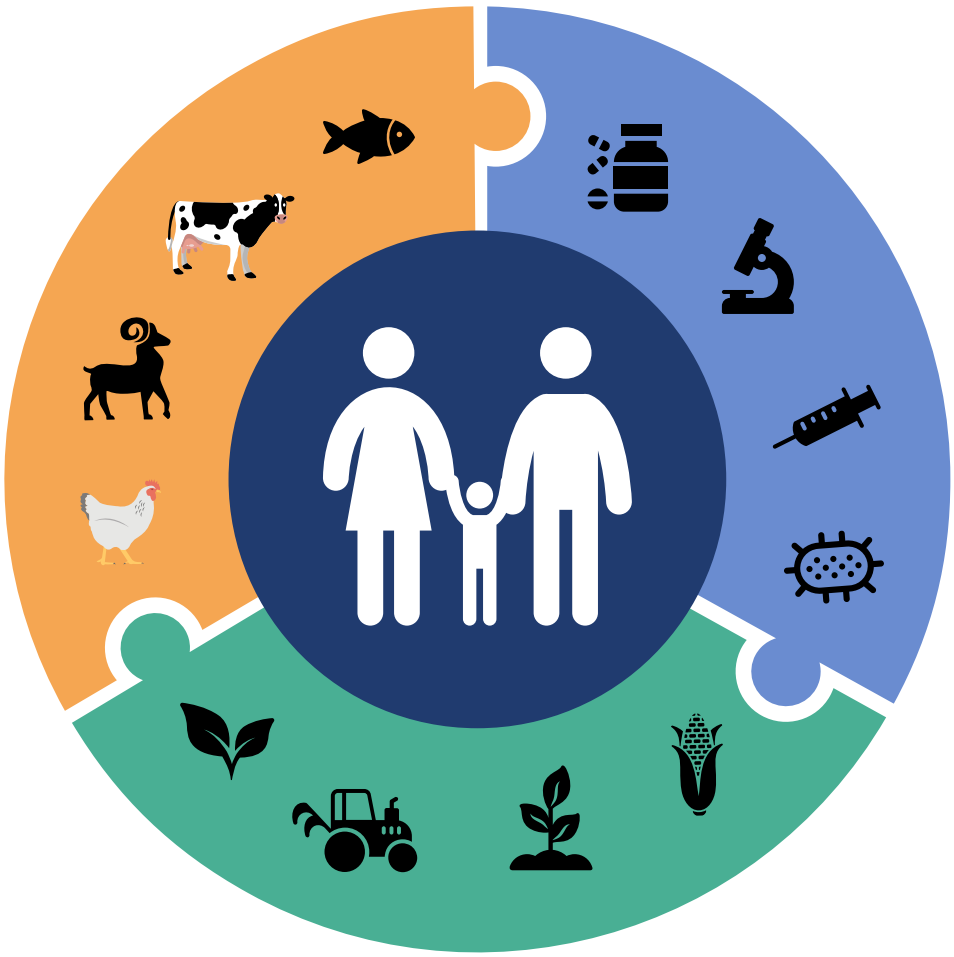
REPUBLIC OF KENYA

NATIONAL ACTION PLAN FOR THE CONTAINMENT AND PREVENTION OF ANTIMICROBIAL RESISTANCE (2023-2027)

MONITORING AND EVALUATION FRAMEWORK



National Action Plan on Prevention and Containment of Antimicrobial Resistance, Monitoring and Evaluation Framework, Nairobi, Kenya;

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ACRONYMS

AOP	Annual Operational Plan
AMR	Antimicrobial Resistance
AMS	Antimicrobial Stewardship
AMU	Antimicrobial Use
CASIC	County Antimicrobial Stewardship Inter-Agency Committee
DVS	Directorate Of Veterinary Services
EOP	End Of Programme
EQA	External Quality Assessment
HACCP	Hazard Analysis And Critical Control Point
HAI	Health Care-Associated Infection
IPC	Infection Prevention And Control
KAP	Knowledge, Attitudes, And Practices
KHIS	Kenya Health Information System
M&E	Monitoring And Evaluation
MDAs	Ministries, Departments, And Agencies
MoALD	Ministry Of Agriculture, And Livestock Development
MOH	Ministry Of Health
MTaPS	Medicines, Technologies and Pharmaceutical Services Program
NAP	National Action Plan
NASIC	National Antimicrobial Stewardship Inter-Agency Committee
NEMA	National Environment Management Authority
NIMES	National Integrated Monitoring And Evaluation System
NHIF	National Health Insurance Fund
NMRA	National Medicines Regulatory Authority
NPHL	National Public Health Laboratories
PPB	Pharmacy And Poisons Board
QC	Quality Control
SOPs	Standard Operating Procedures
TWG	Technical Working Group
UNEP	United Nations Environment Programme
USAID	Us Agency For International Development
VMD	Veterinary Medicines Directorate
WHO	World Health Organization
WOAH	World Organisation Of Animal Health

FOREWORD

The National Action Plan (NAP) for the prevention and containment of Antimicrobial Resistance (AMR) in Kenya, provides an implementation framework to support the containment of AMR. These efforts are led by the ministries health, agriculture, environment, and fisheries appointed in the National Antimicrobial Stewardship Interagency Committee (NASIC).

The Monitoring and Evaluation (M&E) Framework, aligned to the NAP was developed, and will be used to track the implementation and assess the outcomes of implementing the NAP-AMR 2023-2027. It also outlines the key indicators and the roles and responsibilities for the different partners and stakeholders in the M&E process. The framework is to be implemented in conjunction with the annual operational plans and the Communication Strategy for the Prevention and Containment of AMR.

The M&E framework is intended to guide all the stakeholders at all levels (public and private) across all sectors by requiring these entities to provide the information, data, and results from their implementation activities. This enables the NASIC to track the NAP implementation progress, compile the M&E reports, make management decisions, and fulfil their national and international reporting obligations. Furthermore, the M&E process provides qualitative and quantitative data to leadership and other stakeholders who have vested interest in the programme success and supports sustainability of the programme. All stakeholders are advised to align their internal M&E systems to this M&E framework and commit to reporting on it, as outlined.

This document provides a harmonised framework to monitor and evaluate the NAP through the One Health approach. So, we call upon all those with responsibilities to act in order to help Kenya realise the objectives for the prevention and containment of AMR. Without an integrated action, diseases that were once treatable will again present a threat to Kenya and the world at large.

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In particular, we acknowledge the World Organisation for Animal Health (WOAH), the US Agency for International Development (USAID) Medicines, Technologies, and Pharmaceutical Services (MTaPS) Program, and Food and Agriculture Organization (FAO) for providing technical and financial support for the development of this monitoring and evaluation framework. Additionally, we recognize and appreciate the USAID MTaPS Program for supporting the compilation and printing of this document.

We acknowledge the members of the NASIC for providing the overall leadership, technical expertise, and guidance during the development of this framework.

1. INTRODUCTION

1.1 Background

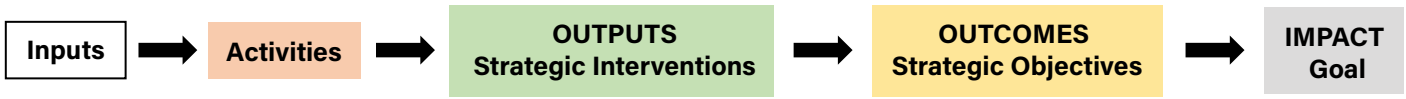
This monitoring and evaluation (M&E) framework document was developed to provide a guide the measurement of the results of the interventions under the Kenya National Action Plan (NAP) on Prevention and Containment of Antimicrobial Resistance (2023 – 2027).

The Government of Kenya considers M&E an essential component of its efforts to improve the effectiveness and quality of its functions. The National Integrated Monitoring and Evaluation System (NIMES) recommends monitoring and evaluating the implementation of all government policies, programmes, and projects. The NIMES guidance document further states that every institution or body that is spending public resources in the public interest has a responsibility to facilitate the M&E of its programmes. This facilitation is required at all levels of the government including the devolved units of the county governments.

1.2 The NAP Results Chain and Implications for the M&E Framework

This M&E framework is aligned to the NAP's result chain. Therefore, implementation of the activities listed in the NAP will result in the strategic interventions (outputs). The achievement of the Strategic interventions will lead to the realisation of the strategic objectives (outcomes). If the objectives are realised, then the project will contribute to the overall goal (impact).

Figure 1: NAP Results Chain



The NAP on AMR prevention and containment has the following six strategic objectives:

1. Strengthen governance and coordination mechanisms
2. Improve awareness and understanding of AMR through effective communication, education and training
3. Strengthen the knowledge and evidence base through surveillance and research
4. Reduce the incidence of infection through effective sanitation, hygiene, and infection prevention and control (IPC) measures
5. Optimise the use of antimicrobials
6. Develop an economic case for sustainable investment that takes account of the needs of Kenya, and increase investment in new medicines, diagnostic tools, vaccines, and other Interventions

2. OVERVIEW OF THE NAP M&E FRAMEWORK

2.1 Purpose of the M&E Framework

The purpose of the M&E framework is to provide standard guidance to NAP stakeholders on the procedures for tracking the progress of proposed interventions in the NAP. It also lays out the basis for assessing effectiveness, efficiency, and relevance of NAP requirements to the attainment of the overall goal. The framework outlines processes, methods, and tools that will be used to guide data collection, compilation, reporting, and use and to provide feedback to key stakeholders that include government ministries, county governments, resource partners, implementation partners, among others. The data collected will inform implementing stakeholders and decision-makers as to whether they are on track and where changes can be made in the present time or in future action planning. It thus provides a common platform across the different sectors and levels of government for monitoring and evaluating performance.

The evaluation plan is listed in the M&E framework implementation activities. This will include the mid- and end-term evaluation of the NAP, as well as the periodic performance surveys and special research that may be used to complement the routine monitoring data. These will be determined by the indicator matrix, which prescribes the data source, frequency of measuring, and reporting obligations. Some of the indicators will require measurement through surveys or assessments.

2.2 The Process of Developing the M&E Framework

The M&E framework was developed through a process organised by the NASIC Secretariat, through the technical assistance provided by the partner organisation. The process was consultative and incorporated key stakeholders and partners from across the different sectors and both levels of government (national and county), who participated in development of the M&E framework.

2.3 M&E Team

The NASIC and the County Antimicrobial Stewardship Inter-Agency Committees (CASICs) will be responsible for coordinating the M&E framework implementation activities at the national and county levels, respectively. They will be required to work closely with their respective M&E units at national and county levels to ensure that their functions are integrated into those of their respective ministries, departments, and agencies (MDAs).

3. RESULTS FRAMEWORK

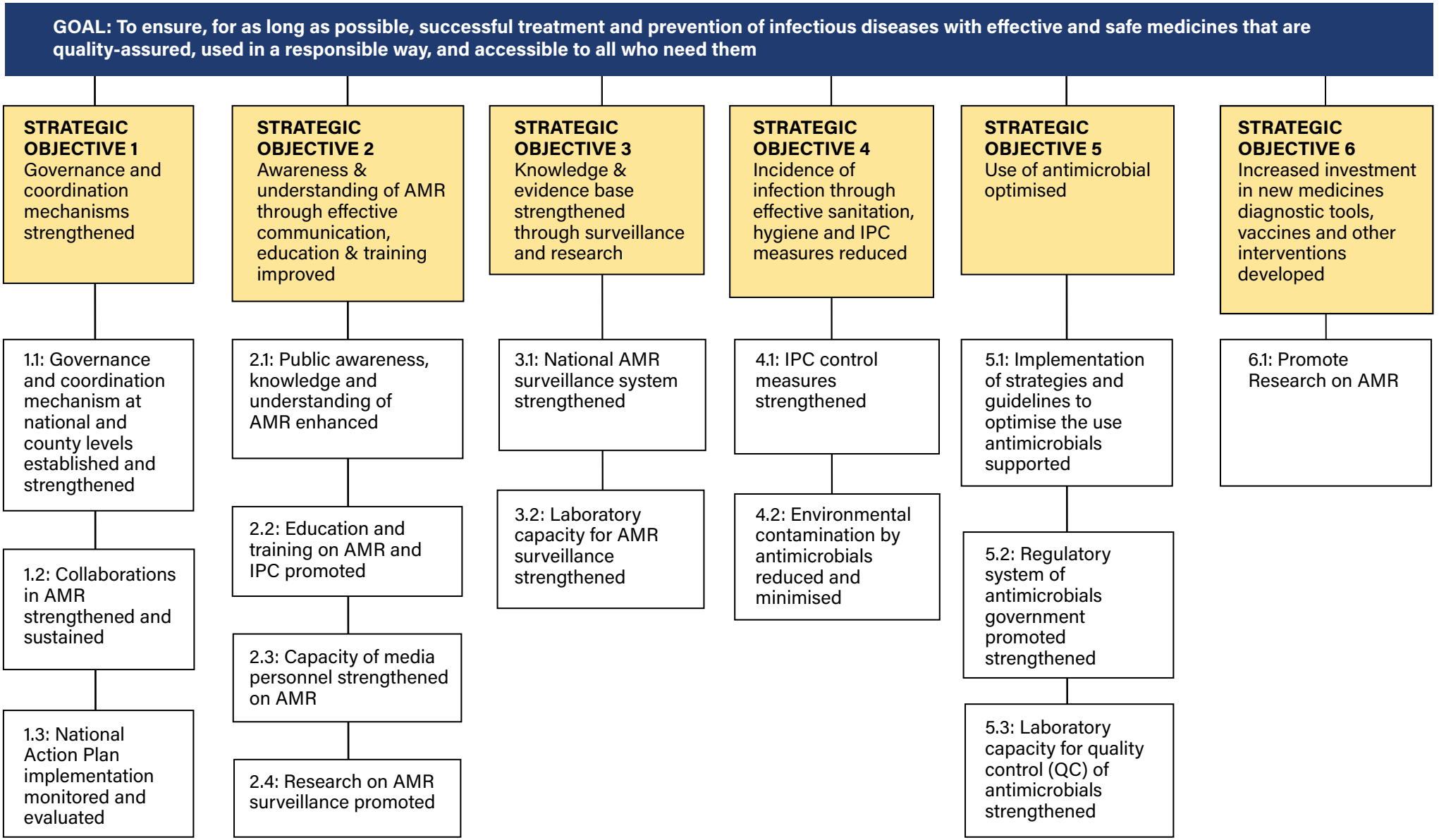
As described in section 1.2 above, the underlying structure of the NAP M&E framework is based on the NAP AMR results chain. The results chain / framework provides the basis for the selection of indicators to be used to track NAP AMR implementation. Figures 2 outline the results framework for the human health sector, animal health and crop sectors, respectively.

In project management, the inputs are converted into outputs through the implementation of tasks and activities identified in the NAP AMR. Outputs are generally goods and services produced expected to contribute to the delivery of the immediate, intermediate, and long-term outcomes. The outputs define what to deliver from the use of the resources (inputs), and the outcomes and impact are why the NAP AMR is being implemented. The purpose of M&E is to determine not only how well the NAP priorities are being addressed, but whether they are achieving change in the target audience. The change is either short term (immediate outcomes); medium term (intermediate outcomes); or long term (impact).

With regards to monitoring tor implementation of all the activities, NASIC will develop annual operational plans (AOPs) that will list all the activities and liaise with the different implementing partners and government MDAs to include the activities for which they are responsible in their respective AOPs.

The M&E framework selects key indicators from and related to outputs and for the outcome levels to measure whether the intended change is occurring and that the goal is achieved.

Figure 2: Results Framework



4. KEY NAP INDICATORS

4.1 Introduction

This section describes the indicators designated to be used to monitor and evaluate the NAP outputs, outcomes, and impact as outlined in the results frameworks. The M&E framework indicators are tabulated for both the sectors under each outcome as linked to the targeted results for each of the five strategic objectives.

4.2 NAP Outcome and Output Level Indicators

For each of the outcomes (linked to the strategic objective), the measurements are the outputs (for the strategic interventions) whose implementation of the interventions contributes to achievement of the outputs and the outcomes. Then for each measurement, there are selected indicators that will be monitored to track their implementation.

4.2.1: STRATEGIC OBJECTIVE 1: TO STRENGTHEN GOVERNANCE AND COORDINATION MECHANISMS

Outcome Indicators

Indicator	Baseline	Mid Term Target	End Term Target	Data Source	Frequency	Responsibility	Method of Verification
Outcome Indicator 1: Number of functional AMR One Health coordination structures at national and county levels of government	15 (1 NASIC, 14 CASICs)	30	48	NASIC/ CASIC Secretariat Annual reports	Annual	NASIC, CASIC Secretariat	NASIC, CASICs Reports (Meeting Minutes, reports, Approved Work plans)

Output Indicators

Indicator	Baseline	Mid Term Target	End Term Target	Data Source	Frequency	Responsibility	Method of Verification
Strategic Intervention: 1.1 Establish and strengthen governance and coordination mechanism at national and county levels							
1.1.1 Number of staff hired to support the NASIC Secretariat	0	3	6	Staffing records	Annual	NASIC Secretariat	Terms of reference for new employees Deployment letters
1.1.2 Proportion of the AMR NAP budget financed by the national government budget	0%	25%	50%	Ministry/ sector budgets	Annual	NASIC Secretariat, National government	Sector budget allocations
Strategic Intervention: 1.2 Strengthen and sustain collaborations in AMR							
1.2.1 Proportion of formalised partnership and collaborations with stakeholders	0	50%	100%	Partnership agreements	Annual	NASIC Secretariat	Partnership agreements

4.2.2: TO IMPROVE AWARENESS & UNDERSTANDING OF AMR THROUGH EFFECTIVE COMMUNICATION, EDUCATION & TRAINING

Human Health Sector: The current level of public awareness and understanding of AMR and antimicrobial use (AMU) is limited in both the human health and the animal health and crop sectors. Some of the mitigation measures proposed include incorporating the two concepts into pre- and in-service education curricula; developing targeted information, education, and communication materials; and conducting awareness campaigns with targeted messages.

Animal Health and Crop Sector: The current level of public awareness and understanding of AMR and AMU is limited in both the animal health and crop sectors. To change this, there is need to educate both the suppliers; the users (farmers, animal keepers); and the general public to encourage behaviour change. This is to be done through pre- and in-service

education, general public awareness campaigns, and targeted information materials.

Outcome Indicators

Indicator	Baseline	Mid Term Target	End Term Target	Data Source	Frequency	Responsibility	Means of Verification
Outcome Indicator 2: Proportion of stakeholders who are aware of AMR and AMU	Human sector* 24% Animal sector* 1% Environment* <1%	Human sector*40 % Animal sector* 5% Environment* <5%	Human sector* 60% Animal sector* 10% Environment* <10%	Knowledge, attitudes, and practices (KAP) Surveys	3 times (Start, mid-term, end-term)	NASIC	KAP Study Reports

Output Indicators

Indicator	Baseline	Mid-term	Target	Data Source	Frequency	Responsibility	Means of Verification
2.1 Enhanced Public Awareness, Knowledge, and Understanding of AMR							
2.1.1 Number of communication strategies for AMR reviewed	0	1	1	NASIC/Secretariat annual performance report	Annual	NASIC Secretariat	AMR Communication strategy
2.1.2: Number of audience -specific studies conducted to assess the level of awareness on AMR	0	2	4	NASIC/CASIC annual performance reports	Once	NASIC Secretariat	Survey reports
2.1.3: Number of AMR Awareness Campaigns conducted	15	30	45	NASIC and CASIC annual performance reports	Annual	NASIC and CASIC Secretariat	Activity reports
Strategic Intervention 2.2: Promote Education and Training on AMR and IPC							
2.2.1: Number of AMR training modules revised to include environmental dimensions, aquaculture, and crop health	0	2	2	Secretariat annual performance report	Once	NASIC Secretariat	AMR Training Modules; AMR training module review reports
Strategic Intervention 2.3: Capacity Build Media Personnel on AMR							
2.3.1: Number of AMR events covered by mass media	5	10	20	Media articles CASIC and NASIC reports	Quarterly	NASIC and CASIC Secretariat	Media clips; documentaries; social media

4.2.3: STRATEGIC OBJECTIVE 3: TO STRENGTHEN THE KNOWLEDGE & EVIDENCE BASE THROUGH SURVEILLANCE AND RESEARCH

Human Health Sector: Surveillance systems to detect and report resistant pathogens as well as the consumption of antimicrobials play a critical role in developing evidence-based policies and guidelines to control the overuse of antimicrobials, which is a major driver of AMR. To enhance the collection of data on AMR, there is need to build capacity of professionals and laboratories and surveillance system structure to enhance the sharing of surveillance studies on the spread and emergence of pathogens with AMR. These interventions will be carried out across the two sectors under the One Health approach.

Animal Health and Crop Sector: The extent and impact of AMR in the agricultural sector are not yet well defined. This necessitates the establishment of an effective system to monitor trends in AMR, enhance the capacity of personnel and laboratories, and implement surveillance systems focusing on AMR mitigation strategies in animals.

Output Indicators

Indicator	Baseline	Midterm	Target	Data Source	Frequency	Responsibility	Means of Verification
Strategic Intervention 3.1: Strengthen the National AMR Surveillance System							
3.1.1 Number of One health AMR Surveillance Strategies developed	0	1	1	Surveillance strategy	Annual	NASIC Secretariat	Surveillance strategy List of participants Activity Reports
3.1.2 Number of AMR Sentinel Surveillance sites established across all sectors (human, animal, crop, and environment)	26	30	40	NASIC Secretariat annual performance report	Annual	NASIC – AMR focal person	Secretariat annual performance report
3.1.3 Number of integrated AMR/AMU/AMC data into the AMR information management systems developed	0	1	1	AMR Central Data warehouse	Annual	NASIC Secretariat	Secretariat annual performance report
3.1.4 Number of annual AMR surveillance reports published	1	3	6	AMR annual reports	Annual	NASIC Secretariat	Signed and disseminated annual AMR surveillance reports
3.1.5 Number of Data Review Meetings	0	2	5	AMR annual reports	Annual	NASIC Secretariat	Secretariat annual performance report
Strategic Intervention 3.2: Strengthen Laboratory capacity for AMR Surveillance							
3.2.1 Number of AMR surveillance sites participating in the annual microbiology external quality assessment (EQA) and attain minimum score of 80%	14	26	26	EQA annual reports	Annual	Lab managers in all surveillance site	EQA annual Reports EQA certificates
3.2.2 Proportion of new AMR surveillance sites with staff trained on standardised AMR testing methods	0	50%	80%	Training reports	Annual	NASIC Secretariat	Training schedules Participants list

4.2.4: STRATEGIC OBJECTIVE 4: INCIDENCE OF INFECTION REDUCED THROUGH EFFECTIVE SANITATION, HYGIENE, AND IPC MEASURES

Human Health Sector: Improved hygiene practices and infection control are essential to limit the development and spread of antimicrobial-resistant infections and multidrug-resistant bacteria. IPC including surveillance of health care-associated infections (HAIs), should be instituted and strengthened. The NAP proposes the implementation of the Kenya IPC strategy across the country. This will include training health care workers on IPC and establishing a HAI surveillance system to monitor progress of the IPC interventions.

Animal Health and Crop Sector: The proposed NAP interventions are intended to promote IPC in livestock production, aquaculture, veterinary medicine, and the food chain. The actions will include pre- and in-service training of professionals on IPC and food hygiene, training of all those involved in food processing and distribution, and promotion of appropriate vaccination. There is also the danger of environmental contamination with animal, human, and manufacturing waste that contain pharmaceutical agents, which can result in environmental reservoirs (soil, crops, and water) of antimicrobial-resistant pathogens. There is need to create awareness on the disposal of wastes that may contain antimicrobials as well as to limit the use of such products in the environment.

Outcome Indicators

Indicator	Baseline	Mid Term Target	End Term Target	Data Source	Frequency	Responsibility	Means of Verification
Outcome Indicator 4a. Incidence Rate of Surgical Site Infections	TBD	TBD	TBD	Kenya Health Information System (KHIS) – Ministry of Health (MOH) 749 Summary report for IPC, AMR, Patient and Health Worker Safety	Bi-annual	NASIC–IPC Focal Person (Human Health)	MOH 749 Summary report for IPC, AMR, Patient and Health Worker Safety
Outcome Indicator 4b. Hand hygiene compliance rate in health care facilities	15%	30%	60%	KHIS–MOH 749 Summary report for IPC, AMR, Patient and Health Worker Safety	Bi-annual	NASIC–IPC Focal Person (Human Health)	MOH 749 Summary report for IPC, AMR, Patient and Health Worker Safety
Outcome Indicator 4c: Prevalence Rate in Priority Animal Diseases	TBD	TBD	30%	Kenya Animal Bio-surveillance System	Bi-annual	NASIC–IPC Focal Person (Animal Health)	Directorate of Veterinary Services (DVS) Disease reports
Outcome Indicator 4d. Levels of antimicrobials in the environment	TBD	TBD	TBD	Certificate of laboratory analysis; inspection reports and orders	Thrice (Baseline, Midterm, End term)	NASIC – MOECCF/ National Environment Management Authority (NEMA) Focal Person	State of environment report; National Environment Action Plan; NASIC Annual performance Reports

Output Indicator

Indicator	Baseline	Midterm	Targets	Data Source	Frequency	Responsibility	Means of Verification
Strategic Intervention 4.1: Strengthen infection prevention and control measures							
4.1.1: Healthcare Associated infections surveillance system established	0	1	1	KHIS–MOH 749 Summary report for IPC, AMR, Patient and Health Worker Safety	once	MOH	HAI surveillance system
4.1.2: IPC indicators incorporated into the National Health Insurance Fund (NHIF) accreditation checklist	0	1	1	Annual NHIF accreditation report Annual IPC report	once	MOH/NHIF	NHIF accreditation checklist
4.1.3: Number of counties to which biosecurity guidelines have been disseminated	15	25	47	Dissemination reports	Bi-annual	NASIC – IPC Technical Working Group (TWG)	Activity report including photos Attendance sheet
4.1.4: National vaccination schedule developed in animal health	0	1	1	National vaccination schedule	Annual	NASIC – IPC TWG	National vaccination schedule
4.1.5: Proportion of foods of animal origin establishments implementing food safety management systems	20%	40%	70%	Food business operators audit report	Annual	NASIC – IPC TWG	Food business operators' compliance audit reports

Strategic Intervention 4.2: Reduce and Minimise environmental contamination by antimicrobials							
4.2.1: Number of reports on the key sources of contamination / high risk facilities that have an impact on AMR in the environment developed	0	1	1	Mapping Report	once	NASIC – MOEC-CF/ NEMA Focal Person	Checklist List of potential sources Planning meeting
4.2.2: Number of Guidelines on waste disposal developed	0	1	2	NASIC annual performance reports	Bi-Annual	NASIC – MOEC-CF/ NEMA Focal Person	Guidelines on waste disposal documents

4.2.5: STRATEGIC OBJECTIVE 5: USE OF ANTIMICROBIALS IN HUMAN AND ANIMAL HEALTH OPTIMIZED:

Human Health Sector: Prudent AMU is vital to sustainable prevention and treatment of microbial diseases. Areas of focus in this strategic objective include developing and implementing guidelines, enhancing regulation and human resource capacity, ensuring access to essential antimicrobials, and strengthening laboratory diagnostic capacity. Ensuring sustainable access to quality essential antimicrobials is important, as the consumption of sub-standard or counterfeit antimicrobials or sub-optimal dosages due to limited supply or access contribute to the emergence of AMR. Strengthening the regulatory measures at the national medicines regulatory authority (NMRA) in ensuring the safety, efficacy, and quality of medicines from market authorisation to post-marketing surveillance will help combat AMR. There should also be a focus on sustaining an efficient supply chain that assures the availability or accessibility of quality medicines to all patients at all times with emphasis on appropriate use by both patients and prescribers.

Animal Health and Crop Sector: Antimicrobials are important in protecting the health and welfare of livestock and in enhancing the efficient production of safe food. On the other hand, their use always involves a risk of selecting antimicrobial-resistant bacteria that might bring adverse effects to human medicine, veterinary medicine, and food safety. The local demand for animal food products such as milk, meat, fish, and eggs is bound to increase. This increased demand for animal protein engenders complex, intensive production systems that result in an increase in the use of antimicrobial agents. The WOAH, Codex Alimentarius Commission, and other international organisations have formulated guidelines concerning the use of veterinary antimicrobials. Appropriate use of veterinary antimicrobials will be ensured through various regulatory systems based on applicable laws.

Outcome Indicators

Indicator	Baseline	Mid Term Target	End Term Target	Data Source	Frequency	Responsibility	Method of Verification
Outcome Indicator 5a. Rational use of antibiotics in human health sectors	34.80018 DID (J01 antibiotics, Pharmacy and Poisons Board [PPB] import data)	2% reduction	5% reduction	PPB Antibiotic Consumption Reports	Annual	NASIC Antimicrobial Stewardship (AMS)–Focal Person (Human Health)	MOH Antibiotic Consumption Reports
Outcome Indicator 5b: Defined Daily Dose Veterinary (DDDVet)	TBD	TBD	TBD	Veterinary Medicines Directorate (VMD) import data	Annual	NASIC–VMD AMR Focal	VMD import data

Output Indicators

Indicator	Baseline	Mid Term Target	End Term Target	Data Source	Frequency	Responsibility	MoV
Strategic Intervention 5.1 Support implementation of strategies and guidelines to optimise the use antimicrobials							
5.1.1 Number of AMC monitoring systems established	0	1	1	AMC monitoring reports	Biennial	NASIC – AMR focal (Human health, Animal health)	Monitoring System validation report
5.1.2 Percentage of hospitals (Level 4 and above) with functional AMS programmes	<1%	30%	50%	NASIC / CASIC reports	Bi-annual	NASIC – AMR focal Human health	NASIC/CASIC Annual/Quarterly reports
5.1.3 Percentage change of Agrovets (Veterinary Pharmacies) reporting AMC data	<1%	10%	30%	NMRA AMC Reports Prescription register	Bi-annual	NASIC – AMR Focal Point (Animal Health)	Antimicrobial Consumption Reports Database
5.1.4 Number of guidelines on AMU in crops, environment and Aquaculture developed	0	2	3	Reports of the guideline development; NASIC Reports	Annual	NASIC–AMR Focal Point (Crops, environment, Fisheries)	AMU guideline documents
Strategic Intervention 5.2 Strengthen the regulatory system for antimicrobials							
5.2.1 Number of joint risk-based post marketing surveillance surveys of antimicrobials conducted	0	2	5	NMRAs (PPB & VMD)	Annual	NASIC–AMS Focal Persons (Human Health, Animal Health)	Joint Marketing Surveillance Reports
5.2.2 Number of updated lists of critical antimicrobials in human and animal health developed and disseminated	0	2	2	NMRAs (PPB & VMD)	Biennial	NASIC – AMR Focal Person (Human Health, Animal Health)	The updated List(s) of critical antimicrobials used in human and animal
Strategic Intervention 5.3 Strengthen Laboratory Capacity for Quality Control (QC) of Antimicrobials							
5.3.1 Number of laboratory capacity assessments conducted to undertake QC for antimicrobials assessed in human and animal health	0	2	2	Central Veterinary Laboratory and National Quality Control Laboratory assessment Reports	Annual	NASIC – AMR Focal Person	Assessment Reports

4.2.6: STRATEGIC OBJECTIVE 6: TO DEVELOP AN ECONOMIC CASE FOR SUSTAINABLE INVESTMENT THAT TAKES ACCOUNT OF THE NEEDS OF KENYA, AND INCREASE INVESTMENT IN NEW MEDICINES, DIAGNOSTIC TOOLS, VACCINES AND OTHER INTERVENTIONS

Human Health Sector: Research is required on trends in resistance, practices, and attitudes driving AMR in Kenya to inform appropriate interventions. In addition, investment in the discovery and development of new antimicrobials, diagnostic tools, and vaccines, is required. Research and development of new antimicrobials, though perceived as a less attractive business investment than that of medicines for chronic diseases, can provide opportunities for feeding the antimicrobial pipeline. Research and investment in diagnostic tools and improved vaccines can contribute to the overall reduction in AMU.

Animal Health and Crop Sector: The causes, effects, and impacts of AMR in the animal sector require a better and deeper knowledge of the phenomenon's complexity. Veterinary antimicrobial consumption needs be further assessed in order to determine the correlation of AMR in both animal and human health in the country. Moreover, toxicological studies need to be performed to establish the safety of veterinary drug residues in the human diet as well in the human intestinal flora. Research is needed to enhance the development of effective strategies and alternatives to combat AMR in food-

producing animals. This will require, in addition to research, investment in the development of new antimicrobials and diagnostic tools and vaccines. The accumulation of new scientific evidence in Kenya will be useful in developing public health interventions and to sharing with society and the international community.

Output Indicator

Indicator	Baseline	Mid Term Target	End Term Target	Data Source	Frequency	Responsi-bility	Means of Verification
Strategic Intervention 6.1 Promote research on AMR							
6.1.1. AMR research database / repository established	0	1	1	NASIC /CASIC Secretariat report	Annual	NASIC – Research Focal Person	AMR database Publications and research reports
6.1.2 AMR research database/repository Updated	0	1	3	NASIC /CASIC Secretariat report Research and development institutions Conference reports	Annual	NASIC – Research Focal Person	List of new AMR Publications/research reports in AMR database/repository
6.1.3 Number of commitment and expenditures lists on AMR research and interventions established	0	1	1	NASIC /CASIC Secretariat report Development partners	Biennial	NASIC – Research Focal Person	Budget reports project workplans NASIC/CASIC reports
6.1.4 Number of AMR conferences held by NASIC	0	2	5	NASIC /CASIC Secretariat report Conference reports	Annual	NASIC – Research Focal Person	Conference reports

5. PERFORMANCE INDICATOR REFERENCE SHEET (PIRS)

The Performance Indicator Reference Sheets (Annex I) contains all outcome and output indicators. The PIRS includes information on how these indicator links to the Outcome or Output results, rationale for the indicator, indicator description that includes disaggregation and unit of measure, plan for data collection, data quality issue, among others.

6. IMPLEMENTATION OF THE M&E FRAMEWORK

6.1 Monitoring Process

The monitoring procedure has four key steps that are necessary to ensure that the NAP is implemented and that its objectives are achieved as intended:

1. Data collection
2. Data validation
3. Data analysis
4. Dissemination and use

6.1.1 Data Collection

Different types of data will be collected from different sources using a variety of methodologies to monitor the NAP implementation progress. These methods will include routine data reports, surveys, sentinel surveillance, and periodic assessments among others as prescribed in the key indicator tables in section 4.

6.1.2 Data Validation

The collection of accurate and reliable data is necessary to ensure that the decisions and conclusions derived from them are valid and usable. The process of data validation involves the periodic checking and verification of the quality of the collected data. Several aspects of data quality include accuracy, relevance, completeness, and timeliness, which will be verified through data quality assessments, field visits, and support supervision at all levels. There should be quarterly and annual verification forums to review the data quality across all the applicable indicators in the given period. A data quality assessment plan should be developed that describes the quality issues and the associated potential risks as well as the corrective measures to be taken.

6.1.3 Data Analysis

The analysis will be done at different levels depending on the information needs. There are three main analysis levels: (i) operational—for day-to-day performance assessment; (ii) managerial—for the assessment of implementation of plans; (iii) strategic—for policy level consideration, (iv) periodically (quarterly / semi-annual / annual) during performance review; and (iv) mid- and end-term for evaluation.

Data users have different information needs, which vary with the levels of detail and complexity in the data and the users' interests and roles in the decision-making process. To ensure that the potential users' needs are met, the data collected from the NAP implementation will be analysed and synthesised into formats that will be disseminated to the targeted individuals or organisations that intend to use them. The formats for dissemination vary and will include meetings, reports, and other information products as necessary for the intended target groups.

6.1.4 Dissemination and Use

To ensure stakeholders' ownership of the NAP implementation process, feedback/dissemination will be done through quarterly, biannual, or annual review meetings, which will also provide an opportunity for corrective measures to be made. The reports can be mailed to relevant stakeholders or be made available through website download (NASIC / MOH / Ministry of Agriculture and Livestock Development). At end-term, the information can be used for evaluation, review of the policy direction, and for learning purposes.

6.2 Evaluation Process

The purpose of an evaluation will be to determine whether the intended changes have been realised, as well as to provide evidence and information for future policy formulation. It will also assess the extent to which changes realised along the results chain are attributable to the interventions undertaken.

There are two anticipated evaluations for the NAP implementation: mid-term review and end-term evaluation. The mid-term will be carried out at the midpoint of NAP-AMR implementation and at the end term evaluation will be conducted at end of the planning period. The former guides any readjustments that may be necessary, while the latter informs the design of future strategic actions and should involve a wide range of stakeholders and partners.

Evaluation will be done with both quantitative and qualitative methods with a focus on:

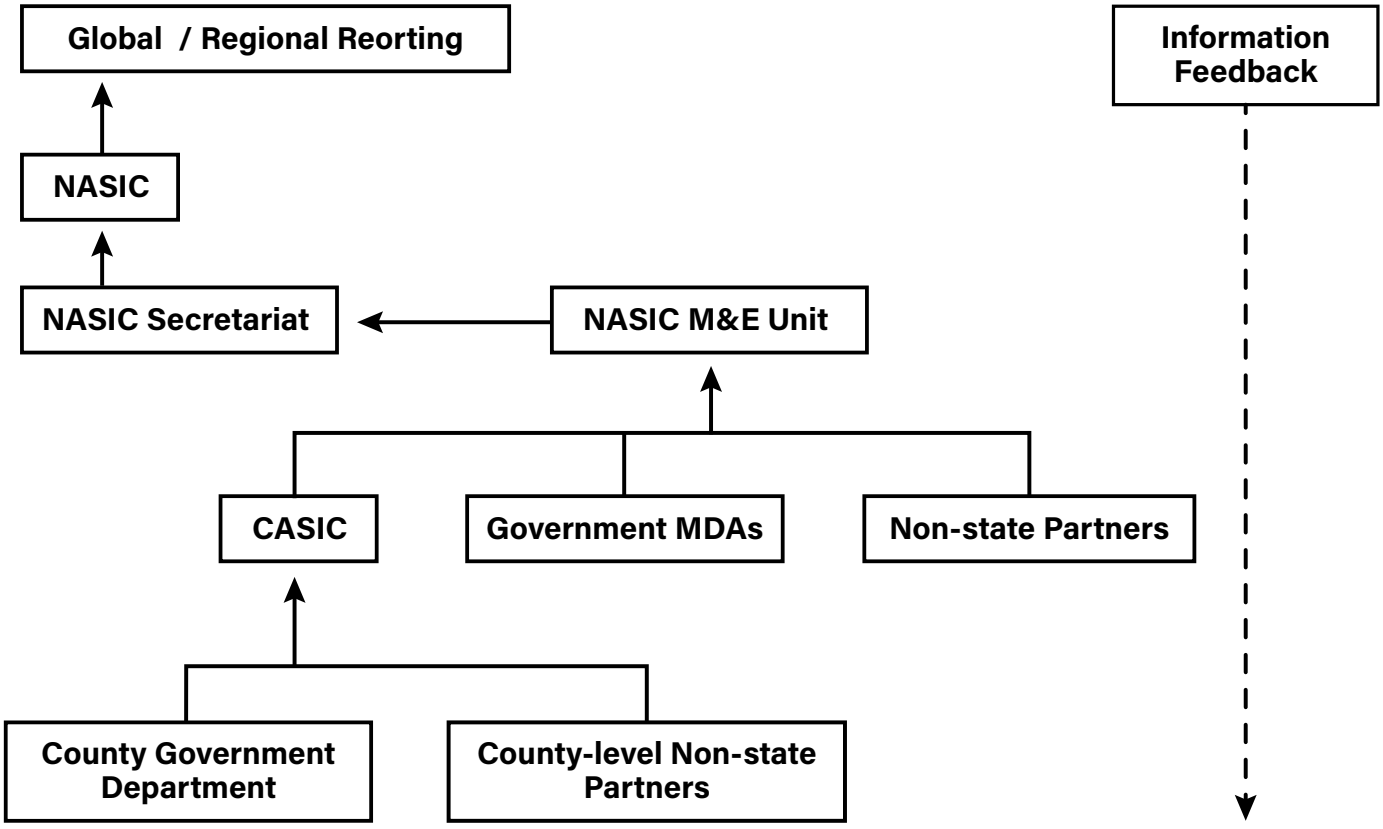
- Systematic analysis of the data from the outputs and outcomes
- Analysis of the implementation of the activities, budgets, and finances
- Analysis of strengths, weaknesses, and opportunities in the context of existing policies and strategies

The mid-term review can be conducted internally with a joint team of NASIC members, partners, and stakeholders, but it is recommended that the end-term evaluation be conducted by an external team of independent evaluators. The evaluators should analyse the relevance, responsiveness, efficiency, and effectiveness (process, output, and outcome levels) and sustainability of the results after termination.

6.3 Data Flow

Figure 3 below illustrates the proposed flow of M&E data and reports for the framework.

Figure 3: Data Flow Chart



6.4 Key M&E Roles and Responsibilities

The interventions listed in the NAP are to be implemented by a wide variety of partners and stakeholders at the different levels of government. Therefore, the NASIC M&E team will provide the coordination structure for receiving the implementation reports and compiling the M&E reports as required by the plan. For these processes to occur successfully, the roles and responsibilities of the involved stakeholders in the data management must be clearly defined (Table 1).

Table 1: M&E Roles and Responsibilities

Key Activity: Establish a Common Data Management System	
Institution	Functions / Tasks
NASIC	Coordinate the development of the standards and tools for data management Develop standard operating procedures (SOPs) Sensitise / train the implementers on the system and tools Create and maintain a central data repository Coordinate stakeholders—establish an M&E committee / TWG Provide oversight for data management across the country Coordinate the development of the national AOPs
Other Government MDAs	Participate in the development of standards for data management Commit to the use of the common data management system
National Non-state Partners	Support the NASIC in the development of the data management system Provide technical support and other resources Commit to the use of the common data management system
CASIC	Participate in the development of the common data management system Use the recommended tools and SOPs for implementation Disseminate the data management standards and tools at county level Domesticate national guidelines Coordinate stakeholders—establish M&E committees / TWGs Provide oversight for data management in the county Create and maintain a county data repository and link to the national repository Coordinate the development of the county AOP
County Government Departments	Commit to the use of the common data management system Participate in relevant CASIC activities
County-level Non-state Partners	Commit to the use of the common data management system Participate in relevant CASIC activities
Key Activity: Performance Review and Monitoring Process	
Institution	Functions / Tasks
NASIC	Aggregate and analyse all data collected from NAP implementation activities Coordinate the development of joint supervision checklists Compile all the relevant national-level reports Maintain the performance issues tracking tool / log Assess the quality of all data / reports and ensure follow-up in case of issues Provide technical support to all national- and county-level NAP implementing institutions Provide capacity building to the CASICs on data management Coordinate support supervision for performance
Other Government MDAs	Provide NAP implementation data Participate in data and performance review meetings Participate in joint support supervision
National Non-state Partners	Participate in the joint supervisions Participate in the data and performance reviews Provide reports
CASIC	Aggregate and analyse all data collected from NAP implementation activities Compile all the relevant county-level reports Maintain the performance issues tracking tool / log Assess the quality of all data / reports and ensure follow-up in case of issues Provide capacity building to the county-level implementing institutions Coordinate the performance support supervision
County Government Departments	Provide NAP implementation data Participate in data and performance review meetings Participate in joint support supervision
County level Non-state Partners	Participate in the joint supervisions Participate in the data and performance reviews Provide reports

Key Activity: Establish a Common Data Management System	
Key Activity: Data Dissemination and Use	
Institution	Functions / Tasks
NASIC	Prepare and disseminate national biannual and annual performance review reports Coordinate the preparation of targeted information products Coordinate the information flow through reporting and feedback chains Coordinate the preparation of data for international reporting obligations Provide capacity building Coordinate the annual stakeholder forum for NAP implementation progress review
Other Government MDAs	Participate in report compilation Participate in data dissemination meetings / forums Participate in the annual national stakeholder forum
National Non-state Partners	Provide technical support and capacity building Contribute to the development of information products Participate in data dissemination meetings and forums Participate in the annual national stakeholder forum
CASIC	Collate the data reports from all county-level NAP implementing institutions and transmit to NASIC Provide feedback to the county-level implementing institutions Disseminate county quarterly and annual reports Prepare targeted information products Coordinate the preparation of data for national reporting obligations Provide county-level capacity building Coordinate the annual county stakeholder forum for NAP implementation progress review Participate in the annual national stakeholder forum
County Government Departments	Participate in report compilation Participate in data dissemination meetings / forums Participate in the annual county stakeholder forum
County-level Non-state Partners	Contribute to the development of information products Participate in data dissemination meetings and forums Participate in the annual county stakeholder forum

7. M&E FRAMEWORK IMPLEMENTATION PLAN AND BUDGET

Activity	Responsibility	2023/24	2024/25	2025/26	2026/27	2027/28	Cost (KShs)	Source of Funds
Institutionalise Monitoring & Evaluation for NAP								
Print the NAP M&E framework	NASIC	X					3,000,000	
Conduct national launch and disseminate the NAP M&E framework	NASIC	X					310,000	
Disseminate M&E framework at county level	NASIC & CASIC	X					7,050,000	
Establish M&E units at NASIC and CASICs	NASIC & CASIC	X	X	X	X	X	81,600,000	
Establish M&E committees— national and county	NASIC & CASIC	X	X	X	X	X	21,600,000	
Build capacity in M&E teams	NASIC	X	X	X	X	X	3,150,000	
Develop the Common Data Management System								
Develop / define the data management system	NASIC & partners	X					75,000	
Develop data management tools and SOPs	NASIC & partners	X					125,000	
Conduct national-level training of trainers on data management system and tools	NASIC & partners	X					105,000	
Conduct county-level training of trainers on data tools	NASIC & partners	X					270,000	
Conduct national-level trainings	NASIC	X	X	X	X	X	750,000	
Conduct county-level trainings	CASIC	X	X	X	X	X	21,150,000	
Performance Reporting								
Develop the AOPs—national and county	NASIC	X	X	X	X	X	20,600,000	
Compile quarterly reports—county	CASIC	X	X	X	X	X	9,600,000	
Compile biannual reports—national	NASIC	X	X	X	X	X	300,000	
Compile annual reports—national and county	NASIC	X	X	X	X	X	26,400,000	
Mid-term NAP evaluation report	NASIC			X			9,459,000	
End-term NAP evaluation report	NASIC					X	7,500,000	
Compile quarterly reports of joint support supervision—county	CASIC & partners	X	X	X	X	X	4,700,000	
Compile semi-annual reports of joint support supervision—national	NASIC & partners	X	X	X	X	X	300,000	
Prepare international obligations reports	NASIC	X	X	X	X	X	1,250,000	
Prepare stakeholder meeting reports—national	NASIC	X	X	X	X	X	4,000,000	
Prepare stakeholder meeting reports—county	CASIC	X	X	X	X	X	152,750,000	
4. Data Quality Assurance								
Conduct quarterly data quality audit—county	CASIC & partners	X	X	X	X	X	4,700,000	

Activity	Responsibility	2023/24	2024/25	2025/26	2026/27	2027/28	Cost (KShs)	Source of Funds
Conduct semi-annual data quality audit—national	NASIC & partners	X	X	X	X	X	150,000	
Prepare data quality issues tracking and resolution reports—county	CASIC & partners	X	X	X	X	X	0	
Prepare data quality issues tracking and resolution reports—national	NASIC & partners	X	X	X	X	X	0	
Disseminate data quality audit reports—national	NASIC & partners	X	X	X	X	X	1,300,000	
Disseminate data quality audit reports—county	CASIC & partners	X	X	X	X	X	98,700,000	
Performance Review								
Conduct quarterly joint support supervision visits—county	CASIC & partners	X	X	X	X	X	169,200,000	
Conduct biannual joint support supervision visits—national	NASIC & partners	X	X	X	X	X	8,100,000	
Conduct quarterly nap implementation progress meetings—county	CASIC & partners	X	X	X	X	X	67,200,000	
Conduct semi-annual nap implementation progress meetings—national	NASIC & partners	X	X	X	X	X	3,300,000	
Organise annual county stakeholders forum	CASIC & partners	X	X	X	X	X	430,050,000	
Organise annual national stakeholders forum	NASIC & CASIC	X	X	X	X	X	50,500,000	
Surveys**								
Conduct KAP survey on AMR	NASIC & partners	X		X		X	45,000,000	
Dissemination								
Develop targeted information products—national	NASIC	X	X	X	X	X	50,000,000	
Develop of targeted information products—county	CASIC	X	X	X	X	X	175,000,000	
Develop quarterly performance reports—county	CASIC	X	X	X	X	X	0	
Develop annual performance reports —national	NASIC	X	X	X	X	X	0	
Develop indicator survey reports	NASIC	X	X	X	X	X	0	
Develop mid-term evaluation report	NASIC			X			2,590,000	
Develop end-term evaluation report	NASIC & partners					X	17,135,000	
Monitoring of the M&E Framework								
Organise M&E committee meetings—county	CASIC	X	X	X	X	X	32,900,000	
8.1 Organise M&E committee meetings—national	NASIC	X	X	X	X	X	600,000	
Compile quarterly NAP M&E framework implementation report—county & national	NASIC & CASIC	X	X	X	X	X	0	
Compile annual NAP M&E framework implementation report—county & national	NASIC & CASIC	X	X	X	X	X	0	
Coordinate the conduct of the evaluations (mid-term and end-term)	NASIC			X		X	200,000	

** For indicator measurements that will require survey

8. PERFORMANCE INDICATOR TRACKING TABLE (PITT)

Indicator	Start of Programme			Project Progress										End of Programme (EOP)	
	Baseline	Mid-Term	End-term	2023/24		2024/25		2025/26		2026/27		2027/28		EOP Target	EOP Actual
				Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual		
STRATEGIC OBJECTIVE 1: TO STRENGTHEN GOVERNANCE AND COORDINATION MECHANISMS															
Outcome 1.1: Number of functional AMR One Health coordination structures at national and county levels of government	15 (1 NASIC, 14 CA-SICs)	30	48	20		25		30		39		48		48	
Strategic Intervention: 1.1 Establish and strengthen governance and coordination mechanism at national and county levels															
1.1.1 Number of staff hired to support the NASIC Secretariat	0	3	6					3				6		6	
1.1.2 NASIC Secretariat budget estimate prepared	0	1	1					1				1		1	
1.1.3 Proportion of the AMR NAP budget financed by the national government budget	0%	25%	50%					25%				50%		50%	
Strategic Intervention: 1.2 Strengthen and Sustain Collaborations in AMR															
1.2.1 Proportion of formalised partnership and collaborations with stakeholders	0%	50%	100%					50%				100%		100%	
STRATEGIC OBJECTIVE 2: TO IMPROVE AWARENESS & UNDERSTANDING OF AMR THROUGH EFFECTIVE COMMUNICATION, EDUCATION & TRAINING															
Outcome Indicator 2: Proportion of stakeholders who are aware of AMR and AMU	HH* 24% AH* 1% EH* <1%	HH* 40% AH* 5% EH* <5%	HH* 60% AH* 10% EH* <10%					HH* 40% AH* 5% EH* <5%				HH* 60% AH* 10% EH* <10%		HH* 60% AH* 10% EH* <10%	
2.1 Enhanced Public Awareness, Knowledge and Understanding of AMR															
2.1.1 Number of AMR communication strategies reviewed	0	1	1					1				1		1	

Indicator	Start of Programme			Project Progress										End of Programme (EOP)	
	Baseline	Mid-Term	End-term	2023/24		2024/25		2025/26		2026/27		2027/28		EOP Target	EOP Actual
				Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual		
2.1.2: Number of audience -specific studies conduct-ed to assess the level of awareness on AMR	0	2	4					2				4		4	
2.1.3: Number of AMR Awareness Campaigns conducted	15	30	45	8				30				45		45	
Strategic Intervention 2.2: Promote Education and Training on AMR and IPC															
2.2.1: Number of AMR training modules reviewed to include environmental dimensions, aquaculture and crop health	0	2	2					2				2		2	
Strategic Intervention 2.3: Capacity Build Media Personnel on AMR															
2.3.1: Number of AMR events covered by mass media	5	10	20					5				10		20	
STRATEGIC OBJECTIVE 3: TO STRENGTHEN THE KNOWLEDGE & EVIDENCE BASE THROUGH SURVEILLANCE AND RESEARCH															
Strategic Intervention 3.1: Strengthen the National AMR Surveillance System															
3.1.1 Number of One Health AMR Surveillance strate-gies developed	0	1	1					1				1		1	
3.1.2 Number of AMR Sentinel Surveillance sites established	26	30	40	26				30				40		40	
3.1.3 Number of integrated AMR/AMU/AMC into the AMR information manage-ment systems developed	0	1	1					1				1		1	
3.1.4 Number of annual AMR surveillance reports published	1	3	6	1				3				6		6	

Indicator	Start of Programme			Project Progress										End of Programme (EOP)	
	Baseline	Mid-Term	End-term	2023/24		2024/25		2025/26		2026/27		2027/28		EOP Target	EOP Actual
				Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual		
Strategic Intervention 3.2: Strengthen Laboratory capacity for AMR Surveillance															
3.2.1 Number of AMR surveillance sites Participating in the annual microbiology EQA and attain minimum score of 80%	14	26	26	14				26				26		26	
3.2.2 Proportion of new AMR surveillance sites with staff trained on standardised AMR testing methods	0%	50%	80%					50%				80%		80%	
STRATEGIC OBJECTIVE 4: INCIDENCE OF INFECTION REDUCED THROUGH EFFECTIVE SANITATION, HYGIENE, AND IPC MEASURES															
Outcome Indicator 4a. Incidence Rate of Surgical Site Infections	TBD	TBD	TBD												
Outcome Indicator 4b. Hand hygiene compliance rate in health care facilities	15%	30%	60%					30%				60%		60%	
Outcome Indicator 4c: Prevalence Rate in Animal Diseases	TBD	TBD	30%									30%		30%	
Outcome Indicator 4d. Level of antimicrobials in the environment	TBD	TBD	TBD												
Strategic Intervention 4.1: Strengthen infection prevention and control measures															
4.1.1:Healthcare Associated infections (HAIs) surveillance system established	0	1	1					1				1		1	
4.1.2: IPC indicators incorporated into the NHIF accreditation checklist	0	1	1					1				1		1	
4.1.3: Number of counties to which biosecurity guidelines have been disseminated	15	25	47					25				47		47	

Indicator	Start of Programme			Project Progress										End of Programme (EOP)	
	Baseline	Mid-Term	End-term	2023/24		2024/25		2025/26		2026/27		2027/28		EOP Target	EOP Actual
				Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual		
4.1.4: National vaccination schedule developed in animal health	0	1	1					1				1		1	
4.1.5: Proportion of foods of animal origin establishments implementing food safety management systems	20%	40%	70%					40%				70%		70%	
Strategic Intervention 4.2: Reduce and Minimise environmental contamination by antimicrobials															
4.2.1: Report on the key sources of contamination / high risk facilities that have an impact on AMR in the environment developed	0	1	1					1				1		1	
4.2.2: Number of Guidelines on effluent and/or waste disposal developed	0	1	2					1				2		2	
STRATEGIC OBJECTIVE 5: USE OF ANTIMICROBIALS IN HUMAN AND ANIMAL HEALTH OPTIMIZED: OUTCOME INDICATORS															
Outcome Indicator 5a. Rational use of antibiotics in human health sectors	34.80018 DID (J01 antibiotics, PPB import data)	2% reduction	5% reduction					2% reduction				5% reduction		5% reduction	
Outcome Indicator 5b: Defined Daily Dose Veterinary (DDDVet)	TBD	TBD	TBD												
5.1 Strategic Intervention 5.1: Support implementation of strategies and guidelines to optimise the use antimicrobials															
5.1.1 AMC monitoring system established	0	1	2					1				2		2	
5.1.2 Percentage of hospitals (Level 4 and above) with functional antimicrobial stewardship (AMS) programmes	<1%	30%	50%					30%				50%		50%	

Indicator	Start of Programme			Project Progress										End of Programme (EOP)	
	Baseline	Mid-Term	End-term	2023/24		2024/25		2025/26		2026/27		2027/28		EOP Target	EOP Actual
				Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual		
5.1.3 Percentage change of Agrovets (Veterinary Pharmacies) reporting AMC data	<1%	10%	30%					10%				30%		30%	
5.1.4 Guidelines on AMU in crops, environment and Aquaculture developed	0	2	3					2				3		3	
5.2 Strengthen the regulatory system for antimicrobials															
5.2.1 Number of joint risk-based post marketing surveillance surveys of antimicrobials conducted	0	2	5					2				5		5	
5.2.2 An updated list of critical antimicrobials in human and animal health developed and disseminated	0	2	2					2				2		2	
5.3 Strengthen Laboratory Capacity for Quality Control (QC) of Antimicrobials															
5.3.1 Number of Laboratory capacity assessments conducted to undertake quality control (QC) for antimicrobials assessed in human and animal health	0	2	2					2				2		2	
OBJECTIVE 6: TO DEVELOP AN ECONOMIC CASE FOR SUSTAINABLE INVESTMENT THAT TAKES ACCOUNT OF THE NEEDS OF KENYA, AND INCREASE INVESTMENT IN NEW MEDICINES, DIAGNOSTIC TOOLS, VACCINES AND OTHER INTERVENTIONS															
6.1.1. AMR research database / repository established	0	1	1					1				1		1	
6.1.2 AMR research database/repository Updated	0	1	3					1				3		3	
6.1.3 Number of commitment and expenditures lists on AMR research and interventions established	0	1	1							1		1		1	

Indicator	Start of Programme			Project Progress										End of Programme (EOP)	
	Baseline	Mid-Term	End-term	2023/24		2024/25		2025/26		2026/27		2027/28		EOP Target	EOP Actual
				Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual		
6.1.4 Number of commitment and expenditures lists on AMR research and interventions updated	0	1	3							1		3		3	
6.1.5 Number of AMR conferences held by NASIC	0	2	5							2		5		5	

ANNEX 1. PERFORMANCE INDICATOR REFERENCE SHEET (PIRS)

Indicator	Outcome Indicator 1: Number of functional AMR One Health coordination structures at national and county levels of government
Description	
Rationale or justification for Indicator	The indicator measures the number of targeted AMR One Health coordination structures that are functional
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	One Health: This refers to the constitution of multisectoral coordination structures to include human health, animal health, plant health and the environment sectors. Coordination structures: This refers to NASIC at the National level and CASICs at the county level coordination structures Functional: Coordination structure holding meetings and implementing activities as per workplan
Method of Calculation/ measurement:	Count the number of CASICs and NASICs that are functional
UNIT OF MEASURE: Number	DISAGGREGATE BY: Geographical coverage: National, County
Baseline	Fifteen (15)
Target	48
Data source(s)	NASIC/CASIC Secretariat Annual reports
Reporting Frequency	Annual
Responsible	NASIC Secretariat
Quality control/assurance	Ensure not to double count the coordination structures i.e. NASIC, CASISC. Checking to ensure accuracy of reports (Meeting Minutes, reports, Approved Work plans) to ascertain whether functional or not

Indicator	Output Indicator 1.1.1: Number of staff hired to support the NASIC Secretariat
Description	
Rationale or justification for Indicator	This indicator will track the number of staff deployed or recruited to support the NASIC Secretariat
Desired change:	Increase: Higher is better
Definition of Key Terms (as applicable):	Hire: Deployment or recruitment of personnel with relevant expertise to the NASIC Secretariat
Method of measurement:	Count of staff deployed to the NASIC Secretariat
UNIT OF MEASURE: Number	DISAGGREGATE BY: Expertise: IT, M&E, Communication, among others
Baseline	Zero (0)
Target	6
Data source(s)	Staffing Records
Reporting Frequency	Annually
Responsible	NASIC Secretariat
Quality control/assurance	Ensure not to double county the number of staff hired

Indicator	Output Indicator 1.1.2: Proportion of the AMR NAP budget financed by the national government budget
Description	
Rationale or justification for Indicator	This indicator measures the domestic financing (government) to ensure sustainable implementation of the NAP
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	NASIC Budget: The total amount of financial resources required to implement activities outlined in the NAP for AMR Financing: Resource allocation by different government sectors for sustainable implementation of the NAP
Method of Calculation/ measurement:	$Z=(Y_1 \times 100)/Y_0$ Y_1–Total amount of financial resources from the national government budget allocated to NAP implementation Y_2–Total NAP budget

Indicator	Output Indicator 1.1.2: Proportion of the AMR NAP budget financed by the national government budget
UNIT OF MEASURE: Percentage	DISAGGREGATE BY: Government sectors
Baseline	Zero (0)
Target	50%
Data source(s)	Ministry/sector budgets
Reporting Frequency	Annual
Responsible	NASIC Secretariat
Quality control/assurance	Consider budgets allocation or expensed for NAP activities only

Indicator	Output Indicator 1.2.1: Proportion of Formalised partnership and collaborations with stakeholders
Description	
Rationale or justification for Indicator	This indicator tracks the number of formalisation engagements, partnership and collaborations among the AMR stakeholders and align priorities in the NAP
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	Formalised partnership: Refers to official engagement or collaboration involving written down terms such as agreements, memorandum of understandings Stakeholders: Partners involved in the implementation of AMR NAP
Method of Calculation/ measurement:	Count the number of formalised partnerships and collaborations
UNIT OF MEASURE: Percentage	DISAGGREGATE BY: Sector
Baseline	Zero (0)
Target	100%
Data source(s)	Partnership agreements
Reporting Frequency	Annually
Responsible	NASIC Secretariat
Quality control/assurance	Ensure not to double count formalised partnerships and collaborations; Consider only those that have been formalised with written down terms

Indicator	Outcome Indicator 2: Proportion of stakeholders who are aware of AMR and AMU
Description	
Rationale or justification for Indicator	The indicator will measure if the AMR communication strategy has been reviewed.
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	stakeholders: refers to the general public and professionals targeted for AMR and AMU awareness activities Aware: Refers to the state of having knowledge or perception of a situation or facts with regards to AMR and AMU
Method of Calculation/ measurement :	$Z=(Y_1 \times 100)/Y_0$ Y_1 – Number of stakeholders demonstrating awareness Y_2–Total number of targeted stakeholders
UNIT OF MEASURE: Number	DISAGGREGATE BY: Stakeholder type: general public, professionals
Baseline	Human sector* 24%; Animal sector* 1%, Environment* <1%
Target	Human sector* 60%; Animal sector* 10%; Environment* <10%
Data source(s)	NASIC Annual performance Reports
Reporting Frequency	3 times (Start, mid-term, end-term)
Responsible	NASIC – Communication TWG
Quality control/assurance	Verify that the sampling methodology used to identify stakeholders is representative of the population

Indicator	Output Indicator 2.1.1: Number of AMR communication strategies reviewed
Description	
Rationale or justification for Indicator	The indicator tracks progress in review and finalisation of the AMR communication strategy
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	Communication strategy for AMR: refers to a documented plan for delivering AMR specific message to identified target audience, by NASIC and its partners Reviewed: Refers to the AMR communication strategy being updated to take into account the current situation
Method of Calculation/ measurement :	Count the AMR communication strategy after confirming that it has been reviewed and finalised
UNIT OF MEASURE: Number	DISAGGREGATE BY: Status: Draft, validated, finalised
Baseline	Zero (0)
Target	One (1)
Data source(s)	NASIC/Secretariat annual performance report
Reporting Frequency	Annual
Responsible	NASIC – Communication TWG
Quality control/assurance	Verify the status (draft, validated, finalised) of the AMR communication strategy

Indicator	Output Indicator 2.1.2: Number of audience -specific studies conducted to assess the level of awareness on AMR
Description	
Rationale or justification for Indicator	The indicator will measure the Number of audience -specific studies conducted to assess the level of awareness on AMR
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	Audience specific studies target the general public, professionals, industry, and private sector both at national and county levels
Method of Calculation/ measurement:	Count the number of audience specific studies conducted
UNIT OF MEASURE: Number	DISAGGREGATE BY: Geographic coverage: National, county Audience type: general public, professionals, industry, and private sector
Baseline	Zero (0)
Target	4
Data source(s)	NASIC/CASCIC annual performance reports
Reporting Frequency	Annual
Responsible	NASIC – Communication TWG
Quality control/assurance	Consider all studies that have been i) finalised/completed, ii) focused on AMR awareness; Ensure not to double count studies conducted;

Indicator	Output Indicator 2.1.3: Number of AMR Awareness Campaigns Conducted
Description	
Rationale or justification for Indicator	The indicator track the number AMR campaigns conducted at national and sub-national levels
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	Campaigns: Organised meetings and events to sensitise public on AMR; they include both virtual and physical
Method of Calculation/ measurement :	Count the number of awareness campaigns
UNIT OF MEASURE: Number	DISAGGREGATE BY: Geographic coverage: National, county
Baseline	15
Target	45
Data source(s)	NASIC/CASIC annual performance reports
Reporting Frequency	Annual
Responsible	NASIC – Communications TWG
Quality control/assurance	Ensure not to double count awareness campaigns conducted;

Indicator:	Output Indicator 2.2.1: Number of AMR training modules revised to include environmental dimensions, aquaculture and crop health
Description	
Rationale or justification for Indicator	The indicator tracks the number of AMR training modules reviewed to include environmental dimensions, aquaculture and crop health
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	Training modules refers to a structured section of a course being trained; in this AMR context they include surveillance, IPC, among others
Method of Calculation/ measurement :	Count the number of training modules reviewed to include the environmental, aquaculture and crop health dimensions
UNIT OF MEASURE: Number	DISAGGREGATE BY: Review dimensions: Environment, aquaculture, crop health Status of course being reviewed: draft, validated, finalised
Baseline	0
Target	2
Data source(s)	NASIC/Secretariat annual performance reports
Reporting Frequency	Annually
Responsible	NASIC – Communication TWG
Quality control/assurance	Checking to verify the status Mobilised working group, revised drafts, final documents(Tools, data collection, data analysis, final report)

Indicator	Output Indicator 2.2.1: Number of AMR events covered by mass media
Description	
Rationale or justification for Indicator	The indicator measures the number of AMR events covered by mass media houses
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	Media; Main means of mass communication such as TV, radio, newspaper, magazines, social media houses Events: refers to AMR awareness events and campaigns
Method of Calculation/ measurement :	Count the number of AMR Events covered by Mass Media
UNIT OF MEASURE: Number	DISAGGREGATE BY: Awareness advocacy with media, events Coverage
Baseline	5
Target	20
Data source(s)	NASIC/CASIC annual performance reports, Media articles
Reporting Frequency	Annually
Responsible	NASIC--Communications TWG
Quality control/assurance	Verify that the counted events were covered by mass media;

Indicator	Output Indicator 3.1.1: 3.1.1 Number of One health AMR Surveillance Strategies developed
Description	
Rationale or justification for Indicator	The indicator aims to strengthen the National AMR surveillance system by use of one health approach. This will streamline the coordination of AMR surveillance activities and enhance linkages across the key sectors.
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	One health: A multisectoral approach with a goal to achieve optimal health outcomes across Human, animal, plant and environmental sectors. AMR surveillance: Collection, validation, reporting of data on antimicrobial resistance to microbes in order to understand the resistance patterns. Strategy: This is a documented plan designed to help achieve an overall goal
Method of Calculation/ measurement :	Count the number of one health AMR strategy developed.
UNIT OF MEASURE: Number	DISAGGREGATE BY: Draft, finalised, endorsed
Baseline	Zero (0)
Target	Hundred Percent (100 %)
Data source(s)	NASIC Annual performance Report/ Strategy launch report
Reporting Frequency	Annually

Indicator	Output Indicator 3.1.1: 3.1.1 Number of One health AMR Surveillance Strategies developed
Description	
Responsible	NASIC Surveillance TWG
Quality control/assurance	Checking to ensure the strategy includes the correct content for AMR surveillance, has undergone approval/validation processes by key stakeholders

Indicator	Output Indicator 3.1.2: Number of AMR Sentinel Surveillance sites established across all sectors (human, animal, crop and environment)
Description	
Rationale or justification for Indicator	The indicator tracks the number of AMR sentinel surveillance sites established under the one health approach
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	AMR Sentinel surveillance sites: a specified geographical catchment area where AMR surveillance is carried out for either human health, animal health, crop, Aquaculture and the environment One Health approach: A multisectoral approach with a goal to achieve optimal health outcomes across Human, animal, plant and environmental sectors. Established: means the sites are selected, assessed and documented/recognised as an AMR surveillance site
Method of Calculation/ measurement:	Count number of Sentinel sites established
UNIT OF MEASURE: Number	DISAGGREGATE BY: Geographical location: County, Regions Sector: Human, Animal, Plant, Environment
Baseline	26
Target	40
Data source(s)	NASIC/Secretariat annual report
Reporting Frequency	Annual
Responsible	NASIC – AMR Focal person
Quality control/assurance	Do not double count sites; ensure to count only sites that have been documented/recognised after an assessment

Indicator	Output Indicator 3.1.3: Number of AMR/AMU/AMC data into the AMR information management systems developed
Description	
Rationale or justification for Indicator	The indicator track the on-boarding of AMR, AMU and AMC data into the AMR integrated information management system.
Desired change:	Increased
Definition of Key Terms (as applicable):	Integration: Putting together the information from the three areas, AMR/ AMU and AMC in one window / platform Information Management system: Computerised software (or set of computer programs) used to track and store information/data
Method of Calculation/ measurement:	Count number of integrated information systems (AMR, AMU and AMC)
UNIT OF MEASURE: Number	DISAGGREGATE BY: Information system type: AMR, AMU, and AMC
Baseline	Zero (0)
Target	Hundred Percent (100 %)
Data source(s)	AMR central data warehouse
Reporting Frequency	Annual
Responsible	NASIC Secretariat
Quality control/assurance	Verify to ensure that the information relates to AMR, AMU and AMC;

Indicator	Output Indicator 3.1.4. Number of annual AMR surveillance reports published
Description	
Rationale or justification for Indicator	The indicator tracks the number of AMR surveillance reports published by the NASIC Secretariat to inform on the status of AMR situation from the sentinel sites including resistance patterns, performance of the sites. It is expected that at least one report is done annually, and it consists of data/ information from all the relevant sectors
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	AMR Surveillance: A process of systematically collecting and analysing AMR surveillance data from laboratories to track patterns in microbial populations and early detection of resistant strains of public health importance. Surveillance provides a basis for taking action to control antimicrobial resistance (AMR). AMR annual reports: Reports produced from AMR surveillance data from the selected sites and includes information from the key sectors including human health, animal health, aquaculture, environmental and crop health Published: means the annual reports are finalised and signed by the key directorates; then disseminated to relevant stakeholders
Method of Calculation/ measurement :	Count the number of reports signed by relevant directorates and disseminate to key stakeholders
UNIT OF MEASURE: Number	DISAGGREGATE BY: None
Baseline	One (1) – baseline AMR report
Target	Six (6)
Data source(s)	Annual AMR reports
Reporting Frequency	Annually
Responsible	AMR laboratory focal person in NASIC
Quality control/assurance	Ensure the counted reports have been signed by relevant directorates, and disseminated to relevant stakeholders

Indicator	Output Indicator 3.2.1: Number of AMR surveillance sites Participating in the annual microbiology EQA and attain minimum score of 80%
Description	
Rationale or justification for Indicator	The indicator tracks the surveillance sites' capacity to perform AMR surveillance activities effectively, based on microbiology EQA
Desired change:	Increase; Attain 80% and above
Definition of Key Terms (as applicable):	Surveillance sites: refers to selected areas where AMR surveillance activities are carried out. Microbiology EQA: Method that allows for comparison of a laboratory›s testing to a source outside the laboratory to measure performance. Minimum score; The lowest acceptable limit
Method of Calculation/ measurement :	Count the number of sites attaining 80%
UNIT OF MEASURE: Number	DISAGGREGATE BY: Geographical location: County, Regions Sector: Human, Animal, Plant, Environment
Baseline	14
Target	26
Data source(s)	EQA Annual report
Reporting Frequency	Annual
Responsible	Laboratory Managers in all Surveillance sites
Quality control/assurance	Ensure to confirm that the counted sites have attained 80%

Indicator	Output Indicator 3.2.2: Proportion of new AMR surveillance sites with staff trained on standardised AMR testing methods
Description	
Rationale or justification for Indicator	The indicator aims to measure the percentage of new surveillance sites whose laboratory staff will have been trained on standardised AMR testing methods – align to strategic intervention/objective
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	Surveillance sites: These are selected areas where AMR surveillance activities are carried out Laboratory staff: Microbiology Personnel/staff deployed to work in the selected AMR surveillance sites AMR testing methods: These are standardised and harmonised methods of bacterial identification and antimicrobial susceptibility testing used to define the antimicrobial resistance
Method of Calculation/ measurement:	= Number of newly established AMR surveillance sites across all sectors whose laboratory staff have been trained on standardised AMR testing methods = Total number of newly established AMR surveillance sites across all sectors
UNIT OF MEASURE: Number	DISAGGREGATE BY: Geographical location: County, Regions Sector: Human, Animal, Plant, Environment
Baseline	Zero (0)
Target	Eighty Percent (80 %)
Data source(s)	Assessment
Reporting Frequency	Semi-annual
Responsible	NASIC – Surveillance TWG
Quality control/assurance	Ensure not to double county staff trained;

Indicator	Outcome Indicator 4a. Incidence Rate of Surgical Site Infections
Description	
Rationale or justification for Indicator	The indicator tracks the change in the incidence of surgical site infections in health care facilities
Desired change:	Decrease; Lower is better
Definition of Key Terms (as applicable):	Surgical Site Infection: Infection occurring at the site of surgery within 30 days (or 90 days if there is an implant) of surgery
Method of Calculation/ measurement:	Z= Incidence of Surgical site infection Y1= Number of SSI diagnosed during the surveillance period Y0 = Total number of surgeries performed
UNIT OF MEASURE: Percentage	DISAGGREGATE BY: Type of Surgery: Caesarean Section, Abdominal laparotomy, Orthopedic, etc Nature of Surgery: Emergency, Elective Surgeon: Consultant, Registrar, Medical Officer, Medical Officer Intern, Clinical Officer
Baseline	TBD
Target	TBD
Data source(s)/ method	KHIS–MOH 749 Summary report for IPC, AMR, Patient and Health Worker Safety
Reporting Frequency	Bi-annual
Responsible	NASIC–IPC Focal Person
Quality control/assurance	Count only surgeries that have been enrolled for Surveillance

Indicator	Outcome Indicator 4b: Hand hygiene compliance rate in health care facilities
Description	
Rationale or justification for Indicator	The indicator tracks the change in the level of hand hygiene compliance by health care workers at all levels of care. It is measured using the World Health Organization (WHO) recommended guidelines
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	Hand hygiene: The action of cleaning hands using soap and running water or by use of alcohol-based hand rub Hand hygiene compliance: Performance of hand hygiene before and after contact with a patient

Indicator	Outcome Indicator 4b: Hand hygiene compliance rate in health care facilities
Description	
Method of Calculation/ measurement :	$Z=(Y_1 \times 100)/Y_0$ Z= Hand Hygiene Compliance Rate Y_1 = Numerator–Number of correctly performed hand hygiene Y_0 = Denominator–Total number of hand hygiene opportunities
UNIT OF MEASURE: Rate	DISAGGREGATE BY: Cadre: Nurses, Doctors, Students, Laboratory technicians, Others Geographical coverage: Facility
Baseline	Fifteen (15)
Target	Sixty (60)
Data source(s)	KHIS–MOH 749 Summary report for IPC, AMR, Patient and Health Worker Safety
Reporting Frequency	Bi-annual
Responsible	NASIC–IPC Focal Person
Quality control/assurance	Ensure that the calculated rate is done using the WHO recommended guidelines

Indicator	Outcome Indicator 4c: Prevalence Rate in Animal Diseases
Description	
Rationale or justification for Indicator	The indicator tracks the prevention of introduction of infection into livestock population
Desired change:	Decrease; Lower is better
Definition of Key Terms (as applicable):	Prevalence (also known as the prevalence risk') of a disease is the proportion of animals in the population of interest which are 'diseased' at any specific point in time
Method of Calculation/ measurement :	$Z=(Y_1 \times 100)/Y_0$ Z= Prevalence Rate Y_1 = Numerator–Number of cases of disease Y_0 = Denominator–Total size of the population
UNIT OF MEASURE: Rate	DISAGGREGATE BY: Animal species: cow, goat, sheep, pig, among others Disease type: ECF, RVF, FMD, among others Geographical coverage: National, region, county
Baseline	TBD
Target	TBD
Data source(s)	DVS Disease reports; Kenya Animal Bio-surveillance System
Reporting Frequency	Bi-annual
Responsible	NASIC–IPC Focal Person (Animal Health)
Quality control/assurance	Ensure to check for double reporting especially when outbreaks have been reported in the same region by different disease reporting officers

Indicator	Outcome Indicator 4d. Level of antimicrobials in the environment
Description	
Rationale or justification for Indicator	The indicator measures contamination of the environment by antimicrobials from the agriculture, animal, fisheries, human, and environmental health sectors.
Desired change:	Decrease; Lower is better
Definition of Key Terms (as applicable):	An antimicrobial is a substance that kills microorganisms such as bacteria or mould, or stops them from growing and causing disease Level refers to the amount of antimicrobials
Method of Calculation/ measurement :	TBD Z= TBD Y_1 = Numerator -TBD Y_0 = Denominator–TBD
UNIT OF MEASURE: Number	DISAGGREGATE BY: Media: Soil, water, effluent, air, among others Geographical coverage: National, region, county, facility
Baseline	TBD
Target	TBD

Indicator	Outcome Indicator 4d. Level of antimicrobials in the environment
Description	
Data source(s)	Certificate of laboratory analysis; inspection reports and orders
Reporting Frequency	Thrice (Baseline, Midterm, End term)
Responsible	NASIC – MOE/NEMA Focal Person
Quality control/assurance	

Indicator	Outcome Indicator 4.1.1: Healthcare Associated infections (HAI) surveillance system established
Description	
Rationale or justification for Indicator	The indicator confirms whether a Healthcare Associated Infection Surveillance System has been established
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	Healthcare Associated infections: Infection that is acquired by a patient during health care delivery in a health care facility that was not present or incubating on admission and includes occupational infections by health workers Surveillance system: Standardised ongoing, systematic collection, analysis, and interpretation of HAI data essential to planning, implementation, and evaluation
Method of Calculation/ measurement :	Confirm existence of a functional HAI surveillance system
UNIT OF MEASURE: Number	DISAGGREGATE BY: Status: Functional, non-functional
Baseline	Zero (0)
Target	One (1)
Data source(s)	Report from Division of Patient and Health Worker Safety
Reporting Frequency	Annual
Responsible	NASIC–IPC Focal Person
Quality control/assurance	None

Indicator	Output Indicator 4.1.2: IPC indicators incorporated into the NHIF accreditation checklist
Description	
Rationale or justification for Indicator	The indicator tracks the key IPC indicators that are incorporated into the NHIF Quality Improvement checklist for contracting health facilities
Desired change:	
Definition of Key Terms (as applicable):	IPC indicators: these include hand hygiene compliance, waste management, processing of medical devices, health care workers immunisation, among others NHIF accreditation checklist: A set of standards that a facility is meant to comply with prior to its enrolment into the NHIF reimbursement list
Method of Calculation/ measurement :	Confirm that the key IPC indicators have been incorporated into the NHIF accreditation checklist
UNIT OF MEASURE: Qualitative: Yes/No	DISAGGREGATE BY:
Baseline	No (0)
Target	Yes (1)
Data source(s)	Report from Division of Patient and Health Worker Safety
Reporting Frequency	Annual
Responsible	NASIC–IPC Focal Person
Quality control/assurance	None

Indicator	Output Indicator 4.1.3: Number of Counties to which farm biosecurity guidelines have been disseminated
Description	
Rationale or justification for Indicator	The indicator tracks the number of counties to which farm biosecurity guidelines have been disseminated and are being implemented
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	Farm Biosecurity: refers to the implementation of measures that reduce the risk of introduction and spread of disease agents. It requires the adoption of a set of attitudes, behaviours and practices by people to minimise the risk of disease-causing organisms from entering and spreading on a farm Farm Biosecurity Guidelines: Set of information intended to advice farm owner on how to reduce the risk of introduction of disease-causing pathogens to their farms Disseminated: Includes training of Trainers and farmers on farm biosecurity and issuance of guidelines to guide on implementation
Method of Calculation/ measurement :	Count the number of counties
UNIT OF MEASURE: Number	DISAGGREGATE BY: County
Baseline	Fifteen (15)
Target	Forty-Seven (47)
Data source(s)	Dissemination Workshop Reports
Reporting Frequency	Bi-annual
Responsible	NASIC–IPC TWG
Quality control/assurance	Ensure Counties are not double counted; Verify that disseminations (trainings) have been conducted for trainers, farmers or relevant stakeholders

Indicator	Output Indicator 4.1.4: National Vaccination schedule in animal health developed
Description	
Rationale or justification for Indicator	The indicator aims at having a uniform national vaccination schedule containing for all the notifiable livestock diseases
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	Vaccination Schedule: This a timetable which tells us the different age groups and period when vaccines need to be administered to ensure the best protective response Notifiable Diseases: This is a disease, infection or infestation whose occurrence requires urgent reporting to the nearest Veterinary Officer in Charge
Method of Calculation/ measurement :	Count the number of vaccination schedules developed
UNIT OF MEASURE: Number	DISAGGREGATE BY: Status: draft, finalised, validated
Baseline	Zero (0)
Target	One (1)
Data source(s)	Validation Meeting Report
Reporting Frequency	Annual
Responsible	NASIC–IPC TWG
Quality control/assurance	Ensure the schedule is all inclusive and standardised for uniformity;

Indicator	Output Indicator 4.1.7: Proportion of foods of animal origin establishments implementing food safety management systems
Description	
Rationale or justification for Indicator	The indicator aims to measure the establishments implementing food safety management systems
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	Establishments: refers to premises handling\processing foods of animal origin Food Safety Management Systems: refers to measures and conditions applied to control significant hazards along the food processing chain to control food hazards. Systems such as Food Safety System Certification (FSSC), Hazard Analysis and Critical Control Point (HACCP)
Method of Calculation/ measurement :	$Z=(Y_1 \times 100)/Y_0$ Y_1 = Numerator, Number of foods of animal origin establishments implementing food safety management systems Y_2 = Denominator, Total number of foods of animal origin establishments in the country

Indicator	Output Indicator 4.1.7: Proportion of foods of animal origin establishments implementing food safety management systems
Description	
UNIT OF MEASURE: Percentage	DISAGGREGATE BY: Compliance State: Compliant. Not Compliant Category of premise: Export Facilities, Local facilities
Baseline	Zero (0)
Target	Seventy Percent (70 %)
Data source(s)	Premises compliance Audit reports
Reporting Frequency	Annually
Responsible	NASIC–IPC TWG
Quality control/assurance	Ensure not to double count target food processing establishments implementing food safety management systems

Indicator	Output Indicator 4.2.1: Report on the key sources of contamination / high risk facilities that have an impact on AMR in the environment developed
Description	
Rationale or justification for Indicator	The indicator confirms whether a report on "key sources of contamination and/ high risk facilities in Kenya that contribute to the release of antimicrobials into the environment" has been developed
Desired change:	Increase; higher is better
Definition of Key Terms (as applicable):	Key Sources of Contamination: Large-scale or commercial farms (crop, livestock or aquaculture) High Risk facilities: Industries that manufacture or produce antimicrobials. They may generate solid waste, emissions and or effluents which are released treated or untreated into the environment
Method of Calculation/ measurement:	Confirm existence of report
UNIT OF MEASURE: Qualitative: Yes/No	DISAGGREGATE BY: Status: Draft, Finalised
Baseline	No (0)
Target	Yes (1)
Data source(s)	Mapping Report
Reporting Frequency	Annual
Responsible	NASIC – Environment TWG/Focal person
Quality control/assurance	Ensure to verify the status of report developed i.e. draft or finalised

Indicator	Output Indicator 4.2.2: Number of Guidelines on waste disposal developed
Description	
Rationale or justification for Indicator	The indicator measure the number of guidelines that will provide procedures to use in reducing effluent and waste generated pollution in antimicrobial releasing agricultural facilities and antimicrobial industrial manufacturing facilities.
Desired change:	Increase; higher is better
Definition of Key Terms (as applicable):	Guidelines on effluent and/or waste disposal: A manual with procedures to manage effluent or waste containing antimicrobials in the agricultural and veterinary, and industries producing antimicrobials Developed: refers to the guidelines being written/drafted and finalised
Method of Calculation/ measurement :	Count the number of guidelines developed
UNIT OF MEASURE: Number	DISAGGREGATE BY: Status: Draft, Finalised
Baseline	Zero (0)
Target	2 (Two)
Data source(s)	NASIC annual performance reports
Reporting Frequency	Annual
Responsible	NASIC – Environment TWG/Focal person
Quality control/assurance	Ensure to verify the status of guidelines developed i.e. draft or finalised.

Indicator	Outcome Indicator 5a: Rational use of antibiotics in human health sectors
Description	
Rationale or justification for Indicator	The indicator tracks the appropriate use of antibiotics by quantifying the consumption and monitoring the annual changes. It is computed as DID.
Desired change:	Decrease; Lower is better
Definition of Key Terms (as applicable):	Rational use: patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community.
Method of Calculation/ measurement :	Number of DDD=(Total miligrams used)/(DDD value in miligrams)x 1000 *WHO approved DDDs for antimicrobials: htttps://www.whoccc.no/atc_ddd_index/ DID=(Utilization in DDDs)/(Number of inhabitants* x Number of days in the period of data collection) x 1000 *Kenya population estimated from KMBS country population estimates DDD= Defined Daily Dose: The assumed average maintenance dose per day for a drug used for its main indication in adults. These are assigned by the WHO Collaborating Centre for Drug Statistics Methodology DID= DDDs/1000 inhabitants/day (DID): used to calculate total antimicrobial consumption for the Kenyan population at a national level; includes all age and gender groups and used the known population numbers as the denominator
UNIT OF MEASURE: Number	DISAGGREGATE BY: Sector: Public, Private, Faith-based institutions Counties
Baseline	34.80018 DID (J01 antibiotics, PPB import data)
Target	Five percent (5%) reduction
Data source(s)	Pharmacy Poisons Board (PPB) Antibiotic Consumption Reports
Reporting Frequency	Annual
Responsible	NASIC AMS Focal Person – Human Health
Quality control/assurance	Ensure that total consumption is obtained from PPB import Data Ensure the population used is based on the KNBS annual population estimates

Indicator	Outcome Indicator 5b: Defined Daily Dose Veterinary (DDDVet)
Description	
Rationale or justification for Indicator	This indicator tracks the assumed average dose per Kg per livestock unit per day
Desired change:	Decrease; Lower is better
Definition of Key Terms (as applicable):	DDD= Defined Daily Dose: The assumed average maintenance dose per day for a drug used for its main indication in a livestock unit. These are assigned by the WOAH Collaborating Centre for Drug Statistics Methodology
Method of Calculation/ measurement :	DDDVet=(Quantity of active substance in mg administered)/(ADD(mg per kg per day*LSU) x 100 LSU–Livestock unit = livestock unit means a standard measurement unit that allows for the aggregation of the various categories of livestock for them to be compared;
UNIT OF MEASURE: Number	DISAGGREGATE BY: Animal species: Cow, goat, sheep, chicken, pig, among others
Baseline	TBD
Target	TBD
Data source(s)/ method	VMD import data
Reporting Frequency	Annual
Responsible	NASIC–VMD AMR Focal
Quality control/assurance	Ensure the correct conversion of livestock units during computation of DDDvet;

Indicator	Output Indicator 5.1.1: AMC monitoring system established
Description	
Rationale or justification for Indicator	The indicator verifies existence of an established AMC monitoring system
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	monitoring system is used to track antimicrobial consumption (AMC) Established–Means that the AMC monitoring system is in place

Indicator	Output Indicator 5.1.1: AMC monitoring system established
Description	
Method of Calculation/ measurement :	Verify and count existence of the AMC monitoring system
UNIT OF MEASURE: Number	DISAGGREGATE BY: Sector: Human, Animal, Plant, Environment
Baseline	Zero (0)
Target	Two (2)
Data source(s)	AMC monitoring reports
Reporting Frequency	Biennial
Responsible	NASIC–AMR focal (Human health, Animal health)
Quality control/assurance	Verify that the AMC monitoring system is in place and being used

Indicator	Output Indicator 5.1.2: Percentage of hospitals (Level 4 and above) with functional antimicrobial stewardship (AMS) programmes
Description	
Rationale or justification for Indicator	The indicator verifies existence of an established Antimicrobial stewardship programme in the hospitals
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	Antimicrobial stewardship programme – a coordinated and systematic effort to educate and persuade prescribers of antimicrobials to follow evidence-based prescribing, to stem antimicrobial overuse, and thus antimicrobial resistance Established–Means that the antimicrobial stewardship programme is in place
Method of Calculation/ measurement :	$Z=(Y_1 \times 100)/Y_0$ Y_1 = Numerator, Number of level 4 and above hospitals with functional AMS Programs Y_2 = Denominator, Total Number of level 4 and above hospitals
UNIT OF MEASURE: Number	DISAGGREGATE BY: Level of hospital: 4, 5, 6 Geographical location: National, County
Baseline	<1%
Target	50%
Data source(s)	NASIC / CASIC reports; KHIS
Reporting Frequency	Bi-annual
Responsible	NASIC–AMR focal Human health
Quality control/assurance	Verified that the Antimicrobial Stewardship Program is in place and is functional; ensure not to double county hospitals

Indicator	Output Indicator 5.1.3: Percentage change of Agrovets reporting AMC data produced
Description	
Rationale or justification for Indicator	The indicator tracks the percentage change in number of Agrovets reporting AMU data
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	Agrovets: These are outlets/retailers selling antimicrobials to animal owners or care givers AMC data: These are records of who bought which antimicrobial in which form for what use in which animals
Method of Calculation/ measurement :	$Z=((Y_1-Y_0)\times 100)/Y_0$ Y_1 = Number of Agrovets reporting AMU data after intervention Y_0 = Number of Agrovets reporting AMU data at baseline
UNIT OF MEASURE: Percentage	DISAGGREGATE BY: Geographical location: County
Baseline	<1%
Target	30%
Data source(s)	Point Prevalent Surveys; NASIC/Secretariat annual performance reports; KVA and KVB Reports
Reporting Frequency	Annual
Responsible	NASIC–AMR Focal Point (Animal Health)
Quality control/assurance	Checking to ensure that the information provided is backed by verifiable records.

Indicator	Output Indicator 5.1.4: Guidelines on AMU in crops, environment and Aquaculture developed
Description	
Rationale or justification for Indicator	The indicator verifies the development of AMU guidelines in crops, environment and Aquaculture developed
Desired change:	Increase; higher is better
Definition of Key Terms (as applicable):	AMU guidelines: These are set of rules and recommendations to help practitioners on the decision-making process on who, which, why, when and how to use antimicrobials when it is indicated. Developed: refers to the guidelines being written/drafted and finalised
Method of Calculation/ measurement :	Count the number of guidelines developed
UNIT OF MEASURE: Number	DISAGGREGATE BY: Sector: Crops, environment and Aquaculture developed Status: draft, finalised, validated, disseminated
Baseline	Zero (0)
Target	Three (3)
Data source(s)	Reports of the guideline development; NASIC Reports
Reporting Frequency	Once
Responsible	NASIC–AMR Focal Point (Crops, environment, Fisheries)
Quality control/assurance	Verify the status of guidelines developed during each reporting period i.e. draft, finalised, validated, disseminated

Indicator	Output Indicator 5.2.1: Number of joint risk-based post marketing surveillance surveys of antimicrobials conducted
Description	
Rationale or justification for Indicator	This indicator aims to measure the number of joint risk-based post marketing surveillance surveys of antimicrobials conducted to optimise the use of antimicrobials
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	Post marketing surveillance surveys: Post-market investigation to help to optimise the use of antimicrobials.
Method of Calculation/ measurement:	$Z=((Y_1-Y_0)\times100)/Y_0$ Y_1 = Number of joint risk-based post marketing surveillance surveys of antimicrobials conducted during the reporting period Y_0= Total number of joint risk-based post marketing surveillance surveys of antimicrobials to be conducted during the reporting period
UNIT OF MEASURE: Number	DISAGGREGATE BY: Geographical coverage: National, region, county Sector: Human health, animal health, aquaculture, environment
Baseline	Zero (0)
Target	Five (5)
Data source(s)	NASIC Annual performance Report
Reporting Frequency	Annual
Responsible	NASIC–AMS Focal Persons (Human Health, Animal Health)
Quality control/assurance	Ensure that the surveillance data collection tools and surveillance report are joint i.e. comprehensive for all sectors of human. Animal, crop and environmental health

Indicator	Output Indicator 5.2.2: An updated list of critical antimicrobials in human and animal health developed and disseminated
Description	
Rationale or justification for Indicator	This indicator tracks the list of current critical antimicrobials for use in human and animal health developed and disseminated
Desired change:	Increase; Higher is better
Definition of Key Terms (as applicable):	Updated list of critical antimicrobials in human and animal health developed and disseminated in reference to the local, regional, and international susceptibility patterns and publications
Method of Calculation/ measurement:	Count the number of lists created and disseminated
UNIT OF MEASURE: Number	DISAGGREGATE BY: Sector: Human health, Animal health Status: Draft, finalised, validated, disseminated

Indicator	Output Indicator 5.2.2: An updated list of critical antimicrobials in human and animal health developed and disseminated
Description	
Baseline	Zero (0)
Target	Two (2)
Data source(s)	List of critical antimicrobials in human and animal health developed and disseminated
Reporting Frequency	Biennial
Responsible	NASIC – AMR Focal Person (Human Health, Animal Health)
Quality control/assurance	Ensuring that the updated list of critical antimicrobials in human and animal health developed and disseminated reflects the local and regional data; Verify the status of the list during each reporting period

Indicator	Output Indicator 5.3.1 Number of Laboratory capacity assessments conducted to undertake quality control (QC) for antimicrobials assessed in human and animal health
Description	
Rationale or justification for Indicator	The indicator tracks the number of laboratory capacity assessments conducted to assess the quality of antimicrobial agents to identify gaps for enhancement. This will focus on the Central Veterinary Laboratory (CVL) for Animal health and National Quality Control Laboratory (NQCL) for the Human Health sector.
Desired change:	Increase; higher is better
Definition of Key Terms (as applicable):	Laboratory capacity assessments is conducted to assess the quality of antimicrobial agents to identify gaps for enhancement.
Method of Calculation/ measurement :	Count the number of laboratory capacity assessments conducted; a predefined tool will be in place to be used to conduct the capacity assessment
UNIT OF MEASURE: Number	DISAGGREGATE BY: Sector: Human health, Animal health
Baseline	Zero (0)
Target	Two (2)
Data source(s)	NASIC – AMR Focal Person
Reporting Frequency	Annual
Responsible	NASIC AMR focal persons Health and Agriculture
Quality control/assurance	Monitoring to ensure that the capacity improvement is related to the optimisation Antimicrobials in Human and Animal Health Optimised human and animal health and not overall laboratory capacity improvement.

Indicator	Output Indicator 6.1.1. AMR research database / repository established
Description	
Rationale or justification for Indicator	The indicator tracks the establishment of AMR database / repository to capture all AMR research, publications and reports
Desired change:	Increase; higher is better
Definition of Key Terms (as applicable):	Database: collection of structured information/data typically stored electronically in computer system Repository: Logical or grouping of data from related but separate databases Established: refers to the database having been developed and in use
Method of Calculation/ measurement : Qualitative: Yes/No	Verify the existence of an AMR research database
UNIT OF MEASURE: Number	DISAGGREGATE BY: Status: Not developed, under development, developed, in-use
Baseline	No (0)
Target	Yes (1)
Data source(s)	NASIC Secretariat annual performance report;
Reporting Frequency	Annual
Responsible	NASIC – Research Focal Person
Quality control/assurance	Verify to ensure the database/repository has been developed and is in-use

Indicator	Output Indicator 6.1.2. AMR research database / repository updated
Description	
Rationale or justification for Indicator	The indicator track whether the AMR database / repository is continuously updated to capture new AMR research, publications and reports; inform of a website with uploaded information publicly available
Desired change:	Increase; higher is better
Definition of Key Terms (as applicable):	Database: collection of structured information/data typically stored electronically in computer system Repository: Logical or grouping of data from related but separate databases Updated: refers to the AMR database / repository being continuously updated to capture new AMR research, publications and reports
Method of Calculation/ measurement: Qualitative: Yes/No	Desk review to verify existence of AMR research, publications and reports in the AMR research database/repository
UNIT OF MEASURE: Number	DISAGGREGATE BY: Sectors; Human, animal, environment, aquaculture/fisheries, and crops NAP strategic objectives;1 – 5
Baseline	No (0)
Target	Yes (1)
Data source(s)	NASIC /CASIC Secretariat report
Reporting Frequency	Annual
Responsible	NASIC – Research Focal Person
Quality control/assurance	Checking to ensure that new AMR research/reports/publications have been captured in the database/ repository corresponding to the review year

Indicator	Output Indicator 6.1.3. Number of commitment and expenditures lists on AMR research and interventions established
Description	
Rationale or justification for Indicator	The indicator measure the level of investments towards AMR research and interventions
Desired change:	Increase; higher is better
Definition of Key Terms (as applicable):	Commitment: Engagement to assume financial/technical obligation at a future date Expenditures: Amount of funds/resources spent
Method of Calculation/ measurement:	Enumeration of commitments and expenditures
UNIT OF MEASURE: Number	DISAGGREGATE BY: Sectors; Human, animal, environment, aquaculture/fisheries, and crops NAP strategic objectives;1 – 5
Baseline	Zero (0)
Target	One (1)
Data source(s)	NASIC /CASIC Secretariat report; Development institutions/partner reports
Reporting Frequency	Annual
Responsible	NASIC – Research Focal Person
Quality control/assurance	Checking to ensure that the list of commitments and expenditures on AMR research and interventions is established

Indicator	Output Indicator 6.1.5: Number of AMR conferences held by NASIC
Description	
Rationale or justification for Indicator	The indicator tracks the number of National AMR conferences held to enable dissemination of research results. The conferences in referee should be held by NASIC
Desired change:	Increase; higher is better
Definition of Key Terms (as applicable):	Conference: a formal meeting of people with shared interest, typically that take place over one to several days
Method of Calculation/ measurement:	Count the number of National AMR conferences held by NASIC
UNIT OF MEASURE: Number	DISAGGREGATE BY: Sectors; Human, animal, environment, aquaculture/fisheries, and crops NAP strategic objectives;1 – 5

Indicator	Output Indicator 6.1.5: Number of AMR conferences held by NASIC
Description	
Baseline	Zero (0)
Target	Five (5)
Data source(s)	NASIC /CASIC Secretariat report
Reporting Frequency	Annual
Responsible	NASIC – Research Focal Person
Quality control/assurance	Verify that the conferences counted have been held by NASIC

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