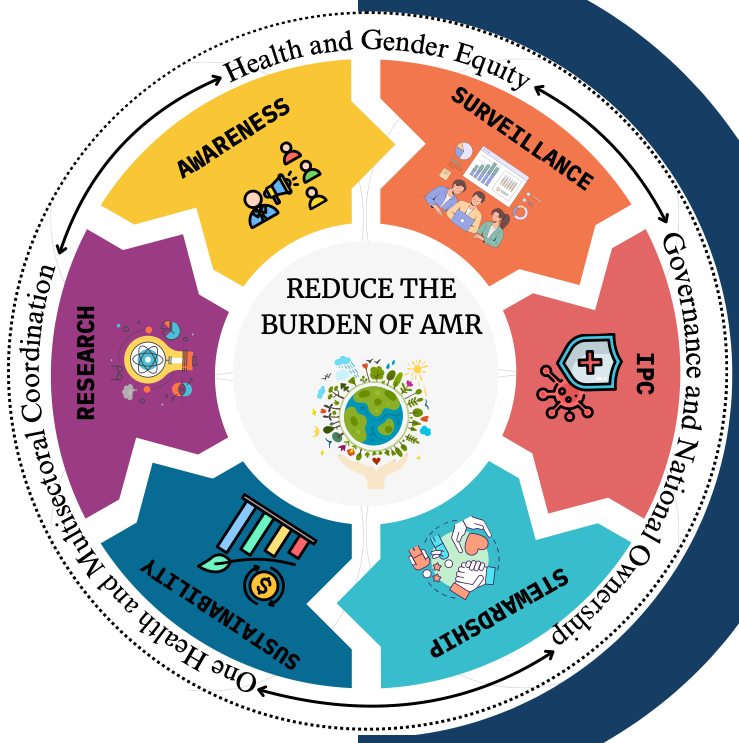
NATIONAL STRATEGIC PLAN
ON
ANTIMICROBIAL RESISTANCE



2026 - 2035

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Foreword

The updated National Strategic Plan on Antimicrobial Resistance (2026–2035) for the Lao People's Democratic Republic (PDR) aims to address the rising global public health threat of antimicrobial resistance (AMR) at the national level by adopting a comprehensive, multisectoral, and nationally led strategy to safeguard the well-being of the Lao people. This includes the implementation of a context-specific surveillance system with cost-effective prevention strategies and research initiatives that align with both global and regional AMR efforts. A key update to this revised strategy is its commitment to prioritizing people at the core of the strategic framework, allowing increased access to AMR diagnostic and treatment services throughout the country; these two elements were not adequately addressed in the past.

During the last National Strategic Plan period, Lao PDR demonstrated significant progress in surveillance, supporting routine microbiological diagnosis and antimicrobial use, along with enhanced governance and public awareness. The National AMR Surveillance and Control Committee spearheaded this advancement under the leadership of the Ministry of Health, the Ministry of Agriculture and Environment, and the Department of Livestock and Fisheries. This progress has been recognized and praised among national and international communities as a fundamental step in the government's efforts to contain AMR. Building on this momentum, the AMR agenda is now prioritized as one of the top five health priorities. At the regional level, the country contributed to the development of the Joint Position Paper on AMR in the Asia-Pacific region. Most notable is the country's unwavering commitment to addressing AMR, while maintaining positive outcomes in other public health areas.

Despite progress, challenges remain, particularly in the financial, technical, and human resources required to address AMR sustainably. The COVID-19 pandemic further exacerbated these challenges. Nevertheless, the strategy builds on the progress achieved over the past five years, transforming it into a nationally driven and sustainable AMR framework that provides evidence-based information to address this growing public health threat. This vision will be implemented by leveraging the experiences and capacities that have been built over the last decade. Upstream interventions such as infection prevention and control (IPC), vaccination, and WASH (water, sanitation, and hygiene) programs will lie at the core of the implementation. The ultimate goal is to produce national data and trends that will guide appropriate AMU, IPC efforts, stewardship initiatives, and the policymaking process, extending benefits not only at the national level but also regionally and internationally. Lao PDR is steadfast in its commitment to the international community to address the complex and evolving challenges associated with AMR.

In the newly updated strategy for 2026–2035, Lao PDR will implement concrete AMR actions, aligning with regional and global efforts aimed at mitigating the AMR burden on the Lao PDR population, in collaboration with donors, international partners, and like-minded organizations. This will be achieved through a nationally-led, inclusive, gender-sensitive, multisectoral approach that integrates initiatives across various sectors, including animal health (both domestic and wildlife), the environment, and agriculture (covering ecosystems), with a sustainable phased approach.

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Minister of Agriculture and Environment

Acknowledgements

The Ministry of Health (MOH) of the Lao People's Democratic Republic (PDR) extends its sincere appreciation to all national teams, departments, and partner organizations for their collaboration in updating this important National Strategic Plan on Antimicrobial Resistance. The Department of Communicable Disease Control (DCDC) has demonstrated strong leadership and coordination in guiding this effort, ensuring that the national antimicrobial resistance (AMR) response aligns with the country's strategic health priorities. MOH also acknowledges the key role of the Ministry of Agriculture and Environment in advancing the One Health approach and fostering multisectoral collaboration to tackle AMR.

We recognize with deep appreciation the contributions of the Ministry of Education and Sports, the University of Health Sciences, the Department of Healthcare and Rehabilitation, the Food and Drug Department, the National Centre for Laboratory and Epidemiology, the National Animal Health Laboratory, provincial health departments, and both central and provincial hospitals. Their active participation has been instrumental in ensuring the success of this initiative.

We extend our highest gratitude to the World Health Organization (WHO) Country Office in Lao PDR for its technical, strategic, and operational support throughout the development of this strategy. MOH also expresses special appreciation to our international development partners, including the Food and Agriculture Organization, Fondation Mérieux, and the Lao–Oxford–Mahosot Hospital–Wellcome Trust Research Unit, for their invaluable contributions. This strategic undertaking was made possible through the generous financial support of the Fleming Fund, UK Aid programme managed by the UK Department of Health and Social Care (DHSC) , whose investment has been critical to strengthening AMR surveillance and multisectoral capacity in Lao PDR.

The strategy was developed under the leadership and guidance of Dr Phonepadith Xangsayarath, Director General of the DCDC, whose vision and direction ensured its successful completion. Special recognition is also given to the WHO Country Office team – particularly Dr Phanoula Zanarath, Dr Souliyadeth Sonephet, and Mr Viengkham Sitthilat under the supervision of Dr Satoko Otsu, Team Leader of the WHO Health Emergencies Programme (WHE), and Dr Yu Lee Park, the Coordinator for WHO Health Systems Development (HSD), who provided technical expertise and coordination throughout.

We acknowledge the collective efforts of the National AMR Secretariat team, National AMR Focal Point, provincial officials from the northern and southern health departments, veterinary professionals, hospital directors at AMR sentinel sites, clinicians, nurses, pharmacists, infection prevention and control focal points, and provincial veterinary authorities. Finally, we acknowledge the tireless efforts and dedication of the national AMR core technical team and Dr Nay Thi Ha, WHO Consultant, for drafting and finalizing the document with technical input from the WHO Regional Office for the Western Pacific.

Abbreviations

AMC	Antimicrobial consumption
AMR	Antimicrobial resistance
AMS	Antimicrobial stewardship
AMU	Antimicrobial use
AWaRe	Access, Watch, Reserve
c-AMU	Clinical-level antimicrobial use
DCDC	Department of Communicable Disease Control
DHHP	Department of Hygiene and Health Promotion
DHR	Department of Healthcare and Rehabilitation
DID	Defined daily doses per 1,000 inhabitants per day
DLF	Department of Livestock and Fisheries
ESBL	Extended-spectrum beta-lactamases
FAO	Food and Agriculture Organization of the United Nations
FDD	Food and Drug Department
GHPP	Good Hospital Pharmacy Practice
GLASS	Global Antimicrobial Resistance and Use Surveillance System
GPP	Good Pharmacy Practice
IPCAF	Infection Prevention and Control Assessment Framework
IPC	Infection prevention and control
JEE	Joint External Evaluation
LOMWRU	Lao-Oxford-Mahosot Hospital-Wellcome Trust Research Unit
Lao PDR	Lao People's Democratic Republic
m-AMU	Medicine-level antimicrobial use
MDRO	Multidrug-resistant organism
MAE	Ministry of Agriculture and Environment
MOH	Ministry of Health
MRSA	Methicillin-resistant *Staphylococcus aureus*
NAHL	National Animal Health Laboratory
NASCC	National Antimicrobial Surveillance and Control Committee
NCLE	National Centre for Laboratory and Epidemiology
NHI	National Health Insurance
NSP	National Strategic Plan
PPS	Point Prevalence Surveys
SOP	Standard operating procedure
TrACSS	Tracking Antimicrobial Resistance Country Self-Assessment Survey
WAAW	World AMR Awareness Week
WASH	Water, sanitation, and hygiene
WASH FIT	Water and Sanitation for Health Facility Improvement Tool
WHO	World Health Organization
WPRACSS	Western Pacific Regional Antimicrobial Consumption Surveillance System

Glossary

Antibiotic: A chemical substance, strictly one produced by a microorganism, that kills or inhibits the growth of bacteria at very low concentrations. The term is frequently used interchangeably with antibacterial and antimicrobial.

Antimicrobial: A chemical substance that kills or inhibits the growth of microorganisms such as bacteria, viruses or fungi.

Antimicrobial resistance (AMR): Process by which microorganisms such as bacteria, fungi, viruses, and parasites mutate when exposed to antimicrobials such as antibiotics, antifungals, antivirals, antimalarials, and anthelmintics. As a result, antimicrobials become ineffective.

Antimicrobial stewardship (AMS): A coherent set of actions that promote the responsible or appropriate use of antimicrobials. This definition can be applied to actions at the individual level as well as national and global levels and across human health, animal health, and environmental sectors.

Defined daily doses per 1,000 inhabitants per day (DID): A standardized metric used to express antimicrobial consumption by estimating the average daily dose of a drug consumed in a population of 1,000 people per day. This measurement allows comparison of antibiotic usage across different populations and time periods in a standardized way. The DID metric is commonly used in surveillance systems for monitoring antimicrobial consumption at national and regional levels to guide stewardship and public health interventions.

Disease surveillance: An epidemiological practice by which the spread of disease is monitored in order to establish patterns of progression. The main role of disease surveillance is to predict, observe and minimize the harm caused by outbreak, epidemic and pandemic situations, as well as increase our knowledge as to what factors might contribute to such circumstances.

Extended-spectrum beta-lactamases (ESBL): Enzymes that confer resistance to most beta-lactam antibiotics, including penicillins, cephalosporins, and the monobactam aztreonam.

Infection prevention and control (IPC) measures: Measures that aim to prevent the spread of pathogens between people in a healthcare setting. Examples of infection control measures include handwashing, protective clothing, isolation procedures and audits of compliance with hygiene measures.

Methicillin-resistant *Staphylococcus aureus* (MRSA): Strains of *Staphylococcus aureus* that are resistant to methicillin, and therefore also resistant to almost all other beta-lactam antibiotics.

Resistance: A property of some bacteria that renders certain antibiotics ineffective against them in the laboratory or when they are used to treat infections. Resistance may be an intrinsic characteristic or may be acquired and selected by exposure to antibiotics. The latter category frequently has greater public health significance.

1. Introduction

Antimicrobial resistance (AMR), often described as a "silent threat," poses one of the most significant global public health challenges of our time – comparable in scale and urgency to climate change and international conflict.[1] In 2019, AMR was directly responsible for approximately 1.27 million deaths and contributed to an estimated 4.95 million more, with disproportionate impacts in low- and middle-income countries where poverty and health inequities are widespread.[2] Post-COVID-19 conditions and ongoing geopolitical tensions have further exacerbated the situation. Economically, the projections are equally alarming: by 2050, AMR could add an estimated US$ 1 trillion to global healthcare costs, while substantial losses in gross domestic product are forecast by 2030.[3] If current trends continue, AMR-associated deaths could reach 39 million globally between 2025 and 2050.[4]

Drug resistance has been recognized for more than a century. Sir Alexander Fleming famously cautioned about this danger during his Nobel Prize lecture in 1945. The first Global Action Plan on AMR, launched in 2015, defined AMR as a consequence of the misuse and overuse of antimicrobials in human medicine and food production, compounded by the stagnation of new antimicrobial development.[5] Beyond these drivers, decades of exposure to various antimicrobial substances have reshaped microbial ecosystems, even at low concentrations, influencing their resistance to these substances.[6,7]

Research has increasingly highlighted the role of selective antimicrobial residues in, for example, the air, soil and water. This underscores the significant environmental and genomic dimensions of AMR and emphasizes that antimicrobials underpin not only global health systems but also food security and ecosystem sustainability.[8,9] Preserving the effectiveness of antimicrobials as a *global public good* is therefore essential, calling for comprehensive and forward-looking actions that draw on insights from the social sciences.[10]

Effectively addressing AMR requires a multifaceted approach that includes surveillance, infection prevention and control (IPC), access to clean water, rapid diagnostics, and investment in research for new treatments. Implementation actions must be guided by a global perspective – recognizing the interdependence of countries, regions, and sectors – and consideration of the social and behavioral sciences to go beyond the biomedical model.[11] While quality data from surveillance systems can improve understanding of AMR, upstream interventions like IPC and hand hygiene could prevent an estimated 584,800 AMR-associated deaths.[4] It is therefore essential to maintain these cost-effective interventions alongside foundational elements such as strong governance structures. By translating these strategies into context-appropriate actions that utilize national resources and capacities, countries can sustainably reduce the burden of AMR both nationally and globally.

Over the past decade, the Lao People's Democratic Republic (PDR) has implemented significant changes at the national level by updating its multisectoral working group on AMR, with key ministries involved, and by designating AMR as a top health priority. The country's surveillance efforts have been commendable given its resource constraints. To further this progress, Lao PDR has updated its National Strategic Plan on Antimicrobial Resistance for 2026–2030, adopting a people-centred approach through inclusive consultations across various sectors, including the environmental and agricultural sectors. The strategy's multisectoral nature ensures its implementation is practical and sustainable, grounded in the local context and addressing identified gaps within the country. Most importantly, this updated strategy reflects a shared national commitment to ownership and sustainable actions to contain AMR – both within the country and across the wider region.

2. Regional AMR situation

As with global trends, in the World Health Organization (WHO) Western Pacific Region, AMR poses serious and increasing health and economic challenges. Between 2020 and 2030, AMR is expected to cause an estimated 5.2 million deaths and result in 172 million additional hospital days, with an economic burden of US$ 148 billion. In 2020 alone, AMR contributed to approximately 450,000 excess deaths in the Region, with a mortality rate of 23.5 per 100,000 people – comparable to major noncommunicable diseases such as diabetes and liver cirrhosis, and significantly higher than deaths from tuberculosis and HIV/AIDS. The key contributors, methicillin-resistant *Staphylococcus aureus* (MRSA) and *Escherichia coli* (*E. coli*), are responsible for over 80% of AMR-related deaths among the primary bacterial pathogens studied in the area. The impact is unevenly distributed, with the highest absolute costs and mortality in populous countries like China and Vietnam, while the highest relative gross domestic product burden is on low- and lower-middle-income countries and Pacific Island nations. Initially, only 12 of 38 countries and territories in the Region, including Lao PDR, participated in the global AMR surveillance system. In 2023, 10 countries and territories reported data for 2022.[12,13]

The Global Research on Antimicrobial Resistance Project 2019 analysis indicates that the Eastern Mediterranean Region uses more antibiotics than any other WHO region.[3] High-income countries consume the most antibiotics, while middle-income countries exhibit the largest growth in antibiotic use from 2000 to 2018. In the Western Pacific Region, 10 Member States share antibiotic consumption data through the Western Pacific Regional Antimicrobial Consumption Surveillance System (WPRACSS) platform.[14] Five countries/territories, including Lao PDR, submitted data to the Global Antimicrobial Resistance and Use Surveillance System (GLASS) for 2021 and 2022. In the 2022 reporting cycle, four countries reported that more than 60% of their antibiotics came from the "Access" group, while Malaysia and Papua New Guinea exceeded 70%. Lao PDR achieved a similar level in 2023.[15]

With support from the WHO Regional Office for the Western Pacific, 24 of the 28 countries in the Western Pacific Region have developed national action plans for AMR using a One Health approach, often in collaboration with the animal health and agricultural sectors. Many countries, including Lao PDR, are currently updating their national action plans. However, implementation varies significantly due to the current financial constraints in most countries. Lao PDR is one of the few countries, together with Hong Kong SAR (China), Malaysia, and Papua New Guinea, that have reported AWaRe (Access, Watch, Reserve) classification data to the GLASS (antimicrobial use [AMU]) platform since 2019.[15]

The COVID-19 pandemic has led to notable progress in IPC, with 52% of the Western Pacific Region implementing IPC programs as of 2024. However, challenges such as legal gaps, policy translation issues, and insufficient training persist in six low- and middle-income countries.[16] Antimicrobial stewardship (AMS) is better established in high-income countries with national guidelines in hospitals, while primary health care and community settings remain largely neglected. Some low- and middle-income countries have formed policies for antibiotic use, but enforcement is limited. Lao PDR has laws and regulations to prohibit sale without a prescription; however, enforcement is still necessary in most geographical areas.

Most countries in the Western Pacific Region conduct public awareness-raising campaigns during the World AMR Awareness Week (WAAW). A people-centred approach encourages countries to increase access to diagnostics and healthcare services while also addressing social, gender, and structural factors.[17] Actions, therefore, should be tailored to country contexts, with high-income countries focusing on expanding efforts across sectors, while low- and middle-income countries should invest in and prioritize basic prevention measures like water, sanitation, and hygiene (WASH), immunization, and stricter law enforcement on sales without prescriptions.

3. Health system in Lao PDR

Lao PDR is a landlocked Southeast Asian country with a population of 7.6 million.[18] Before the COVID-19 pandemic, the country experienced rapid economic growth, significantly reducing poverty and improving health and education outcomes. However, health disparities persist, particularly in primary healthcare access, due to a shortage of healthcare professionals, poor road conditions, and inadequate financial protection for vulnerable populations.[19]

The public healthcare system operates at central, provincial, and district levels, with health centres and village providers delivering services. Funding comes mainly from out-of-pocket expenses, donor contributions (32%), and government budgets (20%). The National Health Insurance (NHI) scheme, initiated under Prime Minister's Decree No. 470/PM in 2012 and formally established in 2016, covers 17 provinces, while Vientiane Capital has its own Community-Based Health Insurance initiative.[20] The Health Sector Reform Strategy (2013–2025) aims to enhance service affordability and reduce child and maternal mortality.[21] This seeks to address limited access to care in an evidence-based and meaningful way.

Despite reforms through the NHI scheme, access to healthcare remains a barrier for the poorest groups, with low government spending on health. Health financing relies heavily on out-of-pocket payments, which account for 28% of total expenses.[20,22] Out-of-pocket spending is considered a major means of financing healthcare provision, which deters poorer households from using health services and even pushes them into poverty due to unaffordable costs. While health spending per person is increasing, access challenges persist due to high costs of medicines and low awareness of the NHI in poorer communities. Additionally, the uneven distribution of healthcare workers exacerbates access issues, especially in rural areas. Currently, animal health services in Lao PDR are mainly supported by animal science graduates, as the number of qualified veterinarians is limited.[23]

Lao PDR has seen notable growth in its private health sector, which includes pharmacies, practitioners of traditional medicine, and private clinics. However, the capacity for regulatory oversight of this expanding sector remains limited, highlighting the need for enhanced skills and expertise that have not traditionally been a primary focus for the Ministry of Health (MOH). Additionally, since some public health workers also manage private facilities, there is potential for parallel systems, conflicts of interest, and informal payments that may influence access to better services.[24]

Given the challenges in expanding pre-payment schemes in Lao PDR, which has high levels of poverty and a largely informal labor market, government spending will need to play a key role in expanding access, either by directly financing the costs of healthcare or by subsidizing health insurance in some way.[25]

Overall, while there are signs of positive trends in health financing, the sustainability of diagnostic services, particularly for AMR surveillance, remains a concern in both laboratory and clinical settings, given the high inflation rate, due to project-driven funding.

4. AMR situation in Lao PDR

Following the 2015 Global Action Plan, health officials from Lao PDR developed the first National Strategic Plan on Antimicrobial Resistance (2019–2023) in consultation and coordination with WHO, the Food and Agriculture Organization (FAO), and other stakeholders.[26] This existing strategic plan highlighted a multisectoral commitment to addressing AMR at the country level, in alignment with the Global Action Plan's five key strategies. Five goals were set during the last National Strategic Plan (NSP), most of which were not fully achieved due to the COVID-19 pandemic and other competing health priorities. Nevertheless, over the past five years, there has been notable commitment and meaningful progress. According to the situational analysis – the 2024 Tracking Antimicrobial Resistance Country Self-Assessment Survey (TrACSS) and the recent Joint External Evaluation (JEE) mission in March 2025 – to assess core capacity of the International Health Regulations (2005), Lao PDR's AMR journey demonstrates considerable progress, as summarized in Figure 1. Building on this progress, Lao PDR has updated its NSP on AMR to further reduce the burden of AMR on the population.

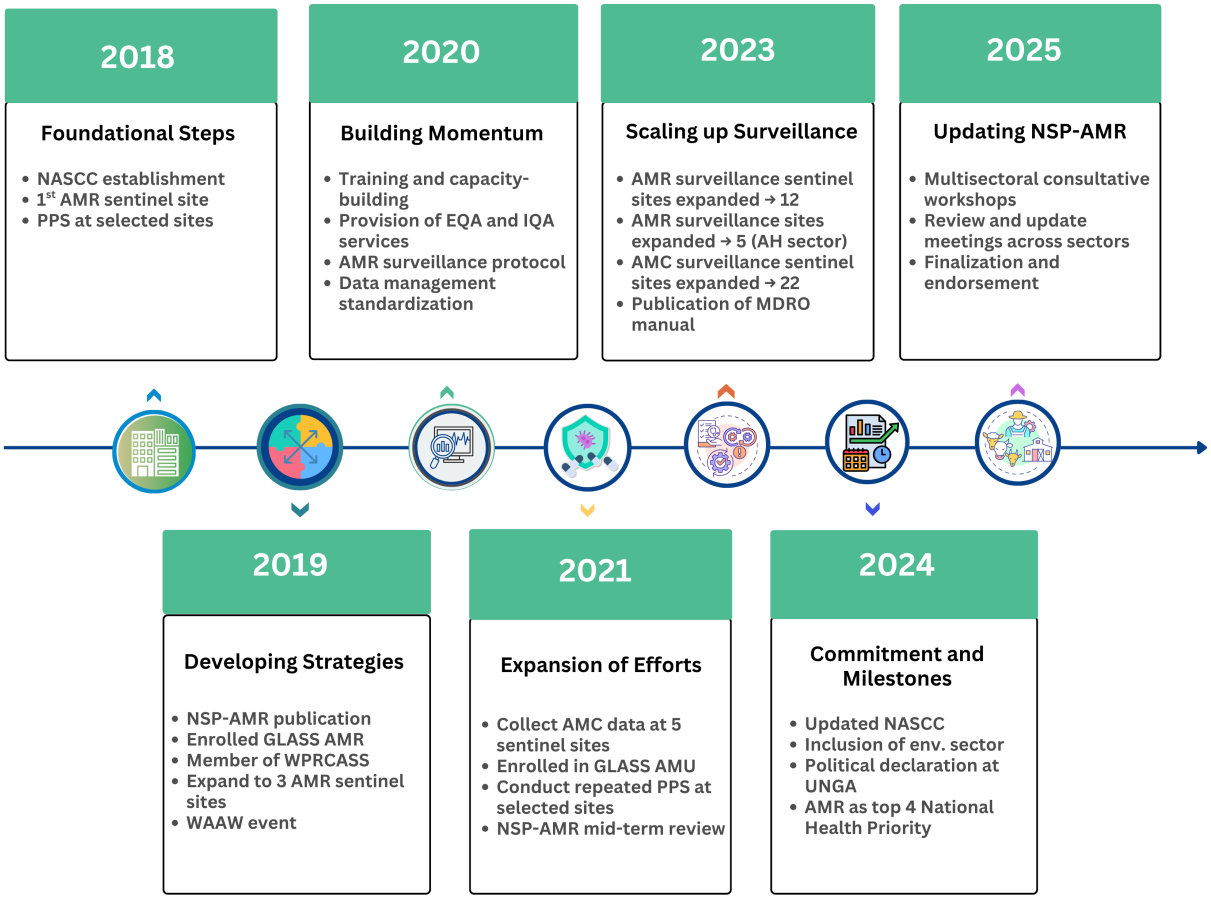


Figure 1. Timeline and progress in the implementation of the Lao PDR NSP (2019-2023)

Notes: AH = animal health; EQA = external quality assurance; IQA = internal quality assurance; MDRO = multidrug-resistant organism; NASCC = National AMR Surveillance and Control Committee; PPS = Point Prevalence Surveys; UNGA = United Nations General Assembly.

4.1. Progress of activities across the AMR spectrum

4.1.1. Governance and coordination

In early 2024, Lao PDR designated AMR as one of its top five national health priorities and updated its National AMR Surveillance and Control Committee (NASCC), which now includes representatives from the environmental sector for the first time since the previous NSP. Lao PDR is also actively involved in and has contributed to the development of the Asia-Pacific Joint Position Paper on AMR.[27] A Memorandum of Understanding was signed between departments and across ministries, including the Ministry of Agriculture and Environment (MAE), to strengthen cross-sectoral coordination in addressing AMR during the implementation of this NSP (2026–2030). The NASCC will serve as a foundation and a multisectoral communication platform for sustainable interventions at both national and regional levels, fostering cooperation with various sectors and partners. According to the **2024 results of the TrACSS Global Database**, in the Western Pacific Region (comprising 23 of the 186 reporting countries and territories across all regions), Lao PDR self-evaluated as **Category B**, indicating "Multisectoral coordination mechanism on AMR established with Government leadership" (Figure 2).[28] As the NSP advances, the aim is to progressively transition into Category C or D.

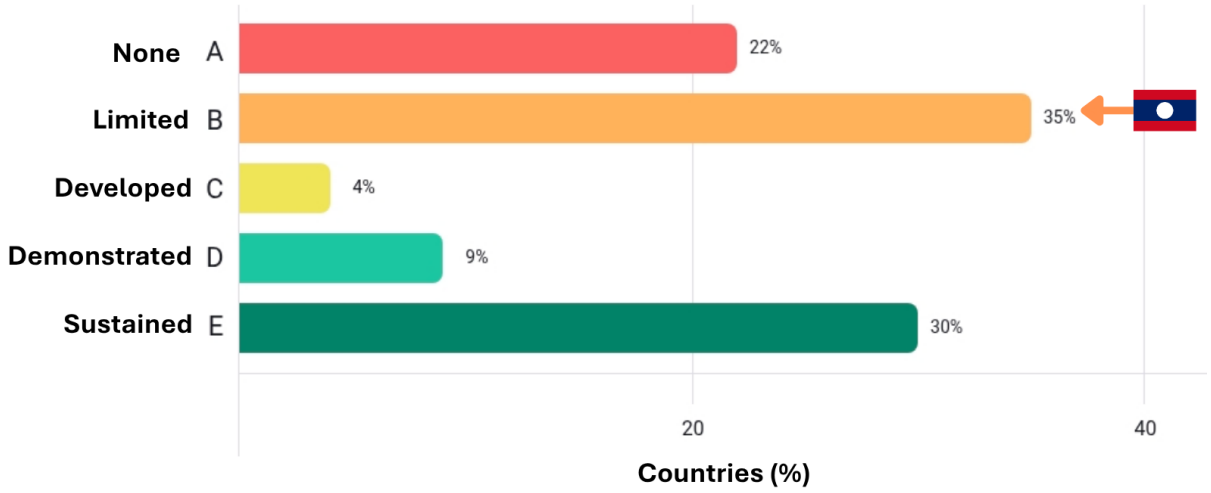


Figure 2. Multisectoral and One Health Coordination status of the Western Pacific Region (2024 TrACSS result)

Note: The data presented are for the 23 countries and territories of the Western Pacific Region that participated in the 2024 TrACSS.

Source: TrACSS Global Database[28]

4.1.2. Progress on AMR surveillance

Early in 2018, AMR surveillance efforts were centralized in a single hospital, resulting in limited awareness among stakeholders beyond high-level decision-makers within MOH. However, from 2019 to 2023, the number of sentinel sites grew from three to 12, increasing geographical coverage to an average of 70%. The sites were expanded with enhancements in laboratory infrastructure, training, quality assurance, and workforce reform programs, as well as ongoing financial and technical assistance from various development partners.

The National Centre for Laboratory and Epidemiology (NCLE) was established as a national

reference laboratory to provide overall technical guidance on surveillance sentinel sites. Key milestones include GLASS enrollment for AMR surveillance in 2019, annual data submissions through the Department of Communicable Disease Control (DCDC), and the publication of outbreak investigation manuals, as well as the development of several guidelines and standard operating procedures (SOPs) for quality control and laboratory evaluation. According to the **2024 results of the TrACSS Global Database**, in the Western Pacific Region (comprising 23 of the 186 reporting countries and territories across all regions), Lao PDR has remained in **Category D** for five consecutive years (Figure 3), indicating "There is a standardized national AMR surveillance system collecting data on common bacterial infections in hospitalized and community patients, with established network of surveillance sites, designated national reference laboratory for AMR, and a national coordinating centre producing reports on AMR."[28]

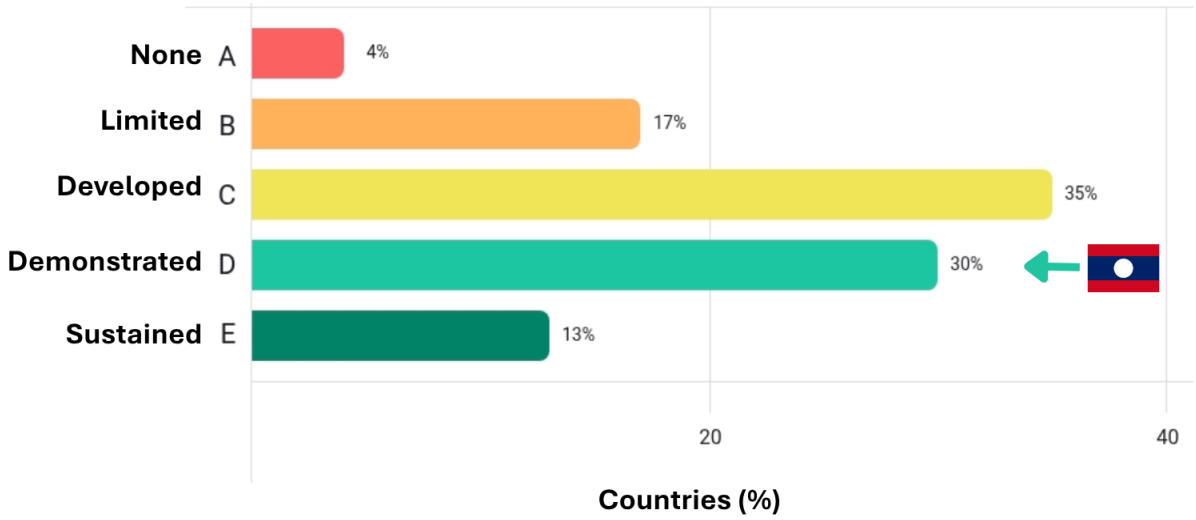


Figure 3. AMR surveillance status of the Western Pacific Region (2024 TrACSS result)

Note: The data presented are for the 23 countries and territories of the Western Pacific Region that participated in the 2024 TrACSS.
Source: TrACSS Global Database [28]

4.1.3. Progress on AMU (m-AMU) surveillance

Since 2018, Lao PDR has made significant progress in medicine-level AMU (m-AMU; previously known as antimicrobial consumption [AMC]) surveillance, supported by the WHO Country Office in Lao PDR. Under the leadership of the Food and Drug Department (FDD), efforts expanded to 22 hospital sites across all 17 provinces by 2023, transitioning from Category C to **Category D** in the **2024 results of the TrACSS Global Database** for the Western Pacific Region (comprising 23 of the 186 reporting countries and territories across all regions) (Figure 4), indicating "Prescribing practices and appropriate antibiotic use are monitored in a national sample of healthcare settings."[28] National AMU data are submitted annually to the WPRACSS and GLASS-AMU surveillance systems, supported by the WHO Regional Office for the Western Pacific, since 2019.

At the national level, the FDD used import and local production data to calculate consumption using the WHO GLASS-AMC methodology. A key achievement is that Lao PDR now collects hospital AMU data voluntarily, managed by hospital pharmacists, demonstrating a sustainable model. Additionally, m-AMU monitoring has been integrated into the FDD's routine activities,

including Good Pharmacy Practice (GPP) and Good Hospital Pharmacy Practice (GHPP) training programs. In 2023, Lao PDR began reporting AMC for antibiotics used in the alimentary tract, in addition to antibacterials. New laws and regulations were also enacted to restrict the sale of non-prescription drugs and establish a national AMC protocol for standardized data tracking and monitoring. Additionally, the Essential Medicines List is updated every three years, with the most recent revision completed in 2024.

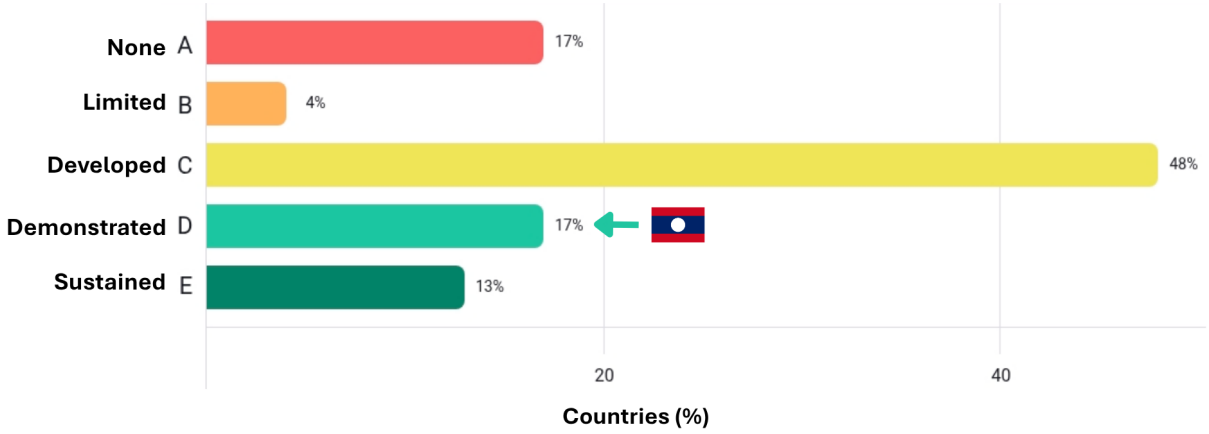


Figure 4. AMU surveillance status of the Western Pacific Region (2024 TrACSS result)

Note: The data presented are for the 23 countries and territories of the Western Pacific Region that participated in the 2024 TrACSS.

Source: TrACSS Global Database [28]

4.1.4. Progress on AMU (c-AMU) surveillance

The Department of Healthcare and Rehabilitation (DHR), in partnership with the Lao-Oxford-Mahosot Hospital-Wellcome Trust Research Unit (LOMWRU), oversees facility-level and clinical-level AMU (c-AMU) surveillance, backed by international organizations and research partners. Since 2021, Point Prevalence Surveys (PPS) have been carried out in five provinces and one central hospital, focusing on the prevalence of AMU and prescription practices, as well as adherence to guidelines. In 2024, PPS expanded to 10 provinces and two central hospitals, providing insights into AMU and informing targeted interventions to enhance AMU in specific areas within hospital settings. This progress was evident with a shift from Category C to **Category D** in the **2024 results of the TrACSS Global Database** for the Western Pacific Region (comprising 23 of the 186 reporting countries and territories across all regions) (Figure 5), indicating "National guidelines for appropriate use of antimicrobials are available and antimicrobial stewardship programs are being implemented in most healthcare facilities nationwide. Monitoring and surveillance results are used to inform action and to update treatment guidelines and essential medicines lists."[28] The reclassification is based on the specific survey question, reflecting the collective decision of stakeholders and is influenced by the type and nature of the question, as well as the respondents' input.

The paper-based National Antimicrobial Treatment Guideline has been updated to an electronic app, *Eolas Medical*, available in the local language, enabling clinicians to make decisions quickly with a reliable system. In addition, the AMU data dashboard, available in both Lao and English, provides comprehensive AMU data for decision-makers and clinicians, supporting evidence-

based interventions and informed clinical decisions.

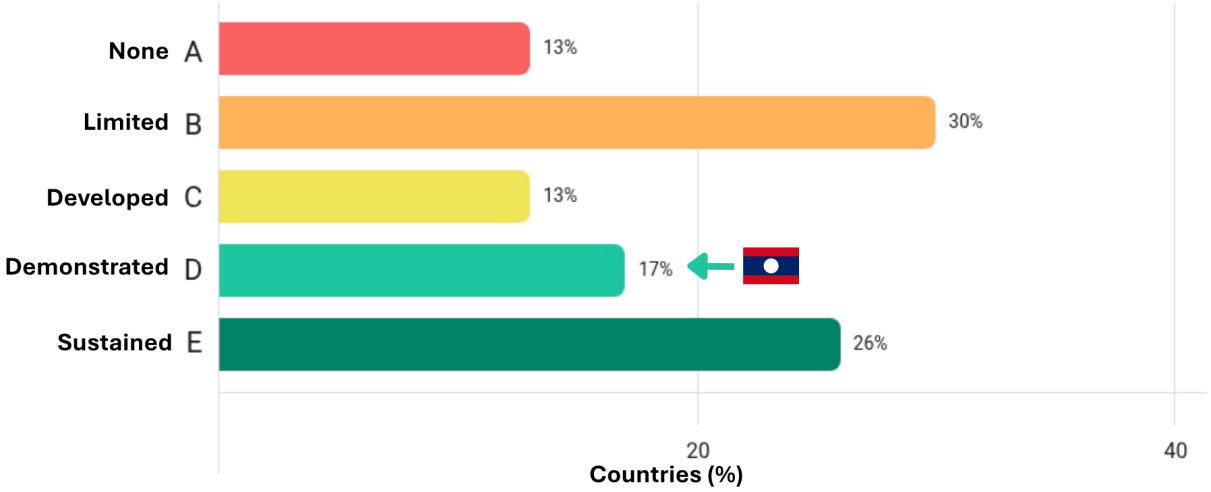


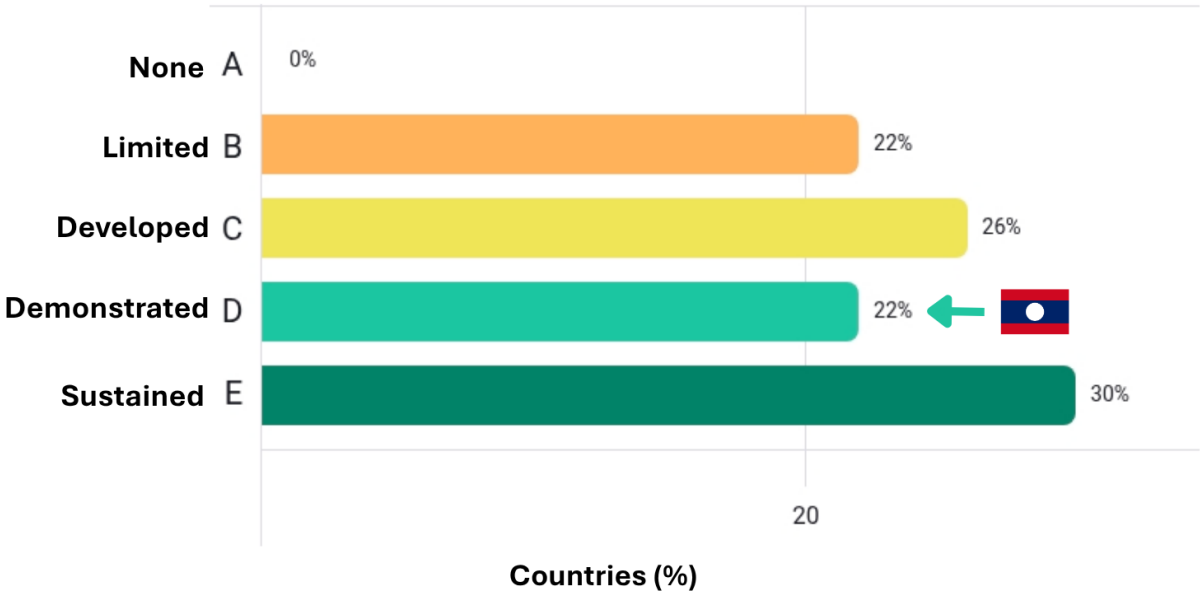
Figure 5. AMU surveillance status (c-AMU) of the Western Pacific Region (2024 TrACSS result)

Note: The data presented are for the 23 countries and territories of the Western Pacific Region that participated in the 2024 TrACSS.
Source: TrACSS Global Database [28]

4.1.5. Progress on IPC programs

The DHR leads the coordination of IPC programs across central and provincial hospitals. Over the last five years, IPC programs and interventions have been strengthened through regular capacity-building and continuous quality improvement initiatives, supported by the government and international organizations. Lao PDR progressed from Category C to **Category D** in the **2024 results of the TrACSS Global Database** for the Western Pacific Region (comprising 23 of the 186 reporting countries and territories across all regions) (Figure 6), indicating "National IPC programme available according to the WHO IPC core components guidelines and IPC plans and guidelines implemented nationwide. All healthcare facilities have a functional built environment (including water and sanitation), and necessary materials and equipment to perform IPC, per national standards."[28]

IPC interventions and practices at central hospitals, such as **Setthathirath**, **Mittaphap**, and **Mahosot**, as well as provincial hospitals in **Khammouan** and **Vientiane**, were supported with comprehensive and intensive training programs, along with IPC infrastructure support under the national IPC strategy. Additionally, monitoring and evaluation of IPC practices were carried out in some hospitals, depending on the availability of the budget. Hospitals such as **Setthathirath** and **Mittaphap** can now operate as champion institutions, sharing their knowledge and expertise to enhance IPC practices and interventions as a core measure of this AMR strategic plan.



Note: The data presented are for the 23 countries and territories of the Western Pacific Region that participated in the 2024 TrACSS.

Figure 6. IPC status of the Western Pacific Region (2024 TrACSS result)

Source: TrACSS Global Database [28]

4.1.6. Progress on coordination, awareness raising, and sustainability

During the last NSP implementation period, many coordination meetings, workshops, and consultative meetings were organized. These interactive meetings and discussions provided a space for stakeholders from all levels across sectors to engage in dialogue with like-minded counterparts and partners under the leadership of NASCC. Since 2019, the country has consistently hosted important public events, such as WAAW, involving the private sector, media, stakeholders, and the general public. Training, capacity-building activities, and workforce reform programs have also contributed to increased AMR knowledge and awareness among various professions, including clinicians, nurses, laboratory staff, hospital directors, and laboratory directors. Prioritizing AMR as one of the nation's top five health priorities marks an important and positive step toward sustainability.

4.2. Forward-looking perspectives

Despite progress, some issues and problems were encountered during the last implementation period of the NSP. Based on the challenges and lessons learned from the previous NSP, the following information is presented as areas for improvement across the different components within the AMR spectrum to reflect on and respond to collectively and inclusively in the updated NSP.

4.2.1. Improving coordination and governance

1. Enhance inter-departmental and inter-sectoral communication through a multisectoral

governance structure to demonstrate more substantial national ownership.

2. Increase domestic funding streams to support routine stakeholder meetings and reduce reliance on external sources for key coordination activities.
3. Review, update, and validate NASCC's Terms of Reference to implement AMR strategies and accelerate decision-making processes with an inclusive and context-specific approach.
4. Advance multisectoral coordination by integrating the environment and agri-food chain into planning and activities.

4.2.2. Accelerating awareness and education

1. Expand regular educational and awareness-raising programs alongside annual WAAW events.
2. Promote social and behavioral science as an approach with different models of interventions to tackle AMR.
3. Empower community involvement, prioritize gender inclusion, and engage youth in AMR education initiatives.
4. Officialize the AMR curriculum as part of professional and school education, including veterinary schools/universities.
5. Allocate sustainable financial resources to organize frequent awareness activities throughout the year in coordination with local and international partners.

4.2.3. Strengthening microbiology diagnostic services

1. Strengthen diagnostic stewardship by establishing ongoing staff support, continuous professional development programs, regular training, and monitoring programs for laboratories.
2. Address staff shortages and turnover with targeted recruitment and retention strategies, as well as financial consideration to procure reagents and consumables for routine AMR surveillance.
3. Optimize diagnostic services through networking and infrastructure support to unlock increasing access to care and treatment services, particularly for underserved areas
4. Foster closer communication between laboratory and clinical personnel to optimize decision-making for quality care and treatment.
5. Increase clinician confidence through clinical-focused training, supportive tools, and collaborative data utilization.
6. Maximize the use of routine laboratory data to improve patient care and IPC measures.

4.2.4. Delivering IPC interventions

1. Secure funding (external and internal) to facilitate steady progress in IPC implementation across the country.
2. Standardize AMR-related IPC practices and interventions for consistent results across health facilities.
3. Raise awareness of broader preventive measures, including WASH, to enhance IPC outcomes.

4. Introduce systematic monitoring systems to better track IPC implementation progress and status with a dedicated budget.

4.2.5. AMU (m-AMU) surveillance

1. Strengthen enforcement of prescription-only sales to ensure responsible AMU by reviewing the existing laws.
2. Improve regular distribution and accessibility of national-level m-AMU surveillance reports for greater policy support and resource allocation.
3. Build technical capacity by designating and training more focal points to expand m-AMU surveillance activities at the national and sub-national level.
4. Allocate funding internally to support regular training sessions (GPP, GHPP) and on-site monitoring visits.

4.2.6. AMS and AMU (c-AMU) surveillance

1. Optimize the integration and functionality of existing AMU and AMR surveillance systems at all levels to support the appropriate use of antibiotics.
2. Develop and implement practical AMS programs to maximize the impact of collected AMR and AMU data to, in turn, optimize the use of antimicrobials.
3. Invest in continuous training and data management support for facility-level personnel to strengthen their knowledge on data and evidence use.

4.2.7. Sustainability

1. Explore and identify all potential funding streams and opportunities to sustain AMR activities, while considering domestic resources for core elements of AMR.
2. Harmonize donor funding to ensure consistent support for AMR activities across all sectors.
3. Foster a multisectoral, MOH-led approach to coordinate and sustain national AMR initiatives.

5. Trends of AMR in Lao PDR

As of December 2023, data from GLASS indicated that the rates of bacteriologically confirmed infections in Lao PDR were 61 per million population for bloodstream infections, 58.6 per million population for urinary tract infections, 8.9 per million population for gastrointestinal infections, and 0.9 per million population for gonorrhoea infections. Among the bloodstream infections, two Sustainable Development Goal indicators for AMR were analyzed. Third-generation cephalosporins resistance in *E. coli* was reported at 52.6% in 2022, while MRSA reached 55.9% in 2022, up from 29.9% in 2021.[29] Of concern, the increasing trend of third-generation cephalosporins-resistant *E. coli* is driving the use of last-resort antibiotics such as meropenem, which could leave the country with limited treatment options for patients with this type of resistant strain. The trends of these two indicators are also consistent with the local data dashboard managed by LOMWRU (laoamr.net)[30] as well as the extracted data from the WHONET (whonet.org) system. These two strains must be closely monitored in the forthcoming NSP period by strengthening the surveillance network to ensure high-quality and reliable data, inform public health interventions, and prevent potential resistant outbreaks.

5.1. MRSA and extended-spectrum beta-lactamases (ESBL) *E. coli* trend

Using data collected from January 2019 to December 2025, the SQLite (WHONET) raw dataset included 131,299 specimens across various specimen types. Of these, 24,445 specimens were identified with "Growth" status, "Patient ID," and "Microorganism" name. Among them, the most frequently isolated pathogens were *E. coli* (3,862 isolates) and *Staphylococcus aureus* (*S. aureus*) (3,313 isolates). For *E. coli*, the majority of samples were obtained from urine (43%), blood (26%), and pus (26%), with the remaining specimens collected from other sources. *S. aureus* samples were primarily from pus (70%) and blood (17%), with the remaining specimens from cerebrospinal fluid and other specimen types.[30]

Based on the most frequently isolated pathogens, two important multidrug-resistant organisms (MDRO) (bug-drug combinations) – MRSA and ESBL *E. coli* – are highlighted below to illustrate current resistance trends in Lao PDR.

Key findings of ESBL *E. coli* overall trends:

Annual trends in ESBL resistance rates among *E. coli* isolates (first isolates per patient per specimen) from 2019 to 2024 were reviewed (Figure 7). Each isolate was classified as resistant, confirmed phenotypically using the Disk Diffusion method, indicating resistance to the locally tested antibiotic panel, particularly third-generation cephalosporins and aztreonam, in accordance with the national AMR surveillance guidelines.

ESBL resistance rates increased significantly over the six-year period , rising from approximately 50% in 2019 (26 out of 52) to nearly 65% in 2024 (652 out of 1,024). The most significant year-on-year increases occurred between 2021 and 2022, when the rate grew from 54% (270 out of 491) to roughly 61% (440 out of 721), and again between 2023 and 2024, increasing from 59% (519 out of 881) to 65% (665 out of 1,024). Sample sizes grew considerably over the period, improving statistical reliability and narrowing confidence intervals.

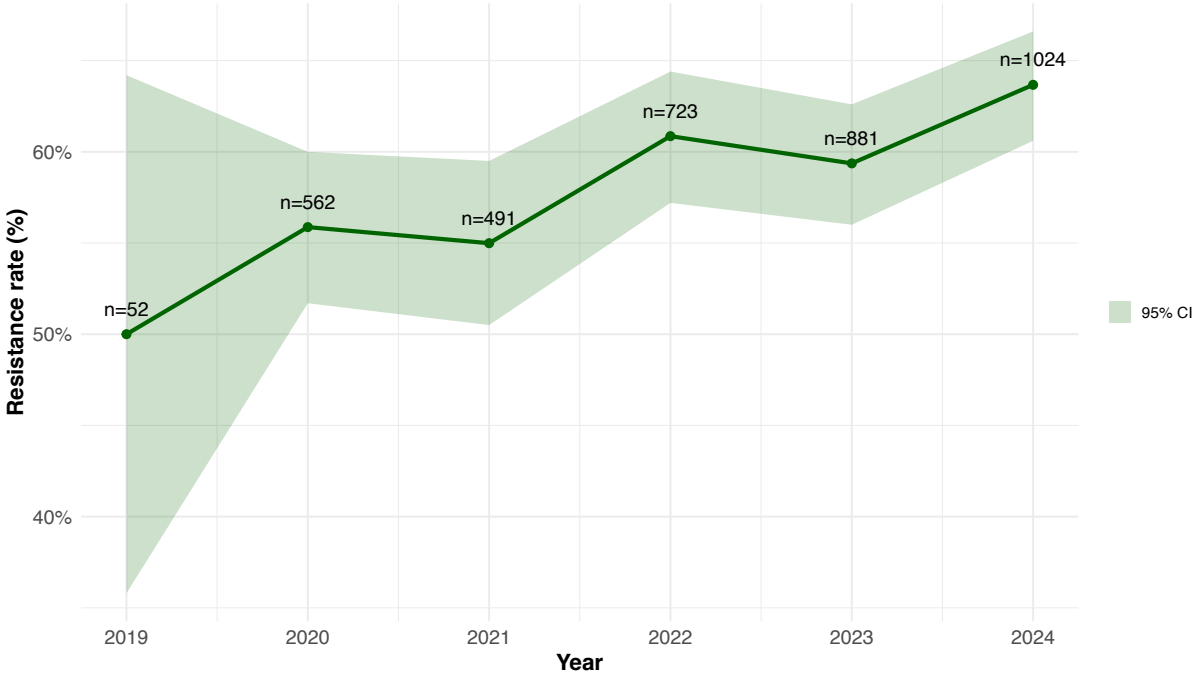


Figure 7. ESBL *E. coli* resistance trends (2019–2024)

Note: CI = confidence interval; n = the total number of unique isolates assessed each year, representing unique first isolates classified as resistant if any ESBL antimicrobial susceptibility test result indicated resistance. For statistical robustness, *E. coli* isolates with more than 30 counts were included in the dataset. To ensure representativeness, only the first isolate per patient per specimen type was used. Percentage resistance (%) is used to illustrate trends over time.

Key findings of MRSA overall trends:

Annual trends in MRSA resistance rates among *S. aureus* isolates from 2020 to 2024 (2019 tested numbers were less than 30 isolates) were reviewed (Figure 8). Each isolate was classified as MRSA if any methicillin-surrogate (Oxacillin [OXA]/Cefoxitin [FOX]) test result was positive.

MRSA resistance rates have increased substantially, from around 21% in 2020 (90 out of 427) to over 52% in 2024 (561 out of 1,079). The most striking increase occurred between 2023 (39% resistance rate, 326 out of 836) and 2024 (52%, 561 out of 1,079) indicating a rapid escalation in MRSA prevalence. There was a steady expansion in sample sizes, further reinforcing the reliability of the annual estimates and narrowing the width of confidence intervals in later years.

The persistently rising MRSA trend demonstrates a growing challenge for infection prevention. It highlights the critical need for enhanced surveillance, AMS, and targeted infection control strategies at the institutional and community levels.

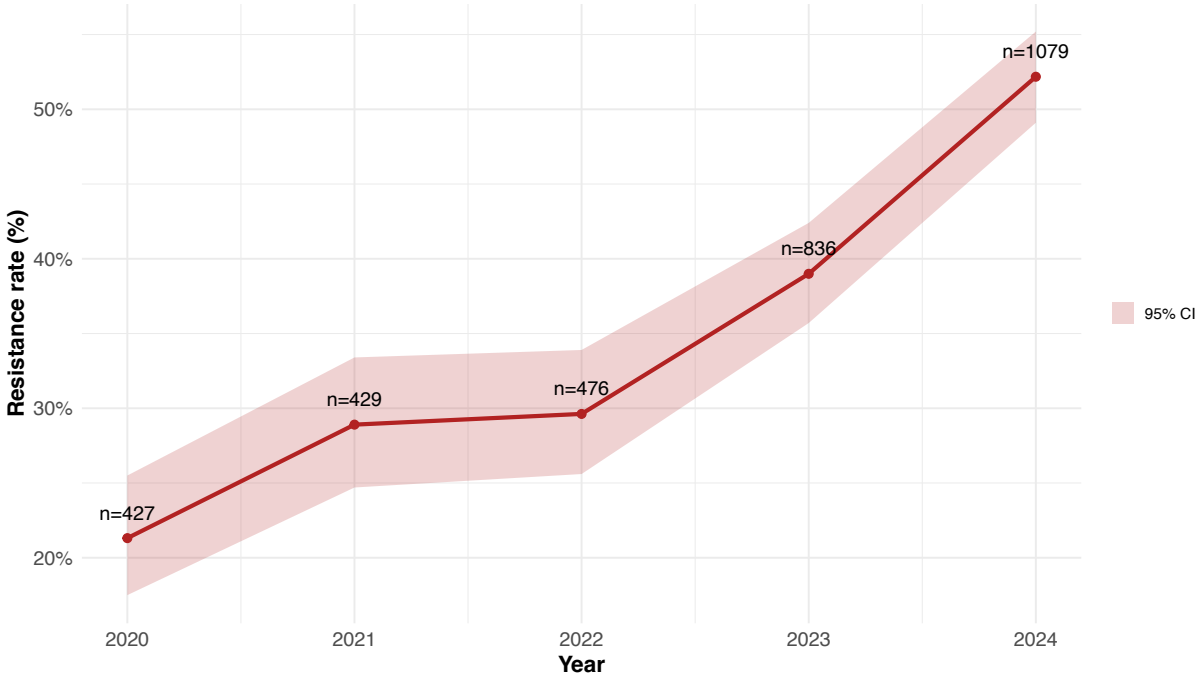


Figure 8. MRSA resistance trends (2020–2024)

Note: CI = confidence interval; n = the number of first isolates analyzed per year, representing unique first isolates classified as resistant if any MRSA antimicrobial susceptibility test result indicated resistance. For statistical robustness, isolates (*S. aureus*) with more than 30 counts were included in the dataset using the first isolate per patient per specimen type for data representativeness. Further stratification by specimen type analysis is recommended to see the resistance status by infectious syndrome. Percentage resistance (%) is used to illustrate trends over time.

This rising trend must be closely monitored due to its associated burden, which often requires more expensive and less readily available "last resort" antibiotics. It also demands more extended hospital stays, more intensive care, and additional diagnostic tests. Most importantly, this significantly burdens the already stretched public health system and infrastructure in resource-limited settings, such as those seen in Lao PDR. Furthermore, it could compromise routine medical procedures and increase the risk of widespread transmission in hospital settings and communities.

However, in both data sets, data interpretation must be approached with caution because the majority of specimens (71.84%) came solely from Mahosot Hospital (central), while the remaining percentage was distributed across 11 hospitals, including Seittathrath Hospital. Most specimens consist of blood (48%), urine (20%), and throat swab (12%), followed by pus, respiratory samples, and others.

These findings highlight the importance of continuous, robust surveillance to monitor antibiotic resistance patterns in *E. coli*, MRSA, and other critical pathogens. Regularly reporting these trends is essential for informing local prescriptions and clinical guidelines. This updated strategy presents an opportunity to strengthen the existing routine AMR surveillance system and upscale and finance upstream preventive measures, such as IPC, AMS programs, and targeted awareness-raising programs.

6. Lao PDR's NSP on AMR

6.1. How has the NSP been revised?

Under the leadership of the DCDC and MOH, the AMR Secretariat team and National AMR Focal Point, together with technical focal points from concerned departments, conducted a situational analysis, drawing on meeting notes (mid-term and end-term review), workshop outputs, databases, literature, and publications from the previous NSP period. Based on the progress, challenges, and gaps identified, the Secretariat team devised a vision, mission, strategic objectives, specific interventions, and strategic alignment options for the upcoming strategy. This work was presented to stakeholders and decision-makers through three workshops at the central level and at the northern and southern provincial levels. A specific review meeting was also held by the Animal Health sector to ensure that activities and interventions are aligned with the overall vision and objectives of the NSP. A participatory approach was deployed to engage all relevant multidisciplinary stakeholders and international and local partners from various sectors in every step of gathering feedback, input, and recommendations on the proposed goals, mission, and strategic objectives and interventions developed following the situational analysis.

Following the stakeholders' consultative meeting, a technical review meeting was organized to revise and draft the strategy collectively by a core group comprising technical members from relevant departments, such as the DHR, FDD, the Department of Livestock and Fisheries (DLF), and the National Animal Health Laboratory (NAHL), under the leadership of MOH, MAE, and DCDC. The draft version was then circulated to the relevant departments across sectors. NASCC core members and secretaries reviewed the drafted strategy, wording, and interventions before endorsing the plan in coordination with authorities from MAE, together with the support of WHO and FAO.

With this NSP, the primary goal of Lao PDR is to leverage the existing infrastructure and capacities of the AMR and AMC (m-AMU) surveillance network, equipping AMR surveillance professionals with roadmaps and operational plans to address gaps in the generation and use of data, improve communication within and across sectors, and expedite upstream intervention programs like vaccination, awareness raising, IPC, and WASH with the data generated from the surveillance system. Given the incremental progress of AMR surveillance, the primary objective of this NSP is to enhance understanding of national epidemiological trends and AMR susceptibility patterns through high-quality and representative surveillance data, thereby informing decision-makers on resource allocation and ultimately reducing the economic and disease burden of AMR within the next five years. The AMS program, multisectoral coordination, and people-centred approach of the updated strategy will enable Lao PDR to move forward from measuring to intervening in the upcoming years.

To ensure the effective and practical implementation of NSP, this 10-year strategic plan adopts a phased approach: a first phase focuses on the successful implementation of six core AMR strategies and interventions, followed by a subsequent phase to consolidate and streamline these strategies within the national Health plan, routine surveillance structure, and budget cycle, thereby sustaining AMR activities through domestic financing and institutionalization.

The unique feature of this phased approach is the practicality of the step-by-step implementation and the connection between phases. The ultimate goal of this NSP will be collectively achieved through lessons learned, monitoring and evaluation, tracking milestones, logging achievements, and successes across phases, thereby driving national ownership and sustainability, which has been a strong emphasis since the initial phase of NSP development.

6.2. Long-term vision, strategic directions, and outcomes

This updated NSP-AMR adopts a phased implementation approach, aligned with the overarching vision from the following section, to provide long-term direction, continuity, and national ownership for AMR prevention and control in Lao PDR. This 10-year time horizon reflects the need to progressively strengthen AMR governance, surveillance, prevention, and stewardship programs, allowing them to mature and deliver sustained public health impact, and to align with national planning, existing public health programs, and budgeting cycles.

Phase I - Implementation phase (2026–2030): This initial phase focuses on strengthening and optimizing core AMR elements across the country, starting with establishing a solid foundation of multisectoral governance and coordination, improving laboratory diagnostics and surveillance into a reliable system, expanding infection prevention and control (IPC) practices, piloting antimicrobial stewardship (AMS) programs, increasing awareness among all age groups with a practical and social science approach, and enhancing clinical and veterinary workforce capacity through knowledge, skills, and training programs.

Phase II - Consolidation and Sustainability phase (2031–2035): This subsequent phase will reinforce and build upon Phase I achievements by identifying gaps, enablers, and challenges faced during Phase I. Most importantly, all lessons learned and successes will guide NASCC in taking further predictive steps by integrating AMR interventions into routine national health systems (e.g., within the National Health Plan and other vertical disease programs), promoting domestic financing to relevant government departments, and institutionalizing effective stewardship and IPC practices. This will help ensure long-term sustainability not only at Tier 3 health facilities but also across primary healthcare centers and communities.

The strategic direction and phased approach, guided by a people-centred and One Health approach, will directly complement the NSP-AMR strategy's overall vision, mission, and goals. Priority is given to upstream, cost-effective interventions such as IPC, vaccination, and water, sanitation, and hygiene (WASH) that reduce infections and minimize inappropriate antimicrobial use across human, animal, and environmental sectors. Strengthened surveillance and evidence generation from the research program will support informed clinical practice, stewardship initiatives, and policy decision-making processes at all levels.

While detailed activities, indicators, and costing are defined for the first five-year implementation phase, the overarching vision, strategic objectives, interventions, and governance structure extend across the full ten-year period. Monitoring and evaluation findings from Phase I will inform adaptive management and guide the development of subsequent operational plans, ensuring that the NSP-AMR remains responsive to national priorities, emerging evidence, and regional and global AMR developments.

6.2.1. Long-term strategic outcomes

By 2035, the implementation of AMR is expected to result in:

1. **Institutionalized AMR governance and multisectoral coordination**, with clear accountability and sustained political commitment under a One Health framework.
2. **Integrated and routinely functioning AMR and AMU surveillance systems** across human, animal, food, and environmental sectors, generating data that inform awareness-raising, quality of care, appropriate antimicrobial use, and policy decision-making processes.

3. **Strengthened infection prevention, antimicrobial stewardship, and rational antimicrobial use** embedded in routine health and public health service delivery and regulatory systems.
4. **Improved access to quality diagnostics and appropriate treatment**, supporting equitable access to diagnosis and expanding bacteriology services to primary health care centers with people-centred health services.
5. **Enhanced national capacity and sustainability**, with increasing domestic financing and reduced reliance on external support for core AMR functions.
6. **Strengthened national AMR research capacity and use of evidence**, through locally led and collaborative research programs that generate context-specific evidence to inform clinical practices, policy, optimize interventions, and address priority knowledge gaps across the One Health spectrum.

6.3. Vision, mission, and strategic objectives

Following the discussions, reviews, and consultative meetings with stakeholders from various sectors at different levels, the vision, mission, strategic objectives, and goals have been updated in alignment with regional and global AMR recommendations, as illustrated in Figure 9.

The vision statement aims to protect the Lao PDR population from the impact of AMR and its associated burden through One Health, ownership, and a multisectoral coordination mechanism, underpinned by three missions: surveillance, stewardship, and strengthened governance.

The strategic interventions are the engine of the NSP, driving the achievement of the country's AMR vision by implementing activities that empower the population's awareness, reinforce staff knowledge and skills, and enhance the existing performance of the surveillance system through continuous training and infrastructure support. Most importantly, the heart of the current strategy is the implementation of practical, effective, and cost-effective IPC measures, including WASH, which substantially reduce the risk of infection and thereby reduce the inappropriate use of antibiotics. Youth education and community-led awareness raising will also be at the centre of the implementation.

A newly added research and development objective will inform the implementation of the above-mentioned activities with evidence-based information. With this strategy, Lao PDR aims to achieve five goals throughout the NSP period, which involve IPC, awareness, preserving the efficacy and effectiveness of antimicrobials, and the International Health Regulations (2005) national self-evaluation process.

A strong governance and One Health approach will be incorporated as a foundation to ensure the effective and sustainable implementation of NSP activities.

6.3.1. Vision

"Minimizing the impact of antimicrobial resistance on the health, society, and economy of Lao PDR through strong national ownership."

6.3.2. Mission

1. Strengthen national governance and multisectoral coordination for sustainable AMR actions
2. Preserve antimicrobial effectiveness through responsible use and accountable practices
3. Reduce AMR risks and burden through surveillance, prevention, and research

6.3.3. Strategic objectives

1. Reduce the spread of AMR through awareness, youth education, social and behavioral sciences, and media outreach programs
2. Enhance the generation and use of quality and reliable AMR surveillance data to inform evidence-based policy and interventions
3. Limit the incidence of antibiotic resistance through practical and cost-effective interventions and preventive measures
4. Promote access to and rational use of quality antimicrobials across sectors with stewardship programs and stringent regulations and laws
5. Ensure sustainable AMR governance through a strengthened One Health coordination mechanism, including private sectors and civil society organizations
6. Implement local and international research programs to optimize AMR interventions and bridge knowledge gaps

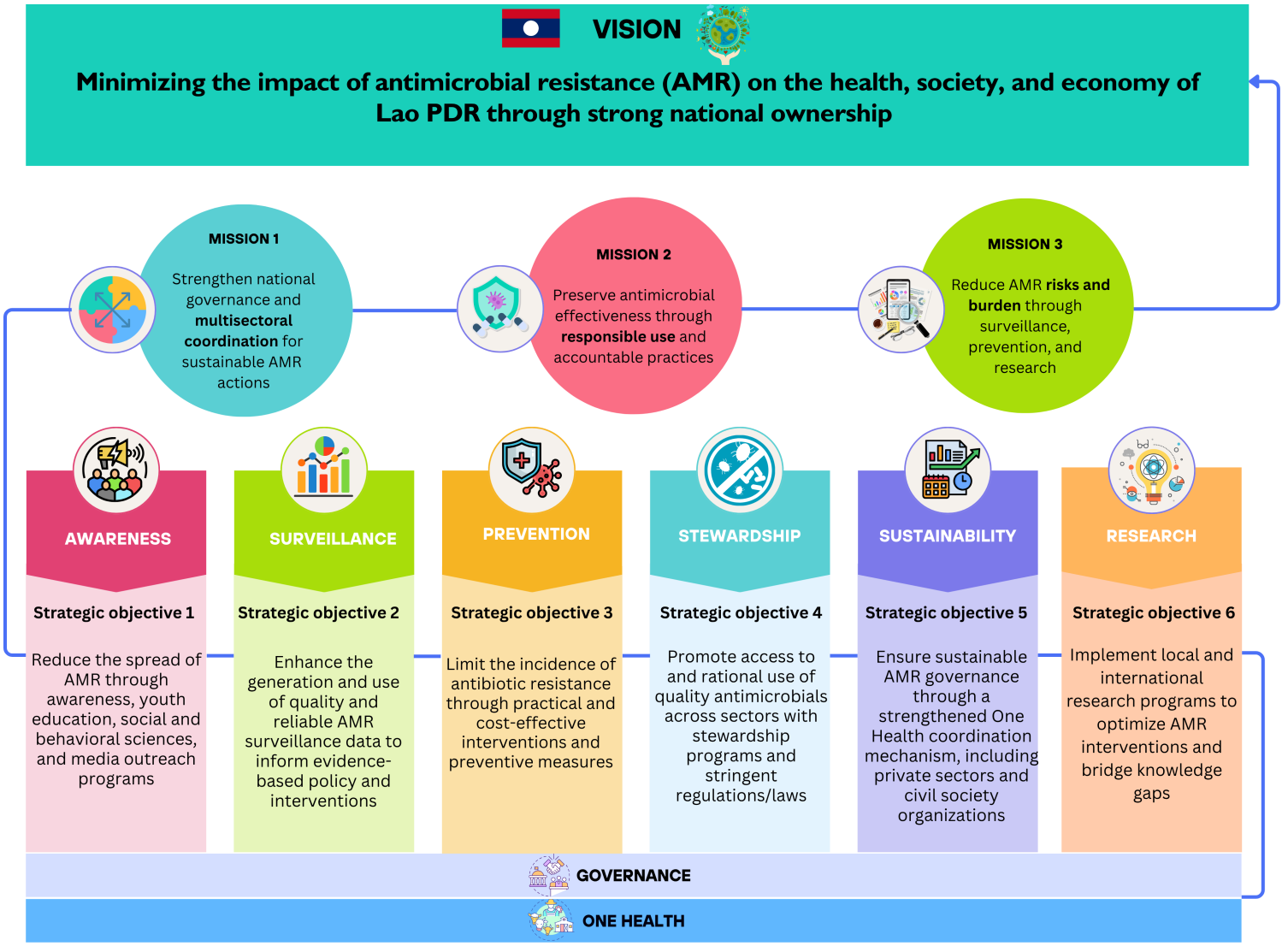


Figure 9. Vision, mission, and strategic objectives

6.4. Goals of the NSP on AMR

To measure progress and achievements in the forthcoming NSP period, it is essential to establish clear goals, strategic interventions, and activities that inform stakeholders at all levels, thereby facilitating an effective policy decision-making process.

The following five goals, as depicted and outlined in Figure 10, have been collectively developed using inputs and recommendations from the consultative meetings and will serve as a compass to sustainably and measurably guide the implementation of the NSP in the coming years. Additionally, a monitoring and evaluation framework has been developed, which will provide a timeline and verification method to track progress toward achieving the indicators.

The goals also serve as overarching indicators to measure the extent of NSP implementation, and they do not represent an exhaustive list within the monitoring and evaluation framework. The output indicators for each strategic objective, along with the activity indicators, will track the overall progress of AMR activities collectively and inclusively. Ultimately, these five indicators will serve as long-term goals to achieve the formulated vision of this NSP on AMR, while the activity outputs and indicators act as milestones to monitor the progress of the NSP.

6.4.1. Five goals

Goal 1: Reach 90% minimum requirements standards for IPC across all AMR sentinel sites

Goal 2: Increase by 30% (from 2026 baseline) knowledge and awareness on AMR among the healthcare workforce and veterinary professionals at all AMR sites

Goal 3: Maintain national use of “Access” group antibiotics at 70% with an average of 22 defined daily doses per 1,000 inhabitants per day (DID) for AMC in the human health sector

Goal 4: Reduce by 30% (from 2026 baseline) AMC in the animal health sector

Goal 5: Achieve a JEE score of not less than 3 for the AMR surveillance area

The rationale for selecting each of the goals, and monitoring and evaluation framework to track them, are outlined in Section 9 of this report.

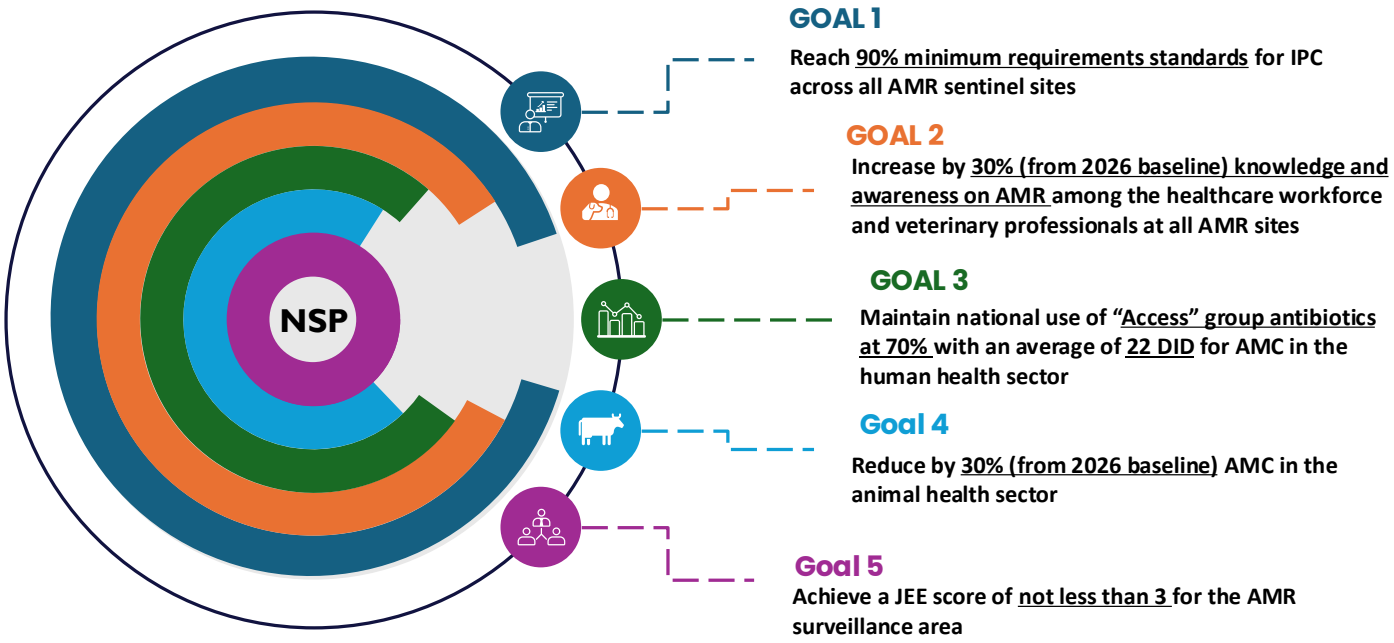


Figure 10. The five goals of the Lao PDR NSP on AMR

6.5. Contextual alignment with national, regional, and international strategies

AMR is a complex issue that intersects with other diseases and programs. For example, tuberculosis and HIV programs addressing multidrug-resistant tuberculosis or antiretroviral medicine could share data and relevant experience with the AMR surveillance program to better understand the overall scope of the AMR problem at the country level. Additionally, since AMR is a crosscutting theme, it is essential to ensure that activities and strategies are aligned and complement the core national strategies outlined below. In this way, the government's efforts to contain AMR will not only be sustainable but also support the achievement of other strategic goals.

6.5.1. Alignment with national strategy

1. **Health Sector Reform Strategy (2021–2030):** This NSP is directly aligned with the mentioned activities (4.4) to build the resilience of pandemic prevention, preparedness, and response, including AMR.
2. **National One Health Strategic Plan (2026–2035):** The activities in this NSP are envisioned through the One Health concept, and implementation will be carried out in alignment with the One Health strategic plan.
3. **Human Resources for Health Development Strategy by 2030 Lao PDR:** This NSP directly aligns with Direction 2; ensuring the right health workforce is in the right place will complement the implementation of the NSP with continuous training and an assigned, dedicated, and qualified workforce.

4. **National Health Security Workplan (2023–2025):** Five major components mentioned under section 8 are directly aligned with the activities described in this NSP.
5. **National Bridging Workshop (NBW) for One Health Lao PDR Roadmap:** AMR is highlighted as a key topic under Objective 4, "to ensure the quality of laboratory testing of multi-sector laboratories," and it is one of the national perspectives under section 1.
6. **Ministerial Decision on the Establishment of the National One Health Committees for the Prevention and Control of Zoonotic Diseases:** This NSP will leverage the existing committee to improve coordination and cooperation across sectors.
7. **National Strategy for Medical Laboratories (2023–2030) and National Policy for Health Laboratories:** The routine AMR surveillance system will be closely aligned with the key components of the medical laboratories' strategies, particularly regarding quality control, sample transportation, Good Laboratory Practices, and biosafety and biosecurity training across all AMR sentinel sites.
8. **SOP for Wildlife Health Surveillance in Lao PDR:** The expansion of AMR surveillance could be considered using this SOP to complement the NSP.
9. **Law on Prevention and Control of Communicable Diseases:** Directly addresses and aligns with the MDRO investigation and outbreak response activities of this NSP.
10. **Law on Food:** This will govern the area of food inspection and food handling practices under Chapter 2, Article 72, to increase AMR awareness among the food value chain.
11. **One Health National Committee Agreement:** Under the agreement, this NSP will implement One Health actions in coordination with this committee.
12. **National IPC strategy and five-year investment plan:** This national strategy and investment plan will guide the implementation of all upstream interventions, particularly the IPC strategy.
13. **National Strategy for Rural Water Supply, Sanitation and Hygiene for Lao PDR 2019–2030:** This strategy will complement one of the key components of NSP activities – strengthening and encouraging WASH infrastructure as a core component of the IPC program.

6.5.2. Alignment with regional strategy

1. **Guidelines on Establishing National and Local AMR Surveillance Systems in the Western Pacific Region (2023):** This NSP aligns with this WHO Regional Office for the Western Pacific surveillance guideline as a guiding principle for a systems approach and hospital-focused AMR surveillance.
2. **Responding to Outbreaks of Antimicrobial-resistant Pathogens in Health-care Facilities: Guidance for the Western Pacific Region (2022):** The MDRO response manual has already been developed, and prospective interventions and activities will be carried out by using this guidance as a reference.
3. **Antimicrobial Consumption in the WHO Western Pacific Region: Early Implementation of the WPRACSS (2021):** The m-AMU (former AMC) data collection was aligned with WPRACSS guidance and will continue to seek further updates and technical assistance to optimize the existing surveillance and expand to the hospital AMU module.

6.5.3. Alignment with international strategy

1. **WHO people-centred approach:** Following consensus among all stakeholders, this NSP places people at the forefront of AMR interventions by increasing access to diagnostic and treatment services.
2. **United Nations General Assembly recommendations and Joint Position Paper:** The activities of this NSP are directly aligned with the recommendations from the Asia-Pacific Joint Position Paper on AMR.

6.6. Governance structure and coordination matrix

Governance forms the foundation of NSP implementation, and the proposed structure (Figure 11) will provide a transparent mechanism for implementing NSP on AMR activities in a timely, collaborative, and holistic manner.

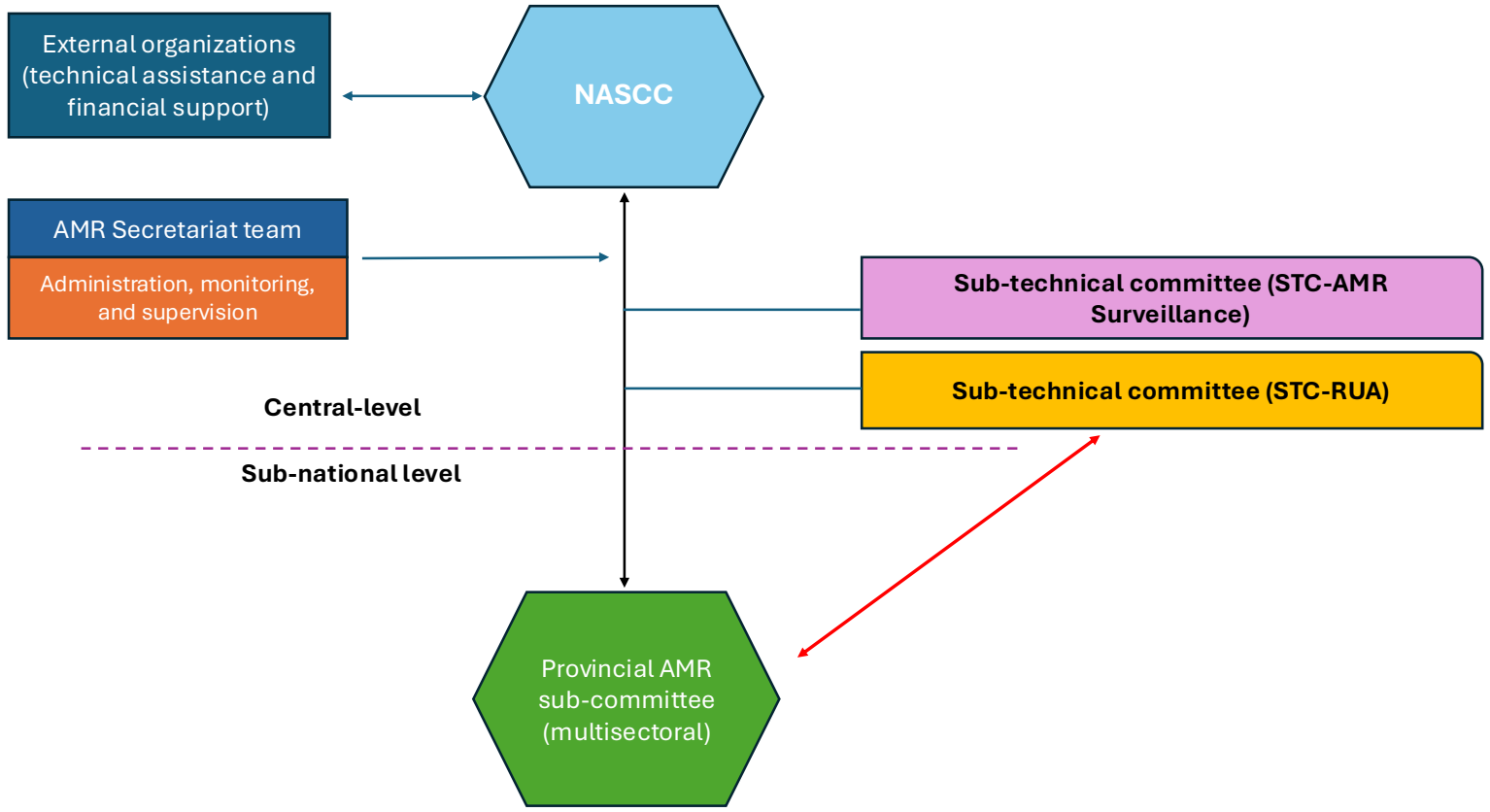


Figure 11. Governance structure

Note: RUA = Rational Use of Antimicrobials.

Table 1. Coordination matrix

NASCC	Provincial AMR sub-committee	Sub-technical committee	AMR Secretariat	International organizations
Focal points: Steering Committee and DCDC	**Focal points:** Provincial health department	**Focal points:** AMR – NCLE, NAHL; AMU – DHR, FDD, NAHL	**Focal points:** National AMR Focal Point and AMR Secretariat team	
Members: Technical committee and Secretariat members	**Members:** All sentinel sites, agriculture, animal health, and finance departments	**Members**: All AMR and AMU surveillance sites and provincial health department	**Members:** National AMR Focal Point, DCDC	**Members:** WHO, FAO, World Organization for Animal Health, LOMWRU, Fondation Mérieux, donors and other delivery partners
• Provide overall technical guidance and supervision on the implementation of NSP activities • Accountable to Steering Committee • Policy, governance and decision-making bodies for all AMR-related matters • Closely coordinate with provincial AMR committee to monitor the progress and challenges of AMR activities implementation • Advocacy body to determine the strategic priorities and investment plan for AMR	• Provide technical oversight and guidance for all AMR-related activities at sites • Accountable to NASCC and reports all AMR-related matters • Multisectoral committee with involvement from animal health, agriculture and environment sectors • Advocacy body for all AMR/AMU sentinel sites • Responsible for monitoring progress of site-level activities	• Technical bodies for all AMR and AMU related matters • Provide technical oversight and assistance to all AMR sites (AMU and AMR) • Accountable to NASCC and Steering Committee • Responsible for overseeing data management of all sites and providing technical feedback • External quality assurance reviewer and providers • Consultation body to provide evidence-based decision-making for NASCC	• Responsible for administrative and coordination support for NASCC • Accountable to NASCC • Coordination body between provincial health department and NASCC • Responsible for strategy review and policy briefings • Focal point of contact for country-level reporting	• Technical assistance • Co-financing • Co-implementation of activities • Support training and capacity-building programs

6.7. Phase implementation framework for NSP-AMR

Table 2. NSP-AMR implementation phases and framework (2026-2035)

Planning level	Time period	What this level does	What is covered in this document
NSP-AMR	**2026–2035**	Provides the overarching national policy and strategic framework for preventing and controlling AMR over ten years. It defines the national vision, priorities, and strategic direction and outlines the full set of interventions needed to address AMR in a coordinated, multisectoral manner under a One Health approach.	Vision, mission, strategic objectives, interventions, governance structure and coordination mechanism, and long-term outcomes as an overarching National strategy.
Preparatory Phase	**One-year cycle (2026-2027)**	Serve as mandatory and preparatory milestones that serve as a building block to operationalize Phase I. Annual operational plans will inform the indicators of implementation phase into concrete and time-bound actions, define responsibilities, and align implementation with costed plan and M&E framework.	Initial one-year operational plan providing the specific milestones, indicators and timeline (Annex III) as a foundational block for implementation. Directly align with M&E framework.
Phase I – Implementation Phase	**2026–2030**	Focuses on strengthening, expanding, institutionalizing, and systematizing existing AMR activities and interventions. This phase translates the long-term strategy into prioritized actions aimed at building and scaling up core systems, capacities, and coordination mechanisms required for effective AMR prevention and control. Essential step to redefine the priorities and budgets for phase II.	Fully formulated strategic objectives, priority interventions, M&E indicators, and overall budget estimates for all activities across AMR spectrum. Building block for phase II.
Monitoring and Review	**Continuous during Phase I**	Tracks implementation progress, supports coordination and accountability, and enables timely adjustments to activities and resource allocation during Phase I implementation.	Monitoring and evaluation framework and indicators
Phase II – Consolidation and Sustainability Phase	**2031–2035**	Builds on Phase I achievements by consolidating gains, integrating AMR interventions into routine national systems, strengthening domestic financing, and ensuring long-term sustainability of AMR actions.	➔ To be redefined and upated based on Phase I results.

This phased approach enables the Lao PDR to maintain a clear 10-year strategic direction while implementing AMR activities in practical, achievable steps during the initial 5-year phase, supported by a stakeholder-driven operational plan. The specific activities and budget for the first five years are thoroughly outlined and will be implemented through a one-year operational building block. By 2030, the next consolidation and sustainability phase will be adjusted based on evidence, performance, and challenges identified during the implementation phase. This continuity plan enables the strategy to serve as a living document, allowing the integration of updated diagnostic methods, treatments, guidelines, and other funding opportunities toward phase II.

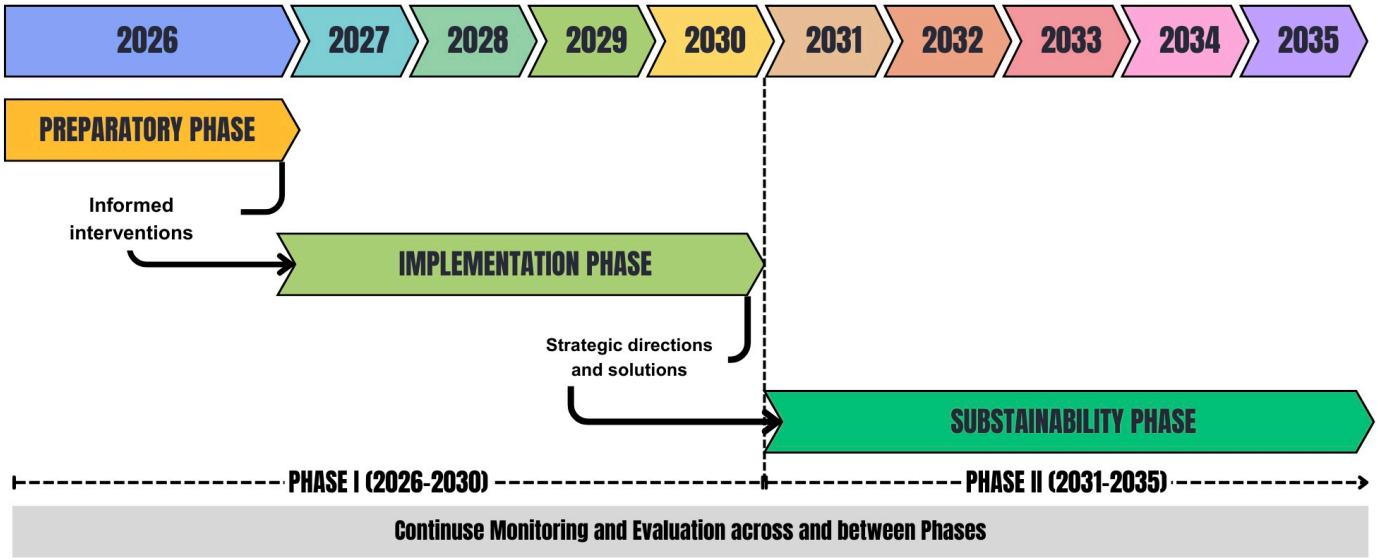


Figure 12. Visual illustration of NSP-AMR implementation phases

Figure 12 illustrates the implementation phases and their connections. This visual is intended to help stakeholders understand the practical steps and approaches between phases as a reference.

7. Strategic objectives and interventions

7.1. Strategic objective 1: Reduce the spread of AMR through awareness, youth education, social and behavioral sciences, and media outreach programs

While antibiotic resistance is a biological issue, the solutions often require the economic and social sciences.[31] A key strategy here is to enhance understanding of AMR through awareness campaigns, youth education, and health promotion activities, including qualitative surveys on public knowledge and attitudes. Behavioral change communication and different intervention models will be utilized to address the grassroots problem of knowledge–action gaps across sectors.

This revised strategy focuses on healthcare professionals, the community, and the youth educational system, particularly in certain universities and schools. Some professionals, such as medical doctors, microbiologists, and veterinarians, are aware of AMR through recent training, while others are not due to competing priorities and limited financial resources. Since AMR is a moving target, ongoing education is necessary to catch up to and contain this threat. The activities include conducting a qualitative knowledge, attitudes, and practices survey, different experimental studies, and behavioral change communication interventions among healthcare professionals to establish a baseline of awareness in selected hospitals, followed by a training program encompassing both theoretical and practical components to enhance AMR knowledge. Evaluation against baseline data will be conducted to measure the program's impact.

At the community level, a similar qualitative assessment of AMR awareness will be conducted through local volunteer networks, followed by training volunteers with basic AMR information. Health talks tailored to community needs will be delivered, along with supportive materials such as posters and pamphlets. For youth education, the medical and school curricula will be revised, and teachers will be trained to educate schoolchildren, medical students, and veterinary students about AMR. This initiative aims to assess and improve public, healthcare workers', and youth's awareness of AMR, providing a knowledge foundation for future social interventions against AMR.



Strategic interventions: AWARENESS

- **Increase the level of AMR knowledge and awareness among the healthcare workforce and veterinary professionals through tailored or refreshed training programs**
- **Empower people's AMR awareness through events, workshops, and Information, Education and Communication distribution programs (through a gender lens)**
- **Establish public and media communication via social media to promote AMR awareness**
- **Include AMR as a core topic of pre-service professional university curricula**
- **Empower school and youth populations' knowledge on AMR prevention with age-appropriate messages**
- **Advocate AMR as a priority need for action across four sectors (human health, animal health, environment, and agri-food) with its inclusion in the National One Health Strategic Plan or national risk profile**

7.2. Strategic objective 2: Enhance the generation and use of quality and reliable AMR surveillance data to inform evidence-based policy and interventions

The country's AMR surveillance system has made significant progress due to substantial and continuous investments from both external and domestic sources. However, data generated by the system is unevenly distributed across sentinel sites, with inconsistencies in sample volumes, laboratory reliability impacting data quality, limited facility-level data management, and insufficient ongoing oversight from the central level. Challenges regarding data completeness, including sample requests, data sharing, and population coverage, hinder the understanding of AMR resistance patterns and the differentiation between community-acquired and hospital-acquired infections.

The revised activities of the NSP focus on optimizing the existing system and capacity to create a comprehensive system that promotes good population coverage, diagnostic stewardship, and robust reporting across surveillance sites. The national reference laboratory will utilize surveillance data to monitor resistance trends, aiming to rapidly detect outbreaks and respond effectively to epidemics, in accordance with the steps outlined in the National MDRO Outbreak Investigations and Response Manual. Facility staff will receive training on data collection, analysis, and sharing, thereby improving coordination mechanisms for MDRO response based on standardized reporting (March 2025 JEE recommendations).

Another core element in this updated strategy is to strengthen and reinforce the existing capacities and capabilities of NCLE to obtain ISO accreditation (ISO 15189) for the quality management system. This step will enable NCLE to provide technical assistance actively and professionally at both national and sub-national levels, not only for microbiology services but also for other diagnostics.

Additionally, access to diagnostics will be accelerated by utilizing the existing national sample transportation network. Quality assurance programs, developing SOPs, and obtaining ISO accreditation are also included under this strategic objective. The sub-technical AMR surveillance committee will govern all activities mentioned above.

Strategic interventions: SURVEILLANCE

- **Establish a sub-technical AMR group to improve AMR surveillance data sharing and coordination across sectors**
- **Enhance access to diagnostic services through an existing national sample referral system**
- **Strengthen the MDRO outbreak investigation, response, and reporting mechanism with continuous training programs**
- **Improve animal health sector AMR surveillance system through continuous training and workforce reform programs**
- **Enhance the roles of a national reference laboratory for AMR surveillance (NCLE and NAHL)**
- **Optimize the existing performance of surveillance sites into a robust one**
- **Integrate the environmental sector within the existing AMR surveillance system**

7.3. Strategic objective 3: Limit the incidence of antibiotic resistance through practical and cost-effective interventions and preventive measures

A 2025 WHO report revealed a concerning decline in the global antibacterial development pipeline, with the number of agents in clinical development dropping from 97 in 2023 to 90 in 2025. Since 2017, only 17 new antibacterial agents have been authorized for market, with merely two representing new chemical classes, underscoring the urgent need to maintain the efficacy of existing drugs.[32] Therefore, strengthening IPC measures, such as handwashing and improving sanitation, is a key intervention to preserve the efficacy of existing antibiotics. Research indicates that implementing IPC practices could prevent 584,800 deaths annually,[4] and yield an economic gain of 1:24 US$ by improving handwashing practices.[33] Therefore, Lao PDR will focus on strengthening upstream interventions against AMR.

The NSP will leverage resources and infrastructure developed during the COVID-19 response to enhance IPC practices in hospitals, with ongoing training for the National Infection Prevention and Control Committee to reduce the spread of infection based on the data generated from the AMR surveillance system. Healthcare-associated infection surveillance will also be considered to establish tailored interventions, while IPC initiatives will prioritize actions to control AMR. A recent WHO IPC report suggests improved IPC and WASH practices could avert 600,000 AMR-related deaths each year, highlighting a substantial return on investment.[22]

The national IPC strategy and five-year investment plan will guide these efforts, with handwashing and sanitation programs piloted in collaboration with national WASH initiatives. The IPC focal points will be involved in site-level AMR committees and the stewardship team to promote IPC as a core intervention for AMR, while monitoring trends in the importance of priority pathogens through the AMR surveillance system. Additionally, IPC good practices will extend to animal health and food production systems, utilizing a One Health approach to emphasize reducing the environmental footprint of antimicrobials.



Strategic interventions: PREVENTION

- **Enhance IPC as a core intervention of AMR preventive measures**
- **Reinforce the capacities of the IPC focal point to implement AMR preventive measures (selected sentinel sites)**
- **Strengthen hygiene and sanitation practices in coordination with the national WASH program**
- **Promote other AMR preventive measures through immunization programs, social mobilization, and behavioral change activities**
- **Develop standards for IPC measures in all relevant settings (outside of health facilities)**
- **Include hygiene and IPC as a topic in training and certification programs of veterinary professionals**
- **Promote safe food handling practices and hygiene across the food chain**

7.4. Strategic objective 4: Promote access to and rational use of quality antimicrobials across sectors with stewardship programs and stringent regulations and laws

Evidence shows that the excessive use of antimicrobials in humans and animals is directly linked to AMR. Addressing AMR requires involvement from all sectors, including patients, healthcare providers, communities, animal health professionals, and environmental stakeholders. A strong understanding of AMC (m-AMU) and individual-level usage (c-AMU) data is crucial for targeted interventions, such as AMS and behavioral change initiatives. Both programs provide qualitative and quantitative insights into facility-level AMC patterns.

Building on the well-established national AMC surveillance system, this objective aims to enhance data quality and expand surveillance to the private sector and community settings. Training in GHPP and regular monitoring of community pharmacies will help reduce AMC (e.g., project supported by the International Centre for Antimicrobial Resistance Solutions).[34] Annual aggregated data as well as hospital m-AMU training will be considered to inform clinicians about rational prescribing decisions. Most importantly, sales without prescription regulations will be reviewed through regular monitoring and licensing processes.

Progress has been made through PPS assessing antibiotic prescribing in selected facilities (2018–2022), with the results shared via a local AMU data dashboard. However, uncoordinated data use has limited the implementation of interventions. Therefore, a practical, evidence-based, and context-specific AMS program is a key focus area in this updated strategy, to improve prescribing practices and reduce inappropriate AMU.

A technical sub-committee on AMU will be formed to enhance data collection, data completeness, data analysis, reporting, and sharing across sectors, guiding the national AMU surveillance system. An infectious disease call centre is also planned as a complementary strategy to hospital AMS.

Strategic interventions: STEWARDSHIP

- **Establish a sub-technical committee to optimize the use of antimicrobials with the designated members**
- **Ensure access to essential and quality antimicrobials with a proper control and supply chain management system**
- **Re-enforce the laws and regulations on antimicrobial sales without prescription**
- **Enhance education and awareness of AMU and AMC in all settings**
- **Formalize the AMS programs in selected healthcare facilities**
- **Strengthen the AMU surveillance system with well-documented data and standardized methodology**
- **Reinforce the AMU (m-AMU) surveillance system and private sector engagement plan**
- **Establish national antimicrobial policies on the use of antimicrobial agents in farms, aquatic animals, and agriculture**
- **Reduce the AMU in farms and agriculture through safe practices and proper data recording/reporting**

7.5. Strategic objective 5: Ensure sustainable AMR governance through a strengthened One Health coordination mechanism, including private sectors and civil society organizations

Historically, sectors within the AMR spectrum have operated in silos, whereas One Health has gained traction through global-level discussions. The shift from the Tripartite to the Quadripartite platform, including the United Nations Environment Programme, indicates an increased focus on this area. This objective will be directly aligned with the recently published National One Health Strategic Plan.

In Lao PDR, implementing the One Health approach is somewhat challenging due to limited health system resources and uneven investment across sectors. However, establishing a community of practice can facilitate dialogue among diverse sectors on AMR topics, promoting collaboration and the sharing of expertise and resources. This approach empowers the government to learn and collaborate effectively with stakeholders to advocate for resource mobilization based on the nation's AMR profile. Through the National One Health Committee, coordination between and across sectors is expected to improve substantially, in turn allowing the implementation of AMR activities with a practical One Health approach.

Sustainability is a buzzword often used to motivate governments to maintain infrastructure, train their workforce, and implement an AMR surveillance system. Sustainability here is envisioned with practicality and limited resources, with financing for some core elements of existing AMR activities based on data collected over the last five years, while exploring additional resources to maintain the resource-intensive routine surveillance system.

Through coordination, the government can showcase collective AMR management across sectors, exchange best practices, and address needs with decision-makers. AMR is a global challenge that requires commitment and sustained efforts through regional and international partnerships. Therefore, having a robust AMR governance and coordination platform is fundamental for Lao PDR to expand collaboration with local, regional, and global partners to contain AMR at the country level by balancing investments between domestic and external sources.



Strategic interventions: SUSTAINABILITY

- **Implement NSP activities with a One Health spirit and coordination**
- **Review and strengthen the multisectoral governance for timely actions against AMR**
- **Implement the provincial-level AMR committees to support the AMR implementation**
- **Enhance data storage and data safeguarding policy for all AMR-related data**
- **Develop AMR policy brief with cost and benefit analysis to support resource allocation and the decision-making process**
- **Resource mapping and funding application to sustain the AMR activities**

7.6. Strategic objective 6: Implement local and international research programs to optimize AMR interventions and bridge knowledge gaps

Evidence of AMR in low-resource settings is limited, despite progress in establishing surveillance systems, diagnostic infrastructure, and training programs. Most data originate from external donor support, which has a narrow focus on human health. To overcome the challenge of being "data rich but information poor," developing a local research program is crucial for transforming data into actionable insights for informed policy decisions. This involves creating a national AMR operational research agenda to guide initiatives at national, regional, and global levels.

A national operational research agenda with the top three research priorities would be practical and could address data gaps (e.g., PPS and AMS interventions) and generate recommendations for improvement. Progress has been made in the local research agenda through coordination with international research institutions. However, a practical, context-specific research agenda is necessary to bridge the knowledge gap between the burden of AMR and its impact. Emphasizing the use of and access to antimicrobials in healthcare and community settings is essential for closing data gaps. The quality and representativeness of the data are crucial for making informed surveillance decisions and responding effectively to outbreaks under International Health Regulations (2005).

Upcoming national strategies will address some critical areas, particularly those related to gender issues, the economic rationale for laboratory-based AMR surveillance, and the impact of IPC interventions and One Health approaches. Specifically, the national operational research agenda will aim to understand mortality, social and economic burdens, and AMU in the animal health and food production sectors, including gender equity considerations associated with AMR.

Following the WHO global research agenda,[35] the additional aim over the next five years is to design and conduct a qualitative or quasi-experimental study through a social and behavioral science lens to provide evidence-based data on knowledge-sharing and awareness-raising programs.



Strategic interventions: RESEARCH

- **Develop a national operational research agenda (basic and advanced) to generate evidence of AMR**
- **Advance AMR research and surveillance with next-generation sequencing capacities on the pathogen of interest**
- **Generate evidence-based information on new medicine and health technology with a multidisciplinary process (health technology assessment)**
- **Pilot a case study to understand the attributable mortality or economic implications of AMR**
- **Improve IPC practices, WASH, and vaccination through an evaluation research program**
- **Investigate the interconnection of AMR across sectors through small-scale research or an integrated study**
- **Carry out qualitative research to understand behaviors influencing AMU**

8. Summary of implementation activities

Most activities outlined in this updated strategy are already underway, particularly regarding the routine AMR and AMU surveillance system, as well as various initiatives related to IPC and awareness-raising programs. The total estimated cost for all activities over the plan's five-year period is approximately US$ 6,853,290, based on a round-up assumption or the actual expense figures from the externally funded program. This estimate does not constitute a full financial commitment from the government; instead, it should be viewed as an investment requirement for all relevant partners supporting Lao PDR's efforts to contain AMR.

To implement all activities within the plan's timeframe, some level of government investment is necessary to sustain the AMR action. The goal is to execute as many of the plan's activities as possible during the specified period and to ensure adequate funding. Furthermore, the costs will be reassessed at least annually throughout the plan's duration by a special working group appointed by MOH.

Only through targeted and extensive actions, along with follow-up, monitoring, and partnership, will it be possible to limit the spread of antibiotic-resistant bacteria and reduce the burden of AMR impact on the population of Lao PDR.

The level of priority is set to prioritize the implementation across the six strategies axis, focusing on the possible outcomes and scenarios to achieve the formulated indicators and outcomes within the defined period, as explained in Figure 12, and priority levels (**P1, P2, and P3**) were set accordingly in **Annex I**.

The implementation activities summarized in this chapter correspond to the first five-year phase (2026–2030) of the NSP-AMR.

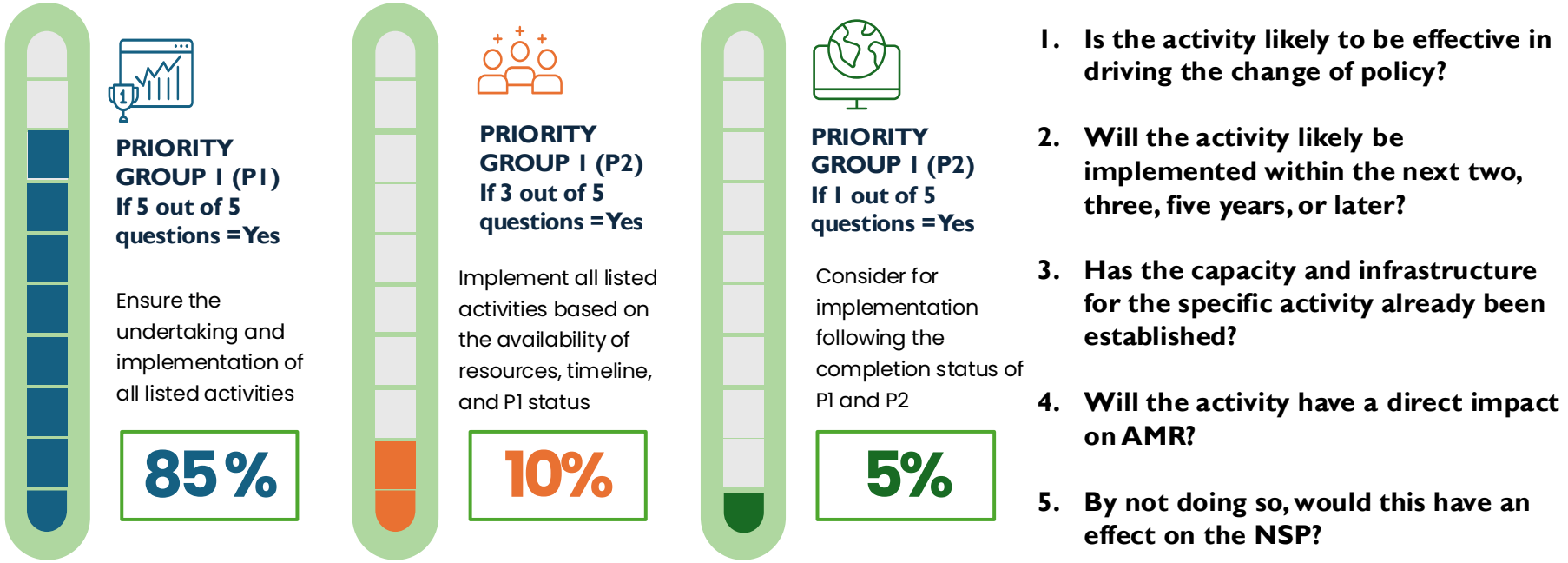


Figure 13. Priority levels

9. Monitoring and evaluation framework

The monitoring and evaluation framework presented in this NSP-AMR is designed to support implementation of the first five-year phase (2026–2030) within the broader ten-year strategic period (2026–2035)**.** The framework focuses on tracking progress, performance, and outcomes of Phase I interventions through defined indicators, routine monitoring, and periodic reviews. Findings from monitoring and evaluation activities will inform adaptive management during implementation and guide the development of subsequent five-year operational plans, including refining indicators, incorporating new global guidance, diagnostic methods, and targets for later phases of the NSP-AMR (2031-2035).

The monitoring and evaluation framework (Figure 13) is an indispensable tool for tracking and evaluating progress on the defined indicators during the implementation phase of NSP-AMR. To monitor and assess the progress and completion of indicators over the next five years, a monitoring and evaluation table (Table 2) has been created to track the indicators within the NSP, along with their respective timeframes. Additionally, incorporating rationales that align with stakeholders' expectations from the outset enables adaptive management and improves coordination at all levels.

9.1. Rationale

9.1.1. Goal 1: Reach 90% minimum requirements standards for IPC across all AMR sentinel sites

Following the 2024 IPC survey and economic gain data from the Organisation for Economic Co-operation and Development, this indicator was discussed and elaborated on during the consultative meetings, leading to the decision to collectively incorporate it as a core indicator for the next NSP. This area will be led by the DHR in collaboration with the Hospital IPC Committee and the relevant department under MOH. Additionally, IPC was a key recommendation from the recent JEE mission in Lao PDR, particularly emphasizing handwashing practices. While new antimicrobials are in development, IPC interventions and preventive measures may help prevent infections in the population, thereby reducing the need for prophylaxis or antimicrobial treatment. Drawing on successful models in healthcare settings, these practices could be extended to animal health, agriculture, food production, and, particularly, to communities. Data tracking and evaluation will be conducted using the IPC Assessment Framework (IPCAF) or national IPC monitoring and evaluation tool as outlined in the monitoring and evaluation table (Table 2).

9.1.2. Goal 2: Increase by 30% (from 2026 baseline) knowledge and awareness of AMR among the healthcare workforce and veterinary officers at all AMR sites

Increasing awareness is recognized as a key part of this updated NSP, as prescribers' and consumers' behavior and knowledge heavily influence AMR. With the ongoing evolution of AMR, AMR surveillance professionals across all sectors must stay informed about the latest updates and information on how to prescribe and use antibiotics responsibly. Although awareness of AMR may be high among healthcare workers, gaps exist in training in certain areas and facilities. To address this, responsible stakeholders and departments will implement simple questionnaires or interviews (e.g., knowledge, attitudes, and practices studies) to assess clinicians', nurses', pharmacists', and veterinary officers' baseline understanding of AMR. Based on this foundational data, a customized training and capacity-building program will be developed and delivered to the relevant personnel. The evaluation

will take place twice during the NSP period, and the results will be analyzed to show an overall increase in knowledge by comparing them to the baseline survey scores.

9.1.3. Goal 3: Maintain national use of "Access" group antibiotics at 70% with an average of 22 DID for AMC in the human health sector

Considering the progress made in AMC surveillance in Lao PDR, this indicator was developed to maintain the average consumption rate over the last three years, in alignment with the 2024 United Nations General Assembly recommendation for the threshold of the "Access" group of antimicrobials. The National Regulatory Authority/FDD will lead this activity in coordination with hospitals to measure consumption levels and track the indicator's achievement annually, while submitting the data to WPRACSS and GLASS. The progress of the indicator will be regularly monitored and tracked through site visits and regional and global databases. This will allow the AMS team to review data in real time and provide evidence-based recommendations to prescribers on the rational use of antimicrobials. Additionally, the facility-level consumption rate is a key metric for supporting stewardship interventions and applying necessary IPC measures where they are most needed

9.1.4. Goal 4: Reduce by 30% (from 2026 baseline) AMC in the animal health sector

Under the leadership of the DLF, NAHL will oversee this activity by monitoring AMC across existing surveillance sites, as well as by tracking local distribution and import data. An active surveillance system is already in place to track trends and patterns of AMR. Surveillance in aquaculture will enable the sector to observe AMR trends, as well as the use of antimicrobials in this specific industry and its surrounding environment. Data review and tracking will be conducted regularly using the available data from the existing surveillance system and will be monitored using the monitoring and evaluation table (Table 2).

9.1.5. Goal 5: Achieve a JEE score of not less than 3 for the AMR surveillance area

Multisectoral coordination will be strengthened to ensure success in these areas. Following the March 2025 JEE review and TrACSS 2024 survey, Lao PDR made significant progress in this area, except for community-level surveillance. The lack of standardization and resources has posed a challenge in implementing AMR surveillance in community settings. The purpose of this indicator is to maintain the substantial achievements made over the last five years while aiming to achieve a higher score in the next round of the JEE. This indicator will be monitored and tracked through two self-assessments and evaluations of each technical area under AMR during the mid-year and end-year of NSP implementation.

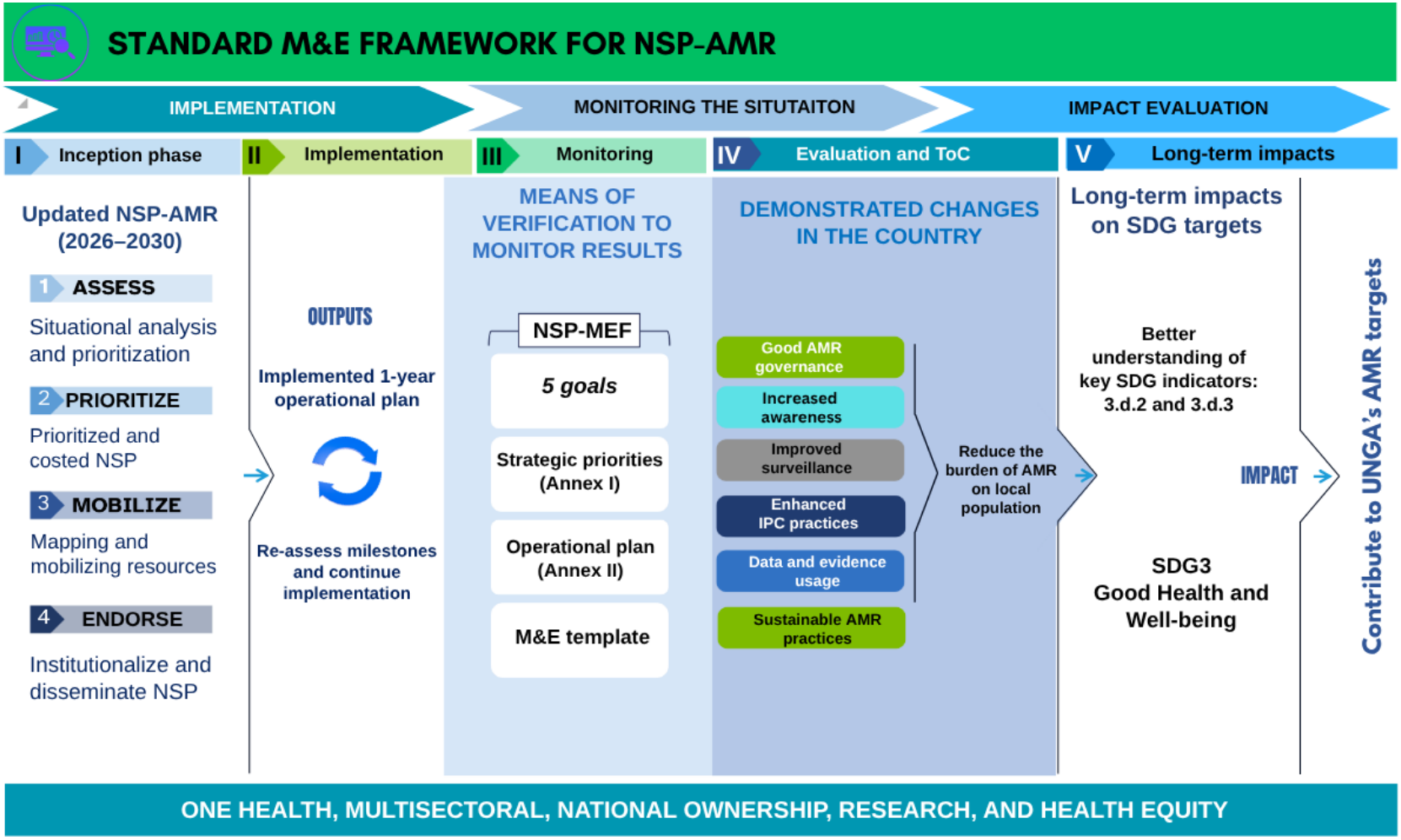


Figure 14. Standard monitoring and evaluation framework

Note: M&E = monitoring and evaluation; MEF = Monitoring and Evaluation Framework ; SDG = Sustainable Development Goal; ToC = Theory of change; UNGA = United Nations General Assembly.

Table 3. Monitoring and evaluation table (Implementation phase)

Goals	Baseline data available	Value (calculation)	Frequency of data collection	Data source	Method	Baseline level (2026)	Target (2030)
1. Reach 90% minimum requirements standards for IPC across all AMR sentinel sites	No	Number of sites that meet minimum requirements of IPC standards by total number of AMR sentinel sites	Annually	Scores calculated from IPC assessment or survey	IPCAF or IPC monitoring tool (site visits, interviews, observations)	Total number of AMR sentinel sites that meet minimum IPC requirements	**90% of AMR sites** meet WHO IPC minimum requirements
2. Increase by 30% (from 2026 baseline) knowledge and awareness on AMR among the healthcare workforce and veterinary officers at all AMR site facilities	No	End of NSP evaluation scores minus baseline scores, divided by baseline scores	Two evaluations followed by baseline data and training	Scores or responses from respondent survey or interviews	Structured questionnaires or score sheet interviews	Sum of individual scores out of total respondents (baseline scores)	**30% increase (not 20 percentage points)** from baseline
3. Maintain national use of "Access" group antibiotics at 70% with an average of 22 DID for AMC in the human health sector	Yes	Track the level of "Access" group from the baseline for next five years Calculate the percentage of increase or decrease from five-year average DID and compare with baseline	Annually	WPRACSS and GLASS	Data review and data tracking through site visits, regional and global platform	60% "Access" group threshold (2024) ———————— 22 DID (2021–2023)	**70% threshold** on "Access" group and maintain average of 22 DID
4. Reduce by 30% (from 2026 baseline) AMC in the animal health sector	No	Compare the average percent of AMU against baseline data	Annually	Data from AMU surveillance system, import or distribution records or farm surveys or InFARM or ANIMIUSE	Data review and data tracking	Baseline data from surveillance network (consumption or use rate)	**30% AMC** from the baseline
5. Achieve a JEE score of not less than 3 for the AMR surveillance area	Yes	Self-assessment and evaluation for JEE technical area 4.1	Biannually	JEE self-assessment answers	Technical meetings	Score 3	Score not **less than 3** for AMR surveillance area

Table 4. Timeline and anticipated target (Implementation phase)

Indicators	Responsible entity	Biennial target				
		2026	**2027**	**2028**	**2029**	**2030**
Reach 90% minimum requirements standards for IPC	DHR, National IPC Committee, Hospital IPC Committee, hospital sites, DCDC, and relevant departments	Baseline		50%		90%
Increase by 20% (from 2026 baseline) AMR knowledge and awareness	Centre for Health Statistics and Information, Department of Hygiene and Health Promotion (DHHP), DCDC, and relevant departments	Baseline		20%		30%
Maintain national use of "Access" group antibiotics at 70% with an average of 22 DID for m-AMU (human health sector)	FDD, sentinel sites, and relevant departments	~ 70% 27 DID		~ 70% 22 DID		70 % 17 DID
Reduce by 30% (from 2026 baseline) AMC in the animal health sector	NAHL, DLF, DCDC, FDD, and relevant departments	Baseline		15		30
Achieve a JEE score of not less than 3 for the AMR surveillance area	DCDC, NASCC, NCLE, and relevant departments	Score 3		Score 3		Score 3

10. Overall budget estimation and projections

The budget estimates and projections presented in this chapter cover the first implementation phase of the NSP-AMR, spanning 2026–2030, within the broader ten-year strategic framework (2026–2035). The costing reflects the prioritized interventions required to strengthen and scale up core AMR systems during Phase I and is aligned with national planning, budgeting, and implementation capacities.

In line with the phased implementation approach of the NSP-AMR, budget requirements for subsequent implementation phases (2031–2035) will be developed through future operational planning processes in line with the national budget cycle and planning. These updates will be informed by implementation progress, monitoring and evaluation findings, evolving national priorities, and available financing mechanisms, ensuring efficient use of resources and long-term sustainability of AMR interventions.

The budget estimation for this NSP on AMR is derived from the activities, strategic interventions, and objectives outlined in **Annex I** and will be implemented in conjunction with the activities outlined in **Annex II** (operational plan and budget). Additionally, the WHO AMR costing and budgeting tool will be used to ensure the estimations are practical while identifying the existing funding sources in the country (e.g., the budget from the National Health Plan).[36] The costing tool could be updated during the final review meeting of phase I, whether using a modular approach or interventions by intervention, by updating Annex II.

This budget projection aims to provide stakeholders with a costed plan for each area of strategic intervention, including as many detailed activities as possible. However, this budget plan is contingent upon achieving the milestones and objectives outlined in the proposal; it will not, however, fully address detailed activity costing at the level of human resources, administration, financial management, and other indirect costs.

This could serve as a blueprint for implementation and an investment plan for government counterparts to seek additional financial support or funding from bilateral or multilateral donors. Most importantly, this strategic plan, together with the budget and monitoring and evaluation plan, can support the long-term vision and address unmet milestones from the last decade, particularly in graduating from “Limited” to “Developed” or from “Developed” to “Demonstrated” in the TrACSS framework.

A collective effort and forward-looking mindset are necessary to review the funding requirements and fill the financial gaps incrementally, involving like-minded partners from national and regional levels through the ongoing support of international organizations.

Considering the project-driven AMR activities of the country, these budget projections will guide stakeholders in perceiving the cost requirements to address a complex and multifaceted problem, taking into account domestic financing for some areas within the NSP or alignment with ongoing projects.

Table 4 and Figure 14 summarize the budget projections and funding requirements.

10.1. Budget projections

Table 5. Budget projections

No.	Strategic objective	No. of intervention	No. of activities	Lead institution	Total budget requirement (US$)	Source of funding (existing)	*Funding gaps*
1	AWARENESS	6	22	MOH, MAE, NASCC, DCDC, DHHP, Centre for Health Statistics and Information	715,390	TBD	
2	SURVEILLANCE	7	26	NASCC, NCLE, DCDC, NAHL, DLF	2,461,620	TBD	
3	PREVENTION	7	22	NASCC, DHR, DCDC, relevant departments	1,007,555	TBD	
4	STEWARDSHIP	9	31	DHR, FDD, NASCC, DCDC, relevant departments	1,208,160	TBD	
5	SUSTAINABILITY	6	18	NASCC, NAHL, and ALL	925,540	TBD	
6	RESEARCH	7	20	ALL	535,025	TBD	
	Total estimated cost				**6,853,290**		

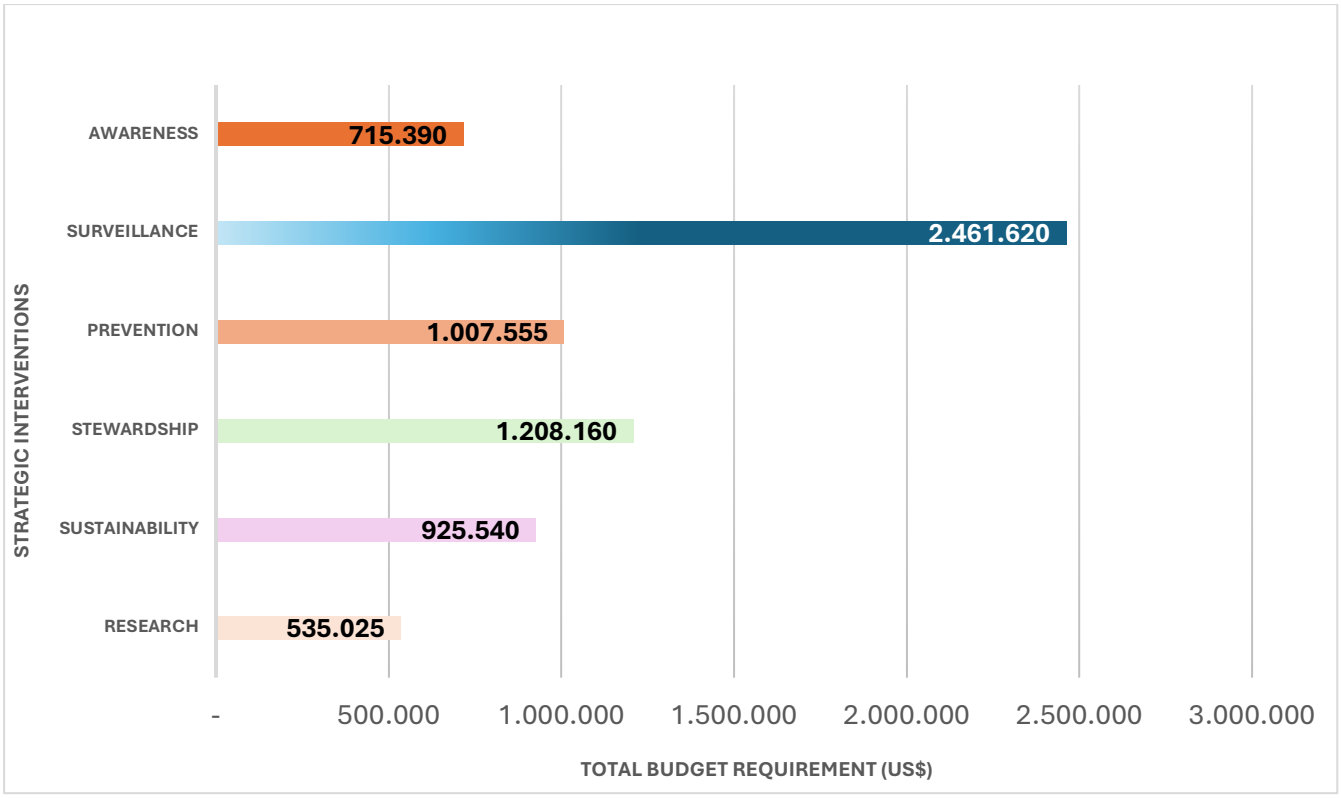


Figure 15. Five-year budget projections for each strategic objective (in US$)

The financial projection is only meant to be viewed as an estimated projection based on the financial expenses and expenditures from various bilateral and multilateral projects. Readers and stakeholders should consult with their respective departments during implementation.

Another goal of having financial figures is to allow the decision-makers, implementers, stakeholders, and delivery partners to discuss further financial and coordination opportunities whenever they arise in and around the country.

For detailed cost activities, refer to Lao PDR's national AMR budget and costing tool.

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Annexes

Annex I: Strategic interventions and activities

Annex II: Operational plan and budget (supplementary 1)

Annex III: One-year operational plan (supplementary 2)

Access to Annex II, Annex III, and the AMR costing tool

Annexes II and III are accessible via the following online temporary link and will be archived later on the DCDC official website or via email.

Temporary G-drive access link:

https://drive.google.com/drive/folders/1LfkmuC1bKL2rnnrjwP-1NcRzxQKXUap3?usp=share_link

For stakeholders and implementers, the **AMR costing tool** for Lao PDR is available upon request. To access it, please send an official request to DCDC.

ANNEX I

STRATEGIC INTERVENTIONS AND ACTIVITIES

2026–2030 (Implementation phase)

The strategic objectives, interventions, activities, priorities, outputs, and milestones outlined in Annex I – the implementation phase – will serve as a foundation for generating baseline and evidence-based interventions to inform the next phase, with a specific action plan. Evidence includes the extent of the AMR surveillance program, the practicality of the stewardship program, the impact of awareness-raising, the contributions of IPC programs, and, most importantly, the sustainable solutions generated by the research program and collective discussions. These metrics are essential to sustain AMR actions between phases.

The benefit of the phased approach in the updated NSP-AMR is that it enables stakeholders, implementers, decision-makers, and partners to monitor and evaluate key interventions in a specific, timely, and step-by-step manner against targets and indicators. This method can later be incorporated into the strategy framework for further implementation in later phases.

Annexes I and II will serve as a living document that can be carried forward to the next phase, taking into account resources, context, the evolution of AMR, diagnostics, and the medicine pipeline.

In summary, a 10-year strategy with a phased approach that involves stakeholder-led interventions and strategies in a clear, measurable, time-specific, and reproducible manner enables the Lao PDR to set long-term AMR actions while catching up with the evolving nature of AMR throughout the implementation process.

Strategic objectives, interventions and activities of the NSP on AMR			
Strategic objective 1 (SO1): Reduce the spread of AMR through awareness, youth education, social and behavioral sciences, and media outreach programs			
Sub-objective 1	**Increase awareness and knowledge of AMR**		
Key activities	**Strategic interventions**	**Activities**	**Priority**
Awareness raising and media communication	1.1. Increase the level of AMR knowledge and awareness among healthcare workforce and veterinary professionals through tailored or refreshed training programs **Milestone:** Baseline data collection in 2026 and 2028; Evaluation in 2027 and 2029	1.1.1. Establish the baseline level of AMR knowledge among healthcare professionals, veterinarians and professionals from aquaculture 1.1.2. Strengthen the knowledge, attitudes, and practices of healthcare workforce, including veterinarians, through training (theoretical and practical) or targeted capacity-building programs 1.1.3. Evaluate the level of AMR knowledge and awareness against baseline survey	**P1** **P1** **P1**
	1.2. Empower people's AMR awareness through events, workshops, and IEC distribution programs (through a gender lens) **Milestone:** IEC materials and educational messages are developed at the end of 2025 and distributed on yearly basis	1.2.1 Empower awareness on AMR among general population including farmers, animal health practitioners, and students/interns from agriculture colleges and universities with IEC materials, educational posters, and public events 1.2.2. Train and equip community volunteers and Lao women workforce with AMR knowledge to disseminate and raise awareness among community through gender equity lens 1.2.3. Conduct a simple Knowledge, Attitudes, and Practices or respondents survey to evaluate the level of awareness among the targeted communities	**P1** **P1** **P1**
	1.3. Establish public and media communication via social media to promote AMR awareness **Milestone:** Social media page created in the first phase of NSP, and information shared regularly (annually)	1.3.1. Create a National AMR Centre official webpage and social media channel to promote AMR-related knowledge, educational content, news, and information 1.3.2. Gather and publish a relatable story to humanize AMR through the most assessed media channels (e.g., TikTok, Facebook, YouTube, Radio) 1.3.3. Evaluate the page activities, followers, and public reach numbers, and use the information to expand the communication coverage via social media	**P1** **P2** **P1**
Sub-objective 2	**Improve knowledge of AMR and related topics in professional education and school programs**		
Key activities	**Strategic interventions**	**Activities**	**Priority**

Education and coordination	2.1. Include AMR as a core topic of pre-service professional university curricula **Milestone:** Educational program and courses reviewed and revised by the end of 2025	2.1.1. Update pre-service medical, veterinary and aquaculture students' education courses with AMR and One Health topics 2.1.2. Deliver the AMR and One Health integrated curriculum among the targeted students' or professionals' groups 2.1.3. Evaluate the students' knowledge of AMR and connect with the appropriate after-university AMR training courses or internship programs	**P1** **P1** **P1**
	2.2. Empower school and youth populations' knowledge on AMR prevention with age-appropriate messages **Milestone:** Awareness-raising programs are organized on annual basis	2.2.1. Conduct age-appropriate AMR awareness-raising programs/events for schoolchildren (primary and/or secondary) and the youth population (participation in the community outreach programs) 2.2.2. Integrate AMR as a topic and deliver age-appropriate lessons among primary and/or secondary schoolchildren (WHO youth toolkits) 2.2.3. Assess and evaluate the level of knowledge among schoolchildren after the events or impact assessment of the educational program	**P1** **P1** **P1**
	2.3. Advocate AMR as a priority need for action across four sectors (human health, animal health, environment and agri-food) with its inclusion in the national One Health strategy or national risk profile **Milestone:** Building the relationships throughout NSP period	2.3.1. Organize regular coordination meetings to recognize AMR as a priority need for action within and across sectors 2.3.2. Review and update the One Health related awareness-raising contents 2.3.3. Carry out joint AMR awareness-raising events/activities and health talks with a whole-of-society approach	**P1** **P1** **P1**
Priority of activities	**P1 = 17 activities; P2 = 1 activity; P3 = 0 activities**		
Responsible agency	**NASCC, CHSI, DHP, Ministry of Education, MOH, MAE, DLF, NAHL, and provincial health department, CSOs and CBOs**		
Partners and stakeholders	**WHO, FAO, WOAH, UNEP, NGOs and INGOs, and research institutions**		
Output indicators	1. Number of healthcare professionals, veterinarians and professionals from aquaculture received training on AMR prevention, stewardship and prescription practices (disaggregated data on gender) 2. Percentage increase in targeted population (including students, practitioners and interns from animal health, aquaculture and agricultural sectors) with adequate knowledge of AMR (baseline and monitor throughout NSP – every two years) 3. Percentage of public reach through social media, radio and public communication events (number of people reached; denominator – population at targeted geographical area)		

	4. Number of professional and school curricula updated with AMR topics 5. Number of AMR awareness campaigns conducted targeting the public, youth and schoolchildren (e.g., WAAW, slogans/visuals, and health talks in the school or community) 6. Number of multisectoral coordination meetings and joint awareness-raising events organized across sectors		
Outcome indicator: AMR awareness among communities, professionals, targeted groups (youth and schoolchildren) and the public increased substantially (20% from the baseline)			
Strategic objective 2 (SO2): Enhance the generation and use of quality and reliable AMR surveillance data to inform evidence-based policy and interventions			
Sub-objective 3	**Strengthen the existing AMR surveillance system**		
Key activities	**Strategic interventions**	**Activities**	**Priority**
Strengthening of the surveillance system	3.1. Establish a sub-technical AMR group to improve AMR surveillance data sharing and coordination across sectors **Milestone:** Core AMR surveillance group with appropriate mandate/ToRs and a dedicated member designated before the end of 2026	3.1.1. Create a sub-technical committee (AMR surveillance) with a clear ToR and dedicated personnel from the relevant departments 3.1.2. Provide technical oversight to improve data quality, completeness, data sharing, and reporting, including laboratory SOPs and guidelines, biosafety and biosecurity training for farms and slaughterhouses 3.1.3. Monitor the supply of laboratory reagents and consumables with a centralized digitized procurement system (e.g., to prevent the shortage of shelf-life issues)	**P1** **P1** **P1**
	3.2. Enhance access to diagnostic services through an existing national sample referral system (human and animal health) **Milestone:** By 2027, a sample referral network is identified and districts or PHCs are connected to the central or referral laboratory	3.2.1. Optimization of diagnostic services by connecting selected district hospitals to the high throughput laboratories (secondary or tertiary) 3.2.2. Expand sample referral system to district and PHCs with biosafety training on sample collection, packaging, and transportation 3.2.2. Establish a regular communication and feedback channel between the central or provincial and selected referral sites	**P1** **P1** **P1**
	3.3. Strengthen the MDRO outbreak investigation, response, and reporting mechanism with continuous training programs **Milestone:** A systematic reporting channel standardized and strengthened in Q1 of 2027; Annual MDRO training organized throughout NSP	3.3.1 Upskill MDRO outbreak investigation and response mechanism with capacity-building programs and clear responsibilities across departments/sectors 3.3.2. Set up a systematic reporting channel for real-time data analysis and sharing in response to outbreak or potential epidemic situations (bottom-up approach)	**P1** **P1**

		3.3.3. Record and report all outbreak events or potential outbreak situations carefully and thoroughly with a standardized format in accordance with the MDRO outbreak response manual	**P1**
	3.4. Improve animal health-AMR surveillance system through continuous training and workforce reform programs **Milestone:** Regular training programs identified at the end of 2026; Data submitted regularly to one of the international platforms in 2027	3.4.1. Strengthen the diagnostic capacities of existing AMR surveillance sites (active) including passive surveillance through regular training programs 3.4.2. Collect, analyze, and share the data locally and internationally through dedicated database or platform 3.4.3. Utilize the data to understand the resistance patterns of AMR in the animal, aquaculture, and agri-food sectors	**P1** **P1** **P2**
Sub-objective 4	**Build laboratory capacity to produce high-quality microbiological data for patient management and support surveillance activities in human health, livestock, and aquatic sectors**		
Key activities	**Strategic interventions**	**Activities**	**Priority**
Reinforcing diagnostic stewardship	4.1. Enhance the role of a national reference laboratory for AMR surveillance (NCLE and NAHL) **Milestone:** ISO accredited by 2028; Continuous provision of technical guidance by national reference laboratory, 2028–2030	4.1.1. Strengthen the role of a national reference laboratory (NAHL and NCLE) with Continuous Professional Development programs to provide technical oversight on AMR surveillance sites 4.1.2. Obtain the ISO accreditation (ISO 15189 or ISO 15190, ISO 17025 for animal health) for quality management or biosafety as a quality roadmap by 2030 4.1.3. Provision of reference laboratory-level technical services and guidance for external and internal quality assurance programs 4.1.4. Promotion of Good Laboratory Practices with SOPs, guidelines and consider setting up a National Biorepository for bacterial isolates for research and quality control purposes	**P2** **P1** **P1** **P2**
	4.2. Optimize the existing performance of surveillance sites to be more robust **Milestone:** Assessment data available on Q1 of 2027 and improvement plan initiation in Q3 of 2027, then follow up throughout NSP	4.2.1. Assess and evaluate the existing sentinel sites to ensure good population coverage, diagnostic stewardship and a strong reporting system 4.2.2. Strengthen the capacities of the sites with the lowest performance or score based on assessment and evaluation report 4.2.3. Build mutual trust and relationship between labs and clinicians with the clinical engagement programs 4.2.4. Strengthen the sample requisition process with complete data such as time, place and type of sample collection (differentiation of community vs hospital acquired infection)	**P1** **P1** **P2** **P1**

	4.3. Integrate environmental sector within the existing AMR surveillance system **Milestone:** 2027: training; 2028: finalized protocol and guidelines; 2030: self-sustained capacities	4.3.1. Provide training on AMR for environmental officers and laboratory technicians in coordination with human and animal health sectors	**P1**
		4.3.2. Develop a standard protocol and guidelines to collect and test samples from hospitals, livestock farms, fishery farms, and urban wastewater treatment plants (three common pathogens)	**P3**
		4.3.3. Connect with the national reference laboratory to test the AMR residue	**P1**
Priority of activities	**P1 = 18 activities; P2 = 4 activities; P3 = 1 activity**		
Responsible agency	**MOH, DLF, NASCC, DCDC, NCLE, NAHL, provincial authorities, CSOs and CBOs, and relevant institutions**		
Partners and stakeholders	**WHO, FAO, WOAH, UNEP, NGOs and INGOs, and research institutions**		
Outputs indicators	1. Sub-technical AMR committee established with ToR and number of departments involved within the committee 2. Number of trainings delivered (including biosafety and biosecurity) to improve the diagnostic surveillance in all sectors (human and animal health and aquaculture) 3. Proportion of district laboratories connected to the provincial referral hospital 4. Number of epidemiological/MDRO reports or resistance patterns produced, and data shared across sectors (human and animal health) 5. Number of trainings conducted for AMR surveillance in animal health sector 6. Number of ISO obtained, and SOPs and guidelines developed and updated throughout NSP (national reference laboratory in both human and animal health sectors) 7. Number of AMR surveillance sites assessed/evaluated and received trainings 8. Number of personnel from the environmental sector received trainings on AMR		
Outcome indicator: Existing national AMR surveillance system is strengthened with improved diagnostic and data quality that are accessible, reliable, reproducible, representative, timely and capable of detecting and identifying emerging threats through a One Health approach			
Strategic objective 3 (SO3): Limit the incidence of antibiotic resistance through practical and cost-effective interventions and preventive measures			
Sub-objective 5	**Reinforce the IPC program as a core intervention of AMR**		
Key activities	**Strategic interventions**	**Activities**	**Priority**

IPC in healthcare	5.1. Enhance IPC as a core intervention of AMR preventive measures **Milestone**: Assessment in 2026; Evaluation report and facility-focused action plan in 2027, and implementation throughout NSP	5.1.1. Mandate and support IPC improvement at all health facilities, recommending the use of the IPCAF and WASH FIT 5.1.2. Conduct IPC assessment at the facility-level to identify the area of improvement through the Hospital IPC Committee (e.g., WHO IPC assessment tool/IPCAF – aiming for minimum requirements) 5.1.3. Develop a tailored action plan to reinforce IPC practices at the hospital settings through continuous professional development and quality improvement training programs including minimum infrastructure	**P1** **P1** **P1**
	5.2. Reinforce the capacities of the IPC focal point to implement AMR preventive measures (selected sentinel sites) **Milestone**: IPC champion selected before the end of 2026; IPC champion involved in AMS team throughout NSP	5.2.1. Ensure IPC focal point/champion is equipped with essential AMR knowledge and resources to implement tailored IPC action plan 5.2.2. Integrate IPC focal point in hospital AMS program to support the control and interventions of AMR cases 5.2.3. Monitor IPC implementation in selected health facilities to evaluate IPC outcomes, with a target of 75–90%, achieving WHO IPC minimum requirements (30% by 2027, 60% by 2028, 90% by 2030)	**P1** **P1** **P1**
	5.3. Strengthen hygiene and sanitation practices in coordination with the national WASH program (e.g., WASH FIT) **Milestone**: Assess WASH infrastructure with WASH FIT before the end of 2026; Continuous trainings throughout NSP period; Monitor consecutively, 2028 and 2030	5.3.1. Establish coordination with the WASH program to ensure access to basic preventive measures such as water supply and hygiene practices at the selected facilities (including hand hygiene, cleanliness, and waste management in and around the hospital environment) 5.3.2. Conduct IPC and WASH trainings for health and veterinarian workers at the commencement of employment 5.3.3. Update national building standards and standards for safe water, sanitation, hygiene, and waste management services for healthcare facilities to enable compliance with IPC measure	**P1** **P1** **P1**
	5.4. Promote other AMR preventive measures through Immunization programs, social mobilization and behavioral change activities **Milestone:** Inform other preventive approaches and monitor the vaccination status throughout NSP period	5.4.1. Empower healthcare workforce and people's knowledge on other AMR preventive measures (e.g., IPC awareness raising and behavioral change communication) 5.4.2. Improve coordination between National Immunization Program and NASCC to track the vaccination coverage (HIB, rotavirus, measles, influenza) 5.4.3. Accelerate and expand AMR preventive measures (e.g., handwashing and vaccination) in coordination with international donors (Gavi), CBOs and CSOs	**P1** **P2** **P2**
Sub-objective 6	**Limit the development and spread of AMR outside health settings through IPC**		

Key activities	Strategic interventions	Activities	Priority
Hygiene and sanitation at the community level	6.1. Develop standards for IPC measures in all relevant settings (outside of health facilities) **Milestone:** Targeted IPC infrastructure enhancement and IEC materials developed in earlier phase of NSP (Q1 2026) and promoted regularly	6.1.1. Ensure proper sanitation and hygiene practices in schools, food production process, communities, workplaces, and targeted geographical areas (infrastructure for handwashing) 6.1.2. Promote handwashing practices and sanitation practices among the points of entry, schools, communities, farms, slaughterhouses, and healthcare facilities (health education campaigns or IEC displays) 6.1.3. Share good practices with the animal health, agriculture, and environmental sectors to implement IPC measures holistically (e.g., handwashing for food handlers and agri-food production system)	**P1** **P1** **P1**
Sub-objective 7	**Introduce IPC programs in veterinary settings and animal husbandry**		
Key activities	**Strategic interventions**	**Activities**	**Priority**
Infection prevention in animal health and food handling practices	7.1. Include hygiene and IPC as a topic in training and certification programs of veterinary professionals **Milestone:** Veterinarians curriculum updated before the end of 2026; IPC practices report produced in Q1 2027	7.1.1. Integrate IPC (focusing on farm biosafety practices or any veterinary hospitals) as a topic and deliver trainings to all veterinarians before the commencement of employment 7.1.2. Expand IPC practices to strengthen the AMR preventive measures in the food value or production chain 7.1.3. Use data from AMR and AMU surveillance system to promote and guide IPC practices and request for domestic financing (resource allocation)	**P1** **P1** **P1**
	7.2. Promote safe food handling practices and hygiene across the food chain **Milestone:** Training programs identified in early 2026; Awareness-raising campaign conducted throughout NSP	7.2.1. Conduct basic, low-cost training sessions for market vendors, street food handlers, and food processing workers on hygiene and responsible use of antimicrobials (pilot approach) 7.2.2. Run community campaigns (posters or other IEC materials) promoting handwashing and proper cooking 7.2.3. Equip food safety inspectors to include AMR prevention tips and checks during routine inspection of markets, restaurants and food stalls	**P1** **P2** **P2**
Priority of activities	**P1 = 17 activities; P2 = 4 activities; P3 = 0 activities**		
Responsible agency	**NASCC, DHR, DHHP, Ministry of Education, MOH, DLF, MOA and provincial authorities, CSOs and CBOs**		
Partners and stakeholders	**WHO, FAO, WOAH, UNEP, NGOs and INGOs, and research institutions**		
Outputs indicators	1. Number of hospitals assessed and evaluated with WHO IPC monitoring tool, and number of IPC action plans developed		

	2. Number of IPC focal points/champions with ToR identified, training received, and integrated within the hospital AMS team 3. Number of healthcare facilities assessed with WASH FIT and percentage of hospitals equipped with uninterrupted water supply, proper sanitation and waste management system 4. Percentage of vaccination coverage (4 Ags) and viral vaccines throughout the NSP period 5. Number of public handwash basins, handwashing instructions, and educational posters displayed in public spaces 6. Number of IPC-related pre-service training delivered for veterinarians and food production chains 7. Number of training sessions, food inspections and food handling information delivered		
Outcome indicator: IPC practices and measures are reinforced and strengthened across health facilities, food production chains, and the animal health sector			
Strategic objective 4 (SO4): Promote access to and rational use of antimicrobials across sectors with stewardship programs and stringent regulations/laws			
Sub-objective 8	**Ensure uninterrupted access to high-quality antimicrobial medicines and good governance on AMU surveillance**		
Key activities	**Strategic interventions**	**Activities**	**Priority**
Access to high-quality antimicrobial medicines	8.1. Establish a sub-technical committee to optimize the use of antimicrobials with the designated members **Milestone:** Sub-technical committee established before the end of 2026, and functions as a core group for AMU surveillance	8.1.1. Create a sub-technical committee (AMU) with a ToR to spearhead the national AMU surveillance system and appropriate use of drugs (FDD, DHR, Mahosot Hospital, NAHL) 8.1.2. Function as an advocacy and technical body to strengthen AMU surveillance at sites 8.1.3. Provide leadership to review/update empirical treatment guidelines, develop antibiotics policy and prescriptions guidelines, and endorse national Essential Medicines List	**P1** **P1** **P1**
	8.2. Ensure the production, importation and access to essential and quality antimicrobials with a proper control and supply chain management system **Milestone:** Quality control conducted regularly throughout NSP; SOPs and guidelines reviewed and updated, 2026; Tracking system implemented throughout NSP period	8.2.1. Conduct quality control system (regular or random) to monitor antibiotic quality and identify substandard and/or falsified medicines 8.2.2. Update and disseminate SOPs and guidelines for antibiotics storage, waste management systems (antibiotics), handling substandard and falsified medicine, and dispensing across public and veterinary clinics, and private pharmacies/healthcare facilities 8.2.3. Deliver training for veterinarians, pharmacists, animal medicine vendors, and nurses on digital or paper-based tracking system to monitor procurement, distribution, and stock level of essential antimicrobials at public and private health facilities, including veterinary clinics and medicine shops	**P1** **P1** **P2**

Sub-objective 9	Enforce the regulations on drug sales, over-the-counter sales and the monitoring process		
Key activities	**Strategic interventions**	**Activities**	**Priority**
Regulatory enforcement	9.1. Re-enforce the laws and regulations on antimicrobial sales without prescription **Milestone:** 2026: Law on sales without prescription reviewed; 2027: Electronic databased developed; Inspections conducted once a year throughout NSP	9.1.1. Review and re-enforce the legislation that makes all antimicrobials strictly prescription-only in accordance with national laws/sub-regulations 9.1.2. Develop an electronic database to register the list of pharmacies and hospitals (private and public) to implement robust licensing and monitoring of antimicrobials sales 9.1.3. Conduct regular inspections of pharmacies to ensure compliance with prescription-only policies and promotion or sales methods (GPP)	**P1** **P1** **P1**
	9.2. Enhance education and awareness of AMU and consumption in all settings **Milestone:** Public–private meeting organized annually, throughout NSP period; AMR warning message displayed across pharmacies, throughout NSP period	9.2.1. Equip pharmacists and assistant pharmacists (or drug store clerks) and general practitioners to educate and guide the public about the dangers of self-medication with antimicrobials (e.g., pamphlets or posters) 9.2.2. Foster collaboration between government agencies, healthcare professionals, pharmacists, veterinarians, animal medicine vendors, and the pharmaceutical industry to address the issue of sales without prescriptions from doctors and veterinarians (regular meeting) 9.2.3. Engage community leaders and organizations to raise awareness about responsible AMU and support efforts to control over-the-counter sales (informal healthcare settings, unauthorized/unlicensed medicine or grocery stores)	**P1** **P2** **P2**
Sub-objective 10	**Improve and measure appropriate use of antimicrobial agents in healthcare**		
Key activities	**Strategic interventions**	**Activities**	**Priority**
Formalizing the stewardship concept	10.1. Formalize AMS programs in selected healthcare facilities; Implement/expand hospital AMS program to empower rational use of antimicrobials **Milestone:** AMS programs established in two central facilities in 2026 and extended to four provinces by 2030	10.1.1. Develop a simple, cost-effective and practical stewardship action plan (targeting the highest prescription antibiotics, inappropriate use, guidelines on non-compliance with a phased approach) 10.1.2. Formalize an agreement or MOU between hospitals and responsible institution (DHR) for implementation of action plan with designated team and resources 10.1.3. Evaluate the effectiveness of AMS program (patient outcomes, cost savings, bed occupancy rates, and prescription practices) and select Center of Excellence to lead the national AMS program (end of NSP)	**P1** **P1** **P1**

		10.1.4. Explore the adoption of clinical decision support system tools to assist with the hospital clinical decision-making process under the leadership of AMS (long-term)	**P3**
	10.2. Strengthen the AMU surveillance system with well-documented data and standardized methodology **Milestone:** Nationwide PPS plan developed by Q2 of 2026 with roll-out throughout NSP period; Pilot PPS at district or PHC level, 2029–2030	10.2.1. Develop a phased national PPS plan (site, unit, training and methodology selections) with standardized methodology 10.2.2. Allocate dedicated personnel and resources for training and implementation of PPS 10.2.3. Expand PPS to district or PHC level (selected) to better understand the appropriateness of AMU in the community 10.2.4. Analyze, interpret and share data (prevalence, appropriateness, 4Rs and guideline compliance) with feedback for rational use of antimicrobials at the facility level (baseline data for stewardship intervention)	**P1** **P1** **P2** **P1**
	10.3. Reinforce the AMU (m-AMU) surveillance system and private sector engagement plan **Milestone:** Situational analysis conducted in at least two sentinel sites in 2026 and expanded across the country	10.3.1. Pilot a situational analysis to implement hospital m-AMU monitoring system (stepwise action plan) (using different denominator) 10.3.2. Deliver continuous training for all m-AMU surveillance sites to inform updated methodology and improve data sharing (real-time) 10.3.3. Use national and hospital m-AMU surveillance data to inform evidence-based treatment guidelines and AMS interventions 10.3.4. Engage with the private sector and community for m-AMU surveillance sites expansion plan	**P1** **P1** **P1** **P2**
Sub-objective 11	**Ensure prudent use of antimicrobial agents in farms, and for aquatic animals and agriculture**		
Key activities	**Strategic interventions**	**Activities**	**Priority**
Use of antimicrobial agents in animal health and agriculture	11.1. Establish national antimicrobial policies on the use of antimicrobial agents in farms, and for aquatic animals and agriculture **Milestone:** Policies reviewed and established, February 2026	11.1.1. Gather AMU data and establish policies on the use of critically important antibiotics (HP-CIAs and P-CIAs), recently renamed MIA 11.1.2. Create AMU guidelines based on the surveillance and AMU data (reference recent World Organization for Animal Health guidelines) 11.1.3. Develop regulations on prescription-only sales of antimicrobials for use in animals and for food production, limiting non-prescription use of medically important antimicrobials	**P1** **P1** **P1**

	11.2. Reduce AMU in farms and agriculture through safe practices and proper data recording/reporting **Milestone:** Data recording template developed and distributed in 2026	11.2.1. Develop a standardized template for farmers and food producers to record antibiotics purchase and usage 11.2.2. Train farmers and veterinarians on responsible use of antimicrobials with simple and targeted trainings 11.2.3. Monitor the level of access to probiotics, vaccination, and sanitations to reduce dependency on antimicrobials	**P2** **P1** **P2**
Priority of activities	**P1 = 22 activities; P2 = 7 activities; P3 = 1 activity**		
Responsible agency	**NASCC, FDD, DHR, MAE, DLF, NAHL, Ministry of Education, MOH, DLF, MOA and provincial authorities, CSOs and CBOs**		
Partners and stakeholders	**WHO, FAO, WOAH, UNEP, NGOs and INGOs, and research institutions**		
Outputs indicators	1. Sub-technical committee on AMU surveillance established and number of departments constituted 2. Number of medicines quality control conducted, and SOPs/guidelines developed for private and public pharmacies (including veterinary medicine shops) 3. An electronic database piloted and developed, and number of pharmacies (public and private) registered and received the updated regulations on sales without prescriptions 4. Number of trainings, educational sessions, and awareness-raising activities organized through GPP and GHPP to improve sales without prescriptions 5. Number of hospitals institutionalized AMS with MOU and evaluated its impact within the NSP period 6. Number of sites enrolled in the PPS survey and the total number of report/policy briefs produced, along with a number of empiric treatment guidelines updated 7. Number of sites received training to submit and review data on WPRACSS platform 8. Number of policies and regulations developed to control the use of antimicrobials in the animal health sector 9. Number of farmers and food producers trained and received materials for the appropriate use of antimicrobials 10. Number of trainings and educational sessions delivered among veterinarians, veterinary clinics and animal medicine shops for optimization of AMU		
Outcome indicator: Increased understanding and awareness on the appropriate use of antimicrobials among clinicians, veterinarians, farmers and the food value chain			

Strategic objective 5: Ensure sustainable AMR governance through a strengthened One Health coordination mechanism, including private sectors and civil society organizations			
Sub-objective 12	**Strengthen multisectoral coordination with a One Health approach**		
Key activities	**Strategic interventions**	**Activities**	**Priority**
Improve multisectoral coordination	12.1. Implement NSP activities with a One Health spirit and coordination **Milestone:** Community of practice mechanism established in 2026; Regular coordination One Health/AMR meeting organized throughout NSP period	12.1.1. Establish community of practice mechanism to exchange dialogues, information, and good practices among the different sectors (e.g., quarterly informal exchange over tea or coffee break on AMR progress) 12.1.2. Practice One Health approach to identify common activities within NSP and share knowledge and resources between sectors 12.1.3. Use NASCC or One Health or zoonotic coordination platform to discuss NSP implementation status across different sectors	**P1** **P1** **P1**
	12.2. Review and strengthen the multisectoral governance for timely actions against AMR **Milestone:** ToR updated in Q2 of 2026, NASCC technical member participated in site assessment	12.2.1. Review and update ToR of NASCC to provide timely responses and actions 12.2.2. Advocate financing and resource allocations from government and external donors for AMR activities across sectors 12.2.3. Conduct AMR joint site assessment mission of any sectors to track the progress of NSP (at least twice a year)	**P1** **P1** **P1**
	12.3. Implement provincial-level AMR committee to support the AMR implementation **Milestone:** Provincial-level AMR committee with ToR and active member lists designated by Q3 2026	12.3.1. Officialize an agreement to establish provincial-level AMR committee across all sentinel sites (human and animal health) 12.3.2. Provide overall guidance and supervision on prioritization of NSP activities and implementation in coordination with hospitals and relevant stakeholders (e.g., joint awareness raising [WAAW]) 12.3.3. Monitor and evaluate NSP implementation periodically and share results with NASCC through quarterly meetings	**P1** **P1** **P1**
Sub-objective 13	**Develop a sustainable resource planning through evidence-based data and effective resource mobilization mechanism**		
Key activities	**Strategic interventions**	**Activities**	**Priority**
Data governance and sustainability	13.1 Enhance data storage and data safeguarding policy for all AMR-related data **Milestone:** AMR data repository set up (2027) and data safeguarding policy endorsed (2028)	13.1.1. Consult with all relevant stakeholders, technical expertise, and research institutions to establish a national AMR data repository 13.1.2. Estimate the financial and human resources needs and advocate for domestic or external financing to set up a data storage system	**P2** **P1**

		13.1.3. Update and endorse a data management policy to safeguard national AMR data in coordination with TPHI (e.g., systematic approval of Ethics Review Committee)	**P1**
	13.2. Develop AMR policy brief with cost and benefit analysis to support resource allocation and decision-making process **Milestone:** Assessment results available by May 2016	13.2.1. Provide policy brief writing training for the national staff including professionals from veterinary sectors by AMR policy fellows and subject matter experts	**P1**
		13.2.2. Develop an AMR policy brief with the data from the AMR surveillance system (e.g., resistance patterns or biomedical profile)	**P1**
		13.2.3. Share the policy brief with high-level decision-makers for domestic financing on some part of AMR (e.g., IPC or other interventions)	**P1**
	13.3. Resources mapping and funding application to sustain the AMR activities **Milestone:** AMR investment plan drafted (2026); Grants and proposal writings delivered (NSP period)	13.3.1. Map out all the available funding sources and potential opportunities (domestic and international) and develop a sustainable investment plan	**P1**
		13.3.2. Deliver specific targeted trainings on grants and proposal writing for national staff	**P1**
		13.3.3. Pilot income generation model with Community Cost Sharing to sustain laboratory-based AMR surveillance system	**P2**
Sub-objective 14	**Build capacity on monitoring antimicrobial use with inclusion of the agricultural and plant sector**		
Key activities	**Strategic interventions**	**Activities**	**Priority**
Monitoring of pesticides use	14.1 Develop national monitoring plan for antimicrobial-pesticide use in plant production **Milestone:** Pesticide monitoring plan endorsed (2027) and monitoring plan initiated (2028)	14.1.1. Conduct a situational analysis to identify needs and gaps for pesticide monitoring system development	**P1**
		14.1.2. Review, draft and endorse the national strategy to monitor antimicrobial-pesticide use	**P1**
		14.1.3. Disseminate the strategy across sectors for implementation and follow-up	**P2**
	14.2. Deliver relevant trainings and enhance infrastructure for implementation of monitoring system **Milestone:** Training delivered (2027) and monitoring data available (2028, 2029, 2030)	14.2.1. Establish agreement with NASCC to nominate dedicated personnel for monitoring system	**P1**
		14.2.2. Deliver trainings and capacity-building programs for data collection and reporting along with IT tools and minimum infrastructure	**P1**
		14.2.3. Share the AMU data with the NASCC through a national One Health coordination mechanism	**P1**
Priority of activities	**P1 = 21 activities; P2 = 3 activities; P3 = 0 activities**		

Responsible agency	**DCDC, MAE, MOH, NASCC, DHR, FDD, NAHL, DOA, DLF and provincial authorities, CSOs and CBOs**		
Partners and stakeholders	**WHO, FAO, WOAH, UNEP, NGOs and INGOs, and research institutions**		
Outputs indicators	1. Number of on-line or in-person meetings organized between sectors (human and animal health and environment) through a community of practice model and One Health coordination platform 2. NASCC ToR reviewed and updated, and the number of joint assessment missions conducted 3. Number of provinces signed the agreement and established provincial multisectoral AMR committee 4. Number of policies and guidelines developed and electronic database developed for data storage and data safeguarding 5. Number of policy briefs training sessions provided among national staff 6. Number of policy briefs or site AMR reports developed and disseminated within the NSP period 7. Number of funding proposals applied for and number of proposal or grants writing trainings delivered		
Outcome indicator: NSP activities are implemented in sustainable and accountable way through good governance, multisectoral coordination, standardized data storage, and a One Health approach			
Strategic objective 6 (SO6): Implement local and international research programs to optimize interventions and bridge knowledge gaps			
Sub-objective 15	**Strengthen the scientific evidence on AMR and AMU to guide effective interventions and treatment**		
Key activities	**Strategic interventions**	**Activities**	**Priority**
Generating evidence-based data	15.1. Develop a national operational research agenda (basic and advanced) to generate evidence of AMR **Milestone:** By Q2 2026, the national research agenda developed	15.1.1. Collaborate with local and international research institutions to develop the national AMR research agenda (top three priorities: awareness, burden, and rational use of antimicrobials) 15.1.2. Select and train national staff from research institutions on scientific writing, grant proposal development and publication process 15.1.3. Conduct local operational or implementation research in alignment with the national and international research institutions' agenda and financial capacities	**P1** **P1** **P1**
	15.2. Advance AMR research and surveillance with next-generation sequencing capacities on the pathogen of interest	15.2.1. Develop a research protocol to understand the resistance trends and patterns of critical/high-priority pathogens 15.2.2. Reinforce existing sequencing capacity of NCLE and NAHL to conduct sequencing for pathogen of interest	**P2** **P2** **P2**

	Milestone: By Q4 2027, sequencing capacity established, and research protocol developed	15.2.3. Engage with local and international partners to fulfill prerequisites (technical and financial) for genomic sequencing with next-generation sequencing	
	15.3. Generate evidence-based information on new medicine and health technology with a multidisciplinary process (HTA study) **Milestone:** HTA protocol informed and endorsed by 2027	15.3.1. Develop a HTA study or protocol to purchase a new line of antimicrobials or medicines for the country 15.3.2. Conduct HTA study and generate evidence-based data to register new antimicrobials 15.3.3. Use data to inform clinical practices and treatment choices with the economic and social implications	**P1** **P2** **P1**
Sub-objective 16	**Understandingthe economic impact of AMR and IPC interventions**		
Key activities	**Strategic interventions**	**Activities**	**Priority**
Research and development	16.1. Pilot a case study to understand the attributable mortality or economic implications of AMR **Milestone:** January 2026	16.1.1. Create a research protocol to conduct study to understand the attributable mortality of AMR following WHO methodology 16.1.2. Train local staff on data collection, data analysis, and interpretation with standardized protocol 16.1.3. Publish research findings in international journal and share the insights with relevant departments/institutions	**P1** **P1** **P1**
	16.2. Improve IPC practices, WASH, and vaccination through an evaluation research program **Milestone:** January 2026	16.2.1. Design a simple, effective, and cost-effective research program to evaluate the impact of IPC interventions, WASH program under universal health care targets and vaccination programs 16.2.2. Conduct evaluation research to measure the impact of the prevention and control program 16.2.2. Analyze, interpret, and share the evidence-based findings in international journals and at conferences	**P1** **P1** **P1**
Sub-objective 17	**Develop sector-specific research capacity in animal health and the environment sector**		
Key activities	**Strategic interventions**	**Activities**	**Priority**

Animal health sector AMR surveillance	17.1. Investigate the interconnection of AMR across sectors through small-scale research or integrated study **Milestone:** Tricycle protocol developed and approved, Q1 2027, with research carried out in Q2 2027	17.1.1. Design a country-specific integrated AMR surveillance protocol with the WHO tricycle methodology 17.1.2. Implement the protocol in coordination between the human and animal health and environmental sectors 17.1.3. Apply the success of the integrated research approach in national prevention mechanism for health emergencies	**P1** **P1** **P1**
	17.2. Carry out qualitative research to understand behaviors influencing antimicrobial use **Milestone:** January 2026	17.2.1. Develop a research protocol and obtain ethical approval for qualitative studies 17.2.2. Conduct focus group discussion and key informant interviews with farmers, agri-food retailers, and veterinary service providers for their AMU behaviors 17.2.3. Use the findings to address and control the inappropriate use of antimicrobials	**P1** **P1** **P1**
Priority of activities	**P1 = 17 activities; P2 = 4 activities; P3 = 0 activities**		
Responsible agency	**DCDC, UHS, TPHI, MOH, NASCC, DHR, FDD, NAHL, DOA, DLF and provincial authorities, CSOs and CBOs**		
Partners and stakeholders	**WHO, FAO, LOMWRU, Fondation Mérieux, ICARS, CHAI, PSI, and Institut Pasteur**		
Outputs indicators	1. Number of research topics/themes developed and integrated within the National Operational Research Agenda and endorsed by Ethics Review Committee 2. Number of national staff trained on scientific writing, research proposal development and publication process 3. Number of academic studies or operational research conducted by using the genomic sequencing methods 4. HTA protocol developed and endorsed to register “Reserve” group of antimicrobials 5. Number of studies conducted to understand the attributable mortality of AMR 6. Number of studies conducted to understand the economic impact on IPC and WASH interventions 7. Number of publications and results produced by conducting integrated study on AMR across sectors 8. Number of qualitative studies carried out and results produced within NSP period		
Outcome indicator: National AMR actions are strengthened and reinforced with the evidence-based data generated and informed through local research programs			

Notes: AMR = antimicrobial resistance; AMU = antimicrobial use; AMS = antimicrobial stewardship; CBO = community-based organization; CHAI = Clinton Health Access Initiative; CHSI = Center for Health System Innovation; CSO = civil society organization; DHR = Department of Healthcare and Rehabilitation; DHP = Department of Human Resources and Planning; DHHP = Department of Hygiene and Health Promotion; DLF = Department of Livestock and Fisheries; FAO = Food and Agriculture Organization of the United Nations; GHPP = Good Health Practice Program; GPP = Good Pharmacy Practice; HIB = *Haemophilus influenzae* type b; HP-CIAs = Highest Priority Critically Important Antimicrobials; HTA = health technology assessment; ICARS = International Centre for Antimicrobial Resistance Solutions; IEC = Information, Education, and Communication; INGO = international nongovernmental organization; IPC = infection prevention and control; IPCAF = Infection Prevention and Control Assessment Framework; LOMWRU = Lao-Oxford-Mahosot Hospital-Wellcome Trust Research Unit; m-AMU = medicine-level AMU; MDRO = multidrug-resistant organism; MIA = Medically Important Antimicrobials; MOA = Ministry of Agriculture; MOU = Memorandum of Understanding; NGO = nongovernmental organization; P-CIAs = Priority Critically Important Antimicrobials; PHC = Provinicial Health Centers; POE = Point of Entry; PPS = Point Prevalence Survey; PSI = Population Services International; SOP = standard operating procedure; ToR = Terms of Reference; TPHI = Tropical and Public Health Institute; UHS = University of Health Sciences; UNEP = United Nations Environment Programme; WAAW = World Antimicrobial Awareness Week; WASH = water, sanitation, and hygiene; WASH FIT = Water and Sanitation for Health Facility Improvement Tool; WHO = World Health Organization; WOAH = World Organization for Animal Health; WPRACSS = Western Pacific Regional Antimicrobial Consumption and Resistance Surveillance System.

Appreciation and gratitude to our donors and partners for their continued support in the fight against AMR

