelines	MoH (TWG-AMS)	20.000

Animal Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026-2028	Annual	Expand the Training of Trainers (ToT) program on the rational use of antimicrobials to the subnational level for terrestrial & aquatic animal health professionals.	Subnational ToT implemented	MAFF	200.000
2026-2028	H1	Provide training for Village Animal Health Workers and commune agriculture extension officers on the rational use of antimicrobial	Training reports	MAFF	120.000
2026	H2	Train farmers and drug sellers on rational use of antimicrobials and the impact of AMR	Training completion reports	MAFF	500.000
2027	H2	Develop guidelines on the use of antimicrobial in aquatic animals	Antimicrobial use guidelines for aquatic animals	MAFF	50.000
2026	H2	Develop guidelines on the use of antimicrobial medicine in terrestrial animal	Guidelines documents on aqua-medicine and feeds	MAFF	50.000
2026	H2	Conduct national and subnational training on the use of medicine in aquatic animals	Training reports at national and subnational levels	MAFF	50.000

Environmental Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026	H2	Develop module on principles of antimicrobial waste management for integrating into CPD for health professionals	A module on waste management for health professionals	GDEPA/MoE	15.000
2027	H1	Integrate the module of principles on antimicrobial waste management into CPD for health professionals	CPD program for health professionals with the integration of principles on AMR waste management	GDEPA/MoE in collaboration with MoH and MAFF	10.000
2028	H1	Conduct training to health workers on module of principles of antimicrobial waste management	Training report	GDEPA/MoE	20.000

8.2 Integrate principles of antimicrobial stewardship and the rational use of antimicrobials into Pre-service Training of human, animal and environmental health professionals

Human Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026	H1	Finalize, disseminate multi-disciplinary AMS course syllabus in the curriculum of pre-service training	Update training curriculum included course syllabus on AMS for pre-service trainings	MoH (DHS)	10.000
2026-2029	On-Going	Implement and integrate multi-disciplinary AMS educational modules in pre-service training (incl. linkages to trainings on IPC, HAI, etc)	AMS modules included in training curriculum for pre-service training and implemented	MoH (DHS)	30.000

Animal Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026-2027	H2	Collaborate with universities/institutes, that provide skills related to veterinary (terrestrial and aquatic) to review and propose additions to their curricula	Proposal for curriculum integration	MAFF	50.000
2027	H1	Implement rational use of antimicrobial content in pre-service training for veterinary para-professionals and aquatic animal health professionals.	Updated curriculum	MAFF	100.000
2028	H1	Extend curriculum integration to include the Doctor of Veterinary Medicine (DVM) program	Updated curriculum	MAFF	60.000

Environmental Health Sector

Year	Period	Activity	Deliverable	Responsible	
2027	H1	Assess current environmental health curricula for inclusion of antimicrobial waste management practices	Assessment report of curricula	University/MoE	25.000
2027	H2	Develop and integrate antimicrobial waste management training modulesinto university environmental health courses	Integration of training modules into university environmental health courses	Universities/MoE	30.000

8.3 Strengthen enforcement mechanisms to foster compliance of health professionals with guidelines and regulations on rational use of antimicrobials medicine.

Human Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2027	H1	Develop and periodically update the National Antibiotic Treatment Guidelines	National Antibiotic Treatment Guidelines endorsed	MoH (DHS)	20.000
2028	H1	Develop electronic platforms and tools for to help guide health workers to comply with national AMS guidelines and protocols	Development of electronic platforms and apps	MoH (DHS, CDC)	60.000
2027	H1	Develop/re-enforce/revise and enhance pharmaceutical management laws and legislation related	Updated pharmaceutical management laws	MoH (DDF)	20.000

Animal Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026	H2	Develop the regulations and treatment guidelines on Safety and Quality in Agriculture, with a focus on antimicrobial use, including dosage, maximum residue limited (MRL).	Draft of regulations and guidelines for Safety and Quality in Agriculture	MAFF	200.000
2027	H1	Obtain endorsement for the regulations and guidelines on Safety and Quality in Agriculture.	Regulations and guidelines on Safety and Quality in Agriculture adopted	MAFF	20.000
2028	H1	Implement the endorsed regulations and guidelines on Safety and Quality in Agriculture.	Implementation reports and feedback	MAFF	150.000
2029	H2	Identify mechanisms for the effective implementation of the new regulations and guidelines on Agriculture Safety and Quality.	Implementation mechanisms report	MAFF	20.000

Strategic Objective 9. Establish antimicrobial consumption and use monitoring across sectors and use data for national and international reporting mechanisms

Key interventions:

9.1 Establish a national monitoring program on antimicrobial use and consumption (in public and private sectors)

Human Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026	H2	Establish a Working Group (WG) for AMC/AMU within TWG-AMS	AMC/AMU Working Group Established	MoH (DDF, DHS, CDC, CMS, and other relevant institutions)	10.000
2026-2029	ongoing	Implement Point Prevalence Surveys (PPS) at existing healthcare facilities	PPS report for existing facilities	MoH (Hospitals/DHS)	45.000
2027-2028	ongoing	Roll-out and training on AMC guidelines	training reports	MoH (DDF,DHS)	30.000
2026-2029	Annual	Collect AMC data at national level (using import and manufacturing records)	AMC data	MoH (DDF)	10.000
2028-2029	ongoing	Roll-out AMC surveillance at selected hospitals	Hospital AMC surveillance reports	MoH (DDF, DHS)	20.000

2027	H1	Review and update antimicrobials on the EML of the MoH	Updated EML	MoH	10.000

Animal Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026-2029	Annual	Expand/establish existing national monitoring systems for AMU in terrestrial and aquatic animal species, dose form, rout of administration and farms setting.	AMU monitoring systems and reports	MAFF	100.000
2026	H2	Develop and disseminate guidelines and tools for monitoring AMU at farm level	Guideline and tools published	MAFF	25.000
2026-2028	Annual	Conduct the monitoring of AMU and AMC at farm levels	AMU and AMC reports	MAFF	100.000
2027	H1	Create a national database on AMU and AMC in agriculture	Database on AMU and AMC	MAFF	50.000

Environmental Health Sector

Year	Period	Activity	Deliverable	Responsible	
2026-2027	H1	Conduct a survey to collect initial data on medical waste (antimicrobial) at selected sites	Medical waste (antimicrobial) survey report of selected sites	GDEPA/MoE	50.000
2026-2028	Ongoing	Implement the National Residue Monitoring Plan (NRMP) for selected sites	NRMP implementation report of selected sites	MoE	100.000

9.2 Establish sector-specific mechanisms and systems to analyze AMU and AMC data to enhance rational use of antimicrobials

Human Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2027-2029	Ongoing	Set up SOPs/workflows to analyze and promote the use of national AMC data at national and selected sites	Data validation reports	MoH (DDF, DHS)	20.000

Animal Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026 -2028	Annual	Clean and validate AMU data in the animal health sectors	AMU data validation reports	MAFF	100.000
2026	H2	Develop a technical brief on interpreting antimicrobial use data in the animal health sector into policies/action	Technical brief on AMU data Interpretation and legal document adapted	MAFF	25.000

No specific activities for the environmental health sector have been identified

9.3 Manage AMC and AMU and antimicrobial waste data through national, regional and global platforms (GLASS, WPRACSS, ANIMUSE)

Human Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026-2029	Annual	Analyze AMC data for sharing	Report of AMC data for sharing	MoH	10.000
2026-2029	H1	Share report of AMC at national conferences or other platforms	presentations and reports shared	MoH	2.000
2028	Annual	Submit AMC data to GLASS and WPRACSS	Submission confirmation Reports	MoH	10.000

Animal Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026-2029	Annual	Analyze AMU data for global submission (ANIMUSE)	Report of AMU Data for sharing	MAFF	20.000
2027-2029	Annual	Submit annual AMU data to WOAH database	Submission confirmation Reports	MAFF	10.000
2028	H2	Develop reporting and data storing mechanisms/systems on AMU in aquaculture setting	Report and data storing mechanisms	MAFF	50.000

Environmental Health Hector

Year	Period	Activity	Deliverable	Responsible	
2026-2029	Annual	Analyze medical waste (antimicrobial) for sharing	Report of AMC data for sharing	MoE	15.000
2026-2029	Annual	Sharing report on medical waste (antimicrobials) for environment	Report	MoE	10.000

Strategic Objective 10. Develop and enhance sector-specific guidelines, regulations, and partnerships to advance AMR control and prevention

Key interventions:
10.1 Develop Public-Private partnerships on the rational use of antimicrobials

Cross-sectoral Activities

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026	H2	Conduct landscape analysis on the role of private sector bodies in AMR prevention and control in Cambodia	Landscape analysis published	MS AMR TWG	10.000
2027	H1	Organize dialogue/round tables between Ministries and representatives of private sector bodies	Report of round tables	MoH (DHS, CDC)	10.000
2027	H1	Establish MoU and joint set of activities between key private sector bodies and Ministries on the role of private sector in AMR control and prevention	MoU endorsed	MS AMR TWG	20.000

Strategic Area 4. Containing AMR through good practices

Current situation

In the realm of IPC, Cambodia has witnessed notable successes over the past half-decade. In collaboration with other departments, the collective efforts led by the MoH have culminated in a strengthened national IPC program. This program is characterized by a comprehensive policy framework that has been periodically developed and updated to stay abreast of evolving healthcare needs. The establishment of an organized IPC structure across various healthcare facility levels has been a crucial step in standardizing IPC practices. Furthermore, the identification of five IPC Centres of Excellence has propelled the quality and effectiveness of IPC measures.

The proactive review and widespread dissemination of IPC policies to all healthcare facilities have ensured that IPC remains a priority. This is complemented by the nationwide application of national IPC guidelines by healthcare professionals, reflecting a unified approach to infection control. The adoption of standard operating procedures, especially in the face of global health threats such as Ebola, MERS-CoV, and COVID-19, has showcased Cambodia's commitment to addressing contemporary healthcare challenges. Digital initiatives, including uploading IPC resources to accessible platforms and the ongoing role definition for IPC professionals, illustrate an embrace of technology and clarity in IPC roles. Finally, the IPC initiatives have been supported by solid financial structures and the cultivation of partnerships with NGOs and other development partners, enhancing the resources available for IPC implementation.

Despite the achievements, Cambodia faces several challenges in IPC that need to be addressed. A significant concern is the gap in IPC training for new staff, particularly at CPA 1 HCFs, which hinders effective IPC program implementation within individual hospitals. The lack of Central Sterilization Service Departments in some facilities poses a risk of cross-contamination due to improper equipment decontamination, undermining the integrity of the sterilization process.

The roles and responsibilities within IPC committees at many hospitals are ill-defined, leading to inefficiencies and potential neglect of critical IPC functions. This lack of clarity can result in inadequate IPC coverage and duplication of efforts. Additionally, the adaptation and internalization of the national IPC policy at the hospital level have been inconsistent, with some hospitals struggling to take ownership of IPC practices. This is exacerbated by the absence of critical infrastructure, such as incinerators for medical waste disposal, and inadequate coordination with waste collection services, which poses significant environmental and health hazards.

The systemic challenges highlighted in the SWOT analysis of the 2016-2020 NSP-IPC underscore broader issues. These include limited coordination between departments, a scarcity of IPC professionals at various levels, and insufficient budgeting to create an enabling environment for IPC. Moreover, the absence of routine surveillance for healthcare-associated infections in HCFs hampers the ability to effectively monitor and respond to IPC challenges. Addressing these issues is essential to maintain the momentum of progress and to ensure that IPC practices are comprehensive, robust, and sustainable across Cambodia's healthcare landscape.

In the past five years, Cambodia has made notable advancements in Water, Sanitation, and Hygiene (WASH), largely driven by the National Action Plan for Rural Water Supply, Sanitation, and

Hygiene (2019-2023), increased funding, and effective interventions. This effort has significantly enhanced access to safe drinking water, improved sanitation facilities, and better hygiene practices.

A key achievement under this initiative is increased access to safe drinking water, rising from 72% in 2018 to 83% in 2023. This improvement is attributed to the construction of new water infrastructure, such as wells and water treatment plants.

Sanitation coverage has also seen notable progress, with access to improved facilities increasing from 58% to 70% during the same period. This is a result of building new sanitation facilities and promoting good hygiene practices.

In the healthcare sector, the MoH rolled out National Guidelines for Water, Sanitation and Hygiene in Health Care facilities to ensure that 100% of public healthcare facilities have access to basic water and increase access to sanitation.

Despite these improvements, challenges such as the need for more infrastructure investment, addressing rural-urban disparities, and ensuring the sustainability of WASH interventions remain. Nevertheless, with its continued commitment, the Cambodian government aims to achieve universal access to safe water, sanitation, and hygiene.

Strategic objectives and proposed key interventions

Strategic Objective 11: Strengthen and implement national policies and standards of practice regarding IPC activities in healthcare settings, animal husbandry, and food processing

Key Interventions:

11.1 Implement the 2022-2030 National Strategy on IPC and Agricultural safety law.

11.2 Strengthen AMR-related surveillance mechanisms such as on healthcare-associated infections, food safety, community-acquired infections, or veterinary practices.

11.3 Strengthen the implementation of good practices in agriculture, including GAP, GAHP, GWaR, GHD, GMP, and HACCP.

Strategic Objective 12: Improve water sanitation and hygiene (WASH) and waste management in all sectors

Key Interventions:

12.1 Establish monitoring systems on AMR in the environment (medical waste management, agricultural waste, solid waste, liquid waste).

12.2 Implement key strategies and guidelines on WASH in community and healthcare facilities.

12.3 Develop and disseminate policies and legislation on waste management in all sectors to reduce and minimize environmental releases of pollutants impacting AMR.

Strategic Objective 13: Promote vaccination as a method of reducing infections in human and food animals

Key Interventions:

13.1 Promote the uptake of vaccines for preventable diseases in the general population, health care workers, village health support groups, and members of the veterinary task force.

13.2 Optimize animal health through promoting good biosecurity practices and by vaccination of pets, livestock, poultry, fish, and aquatic animals.

Workplan for strategic area 4

Strategic Objective 11. Strengthen and implement national policies and standards of practice regarding IPC activities in healthcare settings, animal husbandry and food processing.

Key interventions:

11.1 Implement the 2022-2030 National Strategy on IPC and Agricultural Safety Law

The implementation of the MSAP-AMR 2025-2029 will be strategically executed through a series of established national strategies and laws. Notably, this will include the National Strategy on IPC for the period 2022-2030 and the Agricultural Safety Law. The progression of the MSAP-AMR will be closely monitored and reported on, with a particular focus on the execution of these key strategies and legislative frameworks.

Human Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026-2029	Annual	Provide technical support around the implementation of AMR-related aspects in the implementation of IPC strategy	Progress report on implementation of relevant strategies and policies	MoH	100.000

Animal Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026-2029	Annual	Engage with agricultural cooperatives and veterinary communities/aquaculturist associations to enforce the newly endorsed legislations, and technical orders to emphasize the impacts of AMR on farmed animals, human and environment	Progress report on implementation of the legislation	MAFF	150.000
2027-2029	Ongoing	Modeling livestock and aquaculture farms equipped and practiced with biosecurity measures and follow GAHP and GAQP to reduce the AMU	Report on antimicrobial reduction compare to common farms	MAFF	300.000
2026	H2	Develop national GAqP guidelines for aquaculture farms	National GAqP guidelines	MAFF	40.000
2026	H2	Develop SOP for GAqP audit and certification	GAqP audit and certification SOP	MAFF	40.000

11.2 Strengthen AMR-related surveillance mechanisms such as on healthcare-associated infections, food safety, community-acquired infections, or veterinary practices.

Cross-sectoral Activities

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026-2029	Annual	Provide technical support around the implementation of AMR surveillance-related aspects in plans around Hospital Acquired Infections, Food Safety, Veterinary practices	Progress report on surveillance in healthcare-associated infections, food safety, community-acquired infections, or veterinary practices.	MoH, MAFF, MoE	200.000
2027-2029	Bi-annual	Conduct joint AMR One Heath surveillance in food safety setting, food markets, and farm animals	Result disseminated and published	MoH, MAFF, MoE	200.000

11.3 Strengthen implementation of good practices in agriculture, including GAP, GAHP and GAqP, GHP, GMP, and HACCP.

Animal Health Sector

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2027	H1	Develop and integrate AMR to the guideline on GAHP	Guideline on GAHP endorsed and published	MAFF	26.000
2027	H1	Establish Training of Trainers (TOT) programs on GAHP at the sub-national level, particularly to veterinary officers/practitioners.	ToT program reports	MAFF	50.000
2027	H1	Developed guidelines for Good Hygiene Practices in slaughterhouse	Guideline on Good Hygiene Practice in slaughterhouse published	MAFF	50.000
2028	H2	Promote GAqP at aquaculture farms through certification and trade incentives	GAqP report and number of certified farms	MAFF	50.000
2029	H2	Expand Good Animal Husbandry Practices (GAHP) to include additional species at farms	GAHP Report of additional species	MAFF	50.000

Strategic Objective 12. Improve water sanitation and hygiene (WASH) and waste management in all sectors Key interventions:

12.1 Establish monitoring systems on AMR in the environment (medical waste management, agricultural waste, solid waste, and wastewater)

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026	H2	Test drinking water sources for *E. coli* and *Salmonella* to establish a baseline of AMR presence	Baseline report of AMR in water sources	MoE, MoH MAFF	60.000
2027-2029	Annual	Initiate research studies to analyze AMR in medical, agricultural, solid waste, and wastewater	Research study reports	MoE, MoH, MAFF	50.000

12.2 Implement key strategies and guidelines on WASH in community, and healthcare facilities.

Year	Period	Activity	Deliverable	Responsible	
2026-2029	On-going	Provide technical support around the implementation of AMR-related aspects in the implementation of WASH strategies	Progress reports	MoH, MAFF and MoE	50.000

12.3 Develop and disseminate policies and legislation on waste management in all sectors to reduce and minimize environmental releases of pollutants impacting AMR

Year	Period	Activity	Deliverable	Responsible	
2027	H1	Establish national guidelines for the treatment and management of healthcare/antimicrobial waste	Treatment and management guidelines	MoE, MAFF, MoH	40.000

13.1 Promote the uptake of vaccines for preventable diseases in the general population, health care workers, village health support groups, commune extension officers, and village animal health

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026-2029	H2	Promote uptake of vaccines by highlighting the linkages between vaccination, infection prevention and AMR	Communication materials disseminated in target populations	MoH, MAFF, MoE	40.000

13.2 Optimize animal health through promoting good biosecurity practices and by vaccination of pets, livestock, poultry, fish and aquatic animals.

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026-2029	Annual	Promote routine vaccination and campaigns in pets and farmed animals	Vaccination reports	MAFF	40.000
2026-2029	Annual	Promote biosecurity practices to food producing animal farmers	Number of farmers/farms	MAFF	40.000

Strategic Area 5. Prevention and control of AMR through (risk) communication and community engagement

Current situation

Cambodia has taken steps in the last five years to elevate awareness of AMR, implementing a multifaceted approach to engage a broad spectrum of society. The first MSAP on AMR from 2019 to 2023 set a solid foundation for these efforts, emphasizing the need for educational outreach and defining key activities and audiences. The cross-ministerial participation in World Antimicrobial Awareness Week has served to bring attention to the collective responsibility in tackling AMR across government, and with target sectoral groups, primarily human and animal health students and professionals.

The MoH, leveraging partnerships, has been proactive in creating and disseminating educational materials across various media platforms, working to ensure that AMR messaging penetrates to all societal levels. Targeted campaigns towards farmers are aiming to shift practices towards responsible antibiotic use in agriculture, which is a critical front in the fight against AMR. Community outreach and engagement with youth have also been key, with innovative programs like the Innovation Hackathon sparking new ways to bring AMR awareness to the forefront of public consciousness.

There is some Information, Education, and Communication (IEC) materials in the Khmer language, tailored for campaigns such as the World Antimicrobial Awareness Week, and seminars and workshops for containment of AMR, targeting the livestock, aquaculture, and veterinary sectors, have been successfully conducted, reflecting a commitment to a One Health approach. Notably, in the animal health sector, Cambodia, with the support of the WOAH, developed a national multisectoral AMR communication strategy for the period 2024-2026, marking a proactive stance towards AMR in diverse health sectors (though this strategy has never received a budget for implementation).

Despite these advances, challenges remain. Limited human and financial resources for communication limits regular, systematic and proactive RCCE about AMR and antimicrobial use with target audiences and the wider general public. Language and cultural barriers pose hurdles in crafting messages that resonate across Cambodia's diverse population. Ensuring that behavioral changes in antibiotic use are sustained over the long term remains an ongoing task.

To build on its current successes, Cambodia should concentrate on maintaining and enhancing awareness campaigns, developing creative strategies tailored to different audiences, and fostering stronger collaborations to share resources and expertise. Community empowerment and investment in research to gauge the impact of these campaigns are essential for future progress.

Strategic objectives and proposed key interventions

Strategic Objective 14: Strengthen evidence on understanding practices and behaviors around appropriate use of antimicrobials and roll-out evidence-based awareness raising activities in the general public on AMR

Key Interventions:

14.1 Gather evidence around practices and behaviors on appropriate use of antimicrobials and roll-out community-focused awareness campaigns on appropriate use of antimicrobials.

Strategic Objective 15: Strengthen risk communication capacity in health professionals across all sectors

Key Interventions:

15.1 Develop and conduct training workshops, ToTs for health professionals that focus on AMR risk communication, proper antimicrobial use practices, and patient/farmers education methods.

Strategic Objective 16: Establish an appropriate communication system and institutionalize coordination for communication between the three ministries on AMR (MoH, MAFF, and MOE)

Key Interventions:

16.1 Institutionalize coordination mechanisms amongst the key stakeholders in the government and beyond government agencies to discuss, plan, and implement communication activities on AMR/AMU regularly.

Workplan for strategic area 5

Strategic Objective 14. Strengthen evidence on understanding practices and behaviors around appropriate use of antimicrobials and roll-out evidence-based awareness raising activities in the general public on AMR

Key interventions:

14.1 Gather evidence around practices and behaviors on appropriate use of antimicrobials and roll-out
community focused awareness campaigns on appropriate use of antimicrobials

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026	H2	Conduct a desk review of existing research and evidence on AMR in Cambodia, and build on the evidence base by performing KAP studies, web-based surveys, or other behavioral science studies to understand practices, behavior around the appropriate use of antimicrobials with clear recommendations for future interventions and campaigns	Reports of study published and disseminated to key stakeholders	MoH, MAFF, MoE	80.000
2026-2029	On-going	Establish or review a content partnership with a nationwide media outlet to promote utilization of awareness raising materials on AMR and how the public can engage in desired behaviors about antibiotics	Reports of promotional sessions or Information education Communication (IEC) materials distributed	MoH, MAFF, MoE	10.000
2026-2029	Annual	Implement a nationwide awareness campaign for AMR Awareness Week targeting specific antimicrobial use behaviors that establish baselines and endlines in knowledge and behavior change.	Event summary report	MoH, MAFF, MoE	100.000
2026-2029	Quarterly	Conduct awareness raising workshops on AMR to health professionals (public and private sector), and animal health professionals	Workshop reports	MoH, MAFF	200.000
2027	H1	Establish partnerships with social science and behavioral change communication experts on AMR	Partnership agreements	MoH, MAFF, MoE	20.000

Strategic Objective 15. Strengthen communication in health professionals across all sectors

Key interventions:

15.1 Develop and conduct capacity building for health professionals that focus on AMR communication, promoting antimicrobial use practices, and patient/farmers education methods.

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2027-2029	Annual	Train health professionals using the One Health approach on AMR communications within health facilities and relevant stakeholders	Training(s) reports	MoH, MAFF, MoE	100.000

2027-2029	Annual	Develop a set of tools, and education materials to enable health professionals to communicate with communities, patients, farmers on AMR and the appropriate use of antimicrobials	Products of tools, and guidance materials available	MoH, MAFF, MoE	100.000
2029	H1	Develop and implement a systematic approach to engage prescribers (public and private) and others in AMR awareness initiatives	Engagement strategy and participation report	MoH, MAFF, MoE	20.000

Strategic Objective 16. Establish an appropriate communication system and institutionalize coordination for communication between the three ministries on AMR

16. 1 Institutionalize coordination mechanisms amongst the key stakeholders in the government and beyond government agencies to discuss, plan and implement communication activities on AMR/AMU regularly

Year	Period	Activity	Deliverable	Responsible	Budget (in USD)
2026	H1	Set-up a sub-working group on AMR communications	Sub-working group set-up and focal points nominated	MoH, MAFF, MoE	0
2027	H1	Prepare Terms of Reference and draft the communications strategy for the sub-working group on AMR communications to implement	TOR document	MoH, MAFF, MoE	10.000

CHAPTER 5

GUIDING PRINCIPLES ON IMPLEMENTING THE ACTIVITIES DEFINED IN THE MSAP-AMR

Clear Leadership and Accountability

The MSAP-AMR aims to provide a structured framework to combat AMR through a collaborative and integrative approach. The following guiding principles are proposed to ensure the effective implementation of the activities outlined within the MSAP-AMR. These principles address leadership, adaptability, inclusivity, and several other critical areas to enhance the plan's impact.

Flexibility and Responsiveness

Recognizing that the contexts in which the MSAP-AMR operates can change, flexibility must be built into its implementation. Indicative timings and budgets should be viewed as adjustable elements rather than fixed metrics. This principle allows the plan to remain relevant and practical in the face of fluctuating budgets, shifts in policy, and competing priorities. Implementation strategies should include provisions for periodic reviews and adjustments to adapt to these changes.

Inclusivity through a gender and equity lens

All activities under the MSAP-AMR should apply a gender and equity lens to promote inclusivity. This approach ensures that the interventions are fair and beneficial to all segments of the population, regardless of gender, socioeconomic status, or other potential barriers to access and effectiveness. By incorporating these factors, the plan can cater to the distinct needs and situations of various groups, resulting in more equitable health outcomes.

Stakeholder Engagement and Collaboration

Effective implementation of the MSAP-AMR requires active engagement and collaboration with all relevant stakeholders, including government sectors, healthcare providers, non-governmental organizations, and the community at large. This principle ensures that diverse perspectives and expertise are considered in decision-making processes, enhancing the plan's overall effectiveness and sustainability. Regular meetings and communications should be established to foster strong partnerships and collective ownership of the plan's goals.

Evidence-Based Approaches and Continuous Learning

The MSAP-AMR should be grounded in evidence-based approaches, utilizing data and research to guide decision-making and measure outcomes. This principal advocates for continuously gathering data and evaluating program effectiveness to inform adjustments and improvements. Additionally, it encourages innovation by integrating new evidence and emerging best practices into ongoing activities. Continuous learning environments will enable stakeholders to adapt effectively to new challenges and opportunities.

CHAPTER 6

MONITORING AND EVALUATION OF THE MSAP-AMR 2025-2029

An M&E framework was developed as part of the previous MSAP-AMR, but it was only established close to the end of the project's lifespan. This timing limited its practical application and impact within MSAP's lifecycle.

The current MSAP-AMR is designed differently to ensure that the proposed activities can be effectively measured by their deliverables and the resources spent on them. This structured approach allows for more robust monitoring and evaluation.

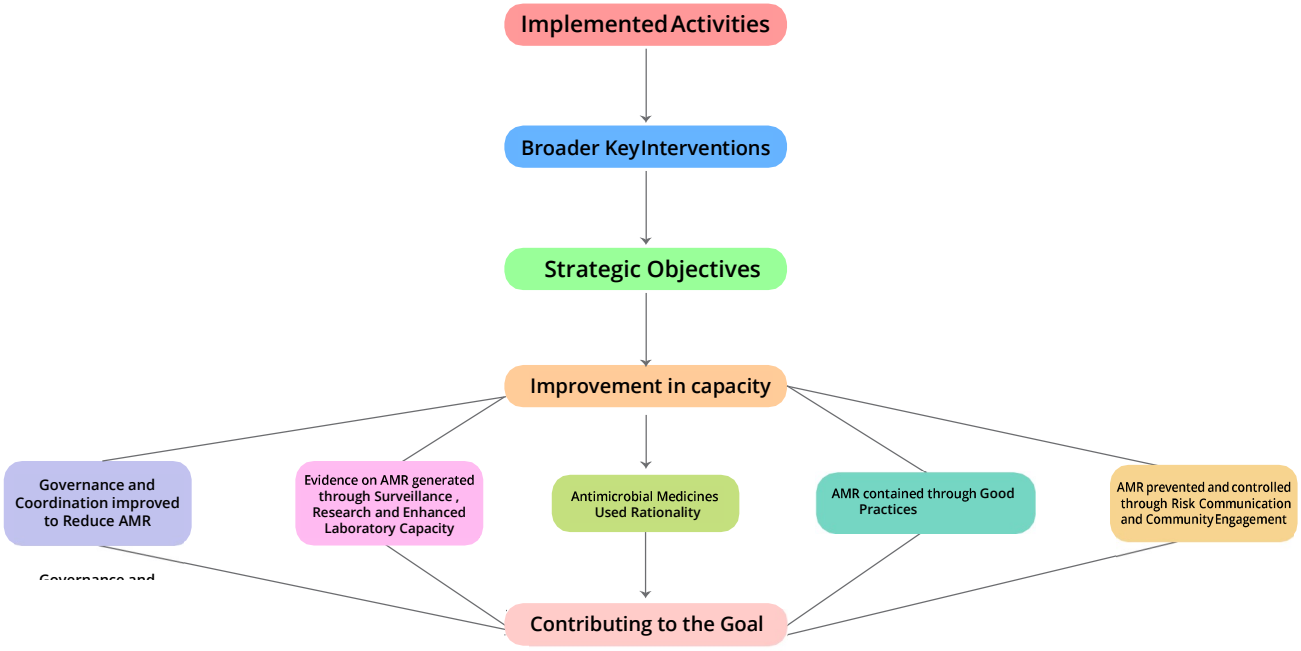
The MSAP-AMR can be monitored and evaluated through a logical framework that links activities to broader outcomes and strategic objectives, contributing to the overall goal. This framework operates as follows:

- **Implemented Activities: These are the specific actions undertaken as part of the MSAP-AMR.**
- **Broader Key Interventions: The activities collectively contribute to key interventions designed to address AMR.**
- **Strategic Objectives: The interventions aim to achieve the strategic objectives.**
- **Improvement in Capacity: Achieving these strategic objectives should help improve capacity in the five strategic areas:**
    1. Governance and Coordination Improved to Reduce AMR
    2. Evidence on AMR Generated through Surveillance, Research, and Enhanced Laboratory Capacity
    3. Antimicrobial Medicines Used Rationally
    4. AMR Contained through Good Practices
    5. AMR Prevented and Controlled through Risk Communication and Community Engagement

By achieving the strategic objectives, the MSAP-AMR aims to contribute significantly to the overarching goal of a more robust and effective AMR response in the country.

Below is the logical framework diagram for the MSAP-AMR, reflecting the improvements and contributions achieved:

Logical Framework for MSAP - Achievement



While the achievements of the current MSAP-AMR are commendable, setting specific, measurable, achievable, relevant, and time-bound (SMART) targets around improved capacity could further enhance the effectiveness of the AMR response in Cambodia. However, this requires careful consideration and a more detailed M&E exercise. If resources allow, Cambodia should consider setting SMART targets to provide clear and actionable benchmarks for improved capacity in the five strategic areas.

Setting realistic and achievable SMART targets is challenging due to the current capacity and knowledge in the country. To effectively establish these targets, a more specific and detailed M&E exercise is necessary. This exercise should involve:

- Identification of key performance indicators (KPIs) that align with the strategic objectives.
- Engagement with stakeholders across sectors to ensure targets are realistic and attainable.
- Allocation of necessary resources to support close monitoring of targets.