

Antimicrobial Resistance National Action Plan 2018 - 2023

"Prevent, slow down and control the spread of resistant organisms"



REPUBLIC OF UGANDA

Antimicrobial Resistance National Action Plan

2018-2023

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ACKNOWLEDGMENTS

The Government of Uganda (GoU) wishes to acknowledge, with gratitude, the Uganda National Academy of Sciences (UNAS) through its standing committee on antimicrobial resistance with the following members: Prof. Denis K. Byarugaba (Chair), Donna A. Kusemererwa (Co-Chair), Aziz A. Maij, Charles B. Rwabukwali, Connie Cleona Kyarisiima, Eric Wobudeya, Florence Najjuka MD, Frederick Byarugaba, George Mukiibi-Muka, Michael Romeo Mutyaba, Richard Odoi Adome, and Victoria Katawera. The committee coordinated the development of this National Action Plan (NAP) on Antimicrobial Resistance (AMR) with support from the Center for Disease Dynamics, Economics & Policy (CDDEP) under the Global Antibiotic Resistance Partnership (GARP) and the World Health organization Uganda Country office. UNAS undertook this work on behalf of the Ministry of Health (MOH), the Ministry of Agriculture, Animal Industry, and Fisheries (MAAIF), and the Ministry of Water and Environment.

The process received invaluable technical support from the World Health Organization (WHO), the Food and Agriculture Organization (FAO), the World Animal Health Organization (OIE), the US Centers for Disease Control and Prevention (CDC), the Infectious Diseases Institute (IDI), and the Uganda AMR Surveillance Task Force.

The GOU also wishes to thank all those individuals who provided additional expert opinions and invaluable comments as they reviewed this document. All these contributions ensured that Uganda developed a plan that will guide efforts towards slowing down the threat of antimicrobial resistance and its attendant impact on public, animal, and environmental health and on sustainable development in Uganda and the world at large.

FOREWORD

Antimicrobial resistance (AMR) is a global One Health—human, animal, and environmental health concern. AMR has reduced the ability of antimicrobial agents to effectively control infectious diseases caused by bacteria, parasites, viruses, and fungi impacting negatively on global health security, healthcare, global trade, agriculture, and the environment. The consequences of AMR threaten the attainment of the Sustainable Development Goals recently agreed upon by UN member countries.

It has been recognized that AMR is accelerated by misuse of antimicrobial agents and aggravated by a host of other factors. These include self-medication, unrestricted access to medicines and both proper and improper use of medicines that allow drug resistant organisms to flourish. Sites with high concentrations of antimicrobials, such as pharmaceutical industries, healthcare facilities and agriculture, can discharge antimicrobial residues and resistant bacteria into the environment.

The current trend in AMR in Uganda and globally is rising and calls for immediate action. The 71st UN General Assembly (UNGA), the 68th World Health Assembly, and organizations including the World Health Organization (WHO), the Food and Agriculture Organization (FAO), and the World Organization for Animal Health (OIE), have agreed on a set of actions that member countries such as Uganda are committed to implement. The Government of Uganda (GOU) has put in place a framework through this National AMR Action Plan to address the threat AMR poses to the welfare of the peoples of Uganda. The Action Plan sets out a coordinated and collaborative One Health approach involving key stakeholders in government and other sectors to confront the threat and shall be coordinated by the National Antimicrobial Resistance Sub-Committee (NAMRSC). The Government will also work together with other governments, international organizations, and partners to address this global threat from AMR.

Although AMR cannot be eradicated, it can be reasonably slowed down and contained. The Ugandan Government is confident that this plan will help respond to the threats of AMR. The Government urges all stakeholders to develop specific plans of action in their respective institutions and sectors and to coordinate with the national effort to prevent, detect, and respond to the threat posed by AMR pathogens so that the people of Uganda are not subjected further to the burden of drug-resistant infections.

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ABBREVIATIONS AND ACRONYMS

AMR	Antimicrobial Resistance
ASP	Antimicrobial Stewardship Programme
BS/S	Bio-safety/bio-security
CDC	The US Centers for Disease Control and Prevention
CHEWS	Community Health Extension Workers
CDDEP	Center for Disease Dynamics, Economics & Policy
CPHL	Central Public Health Laboratories
CSO	Civil Society Organization
FAO	Food and Agriculture Organization
GAP	Global Action Plan
GARP	Global Antibiotic Resistance Partnership
GHSA	Global Health Security Agenda
GOU	Government of Uganda
IDI	Infectious Diseases Institute
INH	Isoniazid
IPC	Infection Prevention and Control
LMICs	Low- and Middle-Income Countries
M&E	Monitoring and Evaluation
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MDAs	Ministries, Departments and Agencies
MDR TB	Multi-drug resistant Tuberculosis
MING	Ministry of Information and National Guidance
MoES	Ministry of Education and Sports
MOH	Ministry of Health
MoLG	Ministry of Local Government
MoSTI	Ministry of Science, Technology, and Innovation
NAP	National Action Plan
NOHP	National One Health Platform
NEMA	National Environment Management Authority
NWSC	National Water and Sewage Corporation
NAMRSC	National Antimicrobial Resistance Sub-Committee
OIE	World Organization for Animal Health
PSU	Pharmaceutical Society of Uganda
TWC	Technical Working Committee
UNAS	Uganda National Academy of Sciences
UNBS	Uganda National Bureau of Standards
UNCST	Uganda National Council for Science and Technology
UNGA	UN General Assembly
UPDF	Uganda People's Defense Force
UPF	Uganda Police Force
URSB	Uganda Registration Services Bureau
WHA	World Health Assembly
WHO	World Health Organization
XDR-TB	Extensively Drug-Resistant Tuberculosis
TBD	To Be Determined
BUBU	Buy Uganda Build Uganda

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Executive Summary

The impact of antimicrobial resistance will likely be greater in poorer countries that already have a high burden of infectious diseases associated with poor healthcare systems, inadequate sanitation, limited access to safe water and resource constraints. This, in turn, imposes even more urgency for those countries to put in place plans to confront the problem of antimicrobial resistance. AMR cuts across different sectors—particularly health, agriculture and the environment—and is a global problem requiring a global response. It will therefore be important to implement a One Health approach to ensure that each of these sectors clearly understands and plays an appropriate role. The AMR National Action Plan (NAP) is intended to be a guide for Ugandan stakeholders contributing to efforts to confront and contain the problem. The NAP is aligned with the WHO Global Action Plan's strategic objectives and proposes actions aimed at focusing government and partner efforts in the following strategic areas:

- Raising awareness and understanding of the AMR problem and containment options,
- Improving prevention, detection and control of infectious agents,
- Optimizing the use of antimicrobial medicines,
- Generating knowledge and evidence through surveillance
- Research and innovation.

The implementation of this plan will be coordinated and overseen by a Uganda National Antimicrobial Resistance Committee that will also monitor the progress of the interventions. While successful implementation relies heavily on the government's commitment, it is expected that the private sector, civil society organizations and the general public will play a significant role, not only in supporting government efforts but also in implementing some of the proposed interventions.

1.0 Introduction

1.1 Background

The problem of antimicrobial resistance in infectious agents has been rising, and there is global concern that in the absence of interventions to reverse these trends, the means to treat infectious diseases will be limited and out-of-reach for many, especially those living in low- and middle-income countries (LMICs). Resistance to antimicrobial drugs is a natural phenomenon that has been observed since the first antibiotics were discovered. Resistance has increased in recent years with the growing global population and concordant increasing use of antimicrobials. This has exerted selection pressure on microbes and resulted in increased populations of antimicrobial-resistant strains of pathogenic organisms. Unfortunately, the upward trend of AMR has not been matched by the development of new antimicrobial-resistant organisms can be severe. A recent report commissioned by the UK government estimated that AMR could lead to 10 million deaths a year by 2050 and could result in a USD \$100 trillion economic loss if no action is taken.

In accordance with the 68th World Health Assembly resolution on the Global Action Plan of 2015, the OIE Strategy on Antimicrobial Resistance and the Prudent Use of Antimicrobials 2016 and the FAO Global Action Plan of 2016, together with similar commitments by the Heads of State at the 2016 UN General Assembly and the Global Health Security Agenda, Uganda has developed this NAP as a guiding framework for implementation of these global commitments at the country level. This National Action Plan for Antimicrobial Resistance operates in conjunction with preexisting programmes currently being undertaken by the Government of Uganda and various elements of policy and regulation. Both the WHO GAP and the FAO GAP include five strategic objectives that are aimed at slowing down the emergence and spread of AMR and prolonging the efficacy of existing antimicrobial agents.

1.2 Antimicrobial Use and Resistance in Uganda

The Uganda National Academy of Sciences (UNAS) recently undertook a situational analysis on antimicrobial resistance in Uganda under the auspices of the Global Antibiotic Resistance Partnership (GARP)-Uganda (UNAS, 2015). The report found increasing trends in antimicrobial resistance. According to the MOH Annual Health Sector Performance Report for the financial year 2014/2015, microbial infections, including pneumonia, tuberculosis, and sepsis, accounted for 18.4 percent of hospital-based mortality. Of those, pneumonia was the biggest contributor at 9.7 percent. Additionally, microbial infections were responsible for 37 percent of all hospital admissions.

Resistance to the most commonly-used antimicrobials (e.g. penicillins, tetracyclines, cotrimoxazole) was in some cases above 80 percent. Of particular concern was the report of the high prevalence of multi-drug resistant bacteria such as methicillin-resistant *Staphylococcus aureus* (MRSA) and extended-spectrum beta-lactamase (ESBL)-producers. Multi-drug resistant infections restrict treatment options to fewer and often more expensive drugs. In healthcare settings, the prevalence of MRSA varied from as low as 2 percent to as high as 50 percent, while ESBL prevalence ranged from 10 to 75 percent among isolates analyzed. In addition, increasing resistance ranging from 4 to30 percent was reported among gram negative enterobacteria against carbapenems, a last-line treatment. Although the high prevalence of MRSA, ESBL-producers, and carbapenem resistant bacteria may reflect the emergence and growth of resistance, it may also reflect challenges related to the quality of data being generated. To provide more reliable data, quality assurance is needed for sampling, laboratory assays, and related processes. Since these isolates are often recovered from treatment-failed cases, the spread of such bacteria within healthcare settings and into the community poses serious challenges to public health.

The UNAS report also highlighted the impact of the human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS), malaria and tuberculosis (TB) on human health in Uganda. By 2015, about 1.5 million Ugandans were living with HIV, a prevalence of 7 percent, with 83,000 new infections, 28,000 AIDS-related deaths and about 800,000 people on antiretroviral therapy (ART). With an increasing proportion of all ART-eligible people living with HIV that require antiretroviral treatment, resistant HIV infections are likely to increase.

Resistance in TB is equally worrying. In 2010, Uganda was ranked 16th out of the 22 countries with the highest TB burden worldwide. In that year, the prevalence of TB was 193 cases/100,000 persons/year. Treatment for TB is based on the WHO recommendations although there are limited

data on the incidence of drug resistance in Uganda. Some studies show varying resistance levels of resistance to first-line treatments (5-20 percent resistance to isoniazid; 0.5-5 percent to rifampicin; to streptomycin 5-20 percent, to 0.5-10 percent; and MDR-TB, 0.5-10 percent) with most cases co-infected with HIV (50-80 percent). Among the subset of MDR isolates, 83 percent were resistant to ethambutol, 50 percent to pyrazinamide, 48 percent to streptomycin, 16 percent to ethionamide, 6 percent to ofloxacin, and 2 percent to kanamycn, with increasing extensively drug-resistant TB reported as well (Source: National Tuberculosis Reference Laboratory).

Anti-parasitic resistance is also threatening the control of malaria, a major cause of morbidity and mortality in Uganda. Uganda has abandoned the use of chloroquine, while sulfadoxine-pyrimethamine (SP) and the current artemisinin-based treatments are also threatened with resistant strains in other parts of the world.

The report noted a similar situation in animal health, with a high burden of bacterial diseases whose treatment is compromised by resistant organisms. A broad range of bacteria show high resistance (over 50 percent in many cases) to commonly used antimicrobials, and there is high resistance in parasitic infections. Nationally aggregated data on the amount of antimicrobials used in either animals or humans are limited; the National Drug Authority (NDA) keeps records of all antimicrobials imported into the country and periodically collates them, but they are not currently widely shared. Misuse of antimicrobials in both humans and animals was well noted with dispensing over the counter, in unlicensed drug stores and in open vans in markets.

The transmission of common bacteria such as *Enterobacteriaceae* and staphylococci between humans, animals and the environment in the same settings has been reported, and when these bacteria are resistant they cause a problem that requires collaborative action between all sectors to address.

Despite all the above threats, there is limited awareness among the public, policy makers, prescribers and other professionals about the problem of AMR and its consequences. For the successful mitigation of AMR in Uganda and the world, a series of comprehensive health, political and social strategies will need to be implemented.

While there is limited awareness, Uganda has made strides to address many issues related to AMR through guidelines and policies. In relation to infection prevention and control, Uganda maintains National Infection Prevention and Control Guidelines (2013). These guidelines continue to be implemented across the country, with Infection Prevention and Control Committees established in most tertiary healthcare facilities. There is further need to strengthen the committees through facilitation, establishing the required infrastructure, and providing supplies in order to implement committee recommendations in addition to the regular review and monitoring of their performance.

Optimal access and use of antimicrobials in the public and private sectors remains a primary responsibility of the National Drug Authority (NDA). Their mandate is enshrined in the National Drug Policy and Act and is complemented by several guidelines including the National Treatment Guidelines and the National Clinical Guidelines, both of which provide guidance on the usage of antimicrobials in treatment of infectious diseases. In an effort to monitor the state of AMR and the effectiveness of these documents in changing antimicrobial access and usage, a Supervision

Performance Assessment and Recognition Strategy (SPARS) is being implemented at a district level to examine the application of these guidelines in human health facilities.

Surveillance of antimicrobial resistance is increasing overall within Uganda. As noted within the Joint External Evaluation (JEE) of 2017 for Uganda, 25 human health facilities are regularly performing Antimicrobial Susceptibility Testing (AST). In addition, regular reports are provided to the National Animal Disease Diagnostic and Epidemiology Center (NADDEC) on a monthly basis regarding AMR (JEE 2017). At the same time, a Technical Working Group on AMR Surveillance has also produced a National Antimicrobial Resistance Surveillance Plan which is in the process of being approved and implemented.

Furthermore, research and innovation on AMR within Uganda is a growing priority area with opportunities for further improvement. The establishment of the Ministry of Science, Technology, and Innovation (MoSTI) has signaled government interest in further supporting research on areas inclusive of AMR. In addition, there are several strong research institutions such as the National Chemotherapeutics laboratories, higher institutions of learning, as well as research organizations that undertake research on AMR although coordination remains an area for improvement.

While there are substantial challenges for Uganda, the opportunity is ripe for a multi-sectoral and multi-disciplinary approach to strengthen Uganda's animal and human health sectors. This recognition shall require substantial political and technical will to ensure that this plan mobilizes the financial resources necessary to continue the task of building national frameworks and structures that Ugandan stakeholders collectively own. By using this NAP-AMR to guide Uganda's efforts, the global goal of managing AMR can be sustainably achieved.

1.3 Principles of Approach of the NAP

The guiding principles for this NAP conform to the guidance from the WHO/OIE/FAO Action Plans that require integrated and well-coordinated actions globally, regionally, nationally as well as at local government and institutional levels. The principles are as follows:

a) Whole-of-society engagement including a One Health approach.

Antimicrobial resistance arises from collective actions including animal production, terrestrial livestock and aquaculture, crop agriculture, human and environmental activities. Therefore, it requires a One Health approach (defined as '...the collaborative effort of multiple disciplines— working locally, nationally, and globally – to attain optimal health for people, animals and our environment. The implementation of this plan will require concerted efforts from all in accordance with the above principle.

b) Prevention first

Prevention is the most effective, affordable way to reduce risk for and severity of resistant infections. This entails disease prevention and health promotion in general to reduce the use of

antimicrobial agents—the single most important driver of resistance. Infection prevention and control is, therefore, a critical element of slowing down resistance and preserving antimicrobial agents.

c) Access

Access to effective antimicrobial agents is essential in slowing down development of resistant infections. This requires not only equitable access but also optimal use of antimicrobial agents, which also requires adequate access to health care facilities and services, health care professionals, veterinarians and preventive technologies as well as to diagnostic tools and information.

d) Sustainability

Containment of AMR will require long-term sustained efforts that will progressively provide visible impacts. Sustainability of the proposed interventions and activities is therefore critical and will require political commitment and international collaboration to sustain the required resources to support these interventions.

e) Incremental targets for implementation

The operational plan will clearly define the strategies for implementation and define immediate, medium-term and long-term interventions contained in the NAP. Clear definition of these incremental actions is critical for countries with resource constraints to ensure sustained progress towards the ultimate goal of containing AMR.

1.4 Goals and Strategic objectives

1.4.1 Goal

The goal of this NAP is to prevent, slow down, and control the spread of resistant organisms while ensuring the continuous availability of safe, effective, efficacious and quality-assured antimicrobials and their optimal use. This can be achieved only through collaborative actions between partners in human health, agriculture, the food industry, environment, teaching and research institutes, civil societies and associations, the pharmaceutical industry, and global stakeholders to synergize efforts and resources. This action plan was developed in line with the guiding principles and the strategic objectives of relevant global action plans to ensure alignment with global efforts. In all relevant sectors, One Health approaches will be used to implement actions and harness synergies that are needed to successfully combat AMR.

The plan proposes focus areas based on the principle that AMR requires a multi-sectoral approach comprising effective communication, coordination, and collaboration between the different sectors, Ministries, Departments and Agencies, both locally and globally. The plan will exploit the respective strengths of the public sector, the private sector, civil society, academia and research partners. The plan also focuses on strengthening national systems by utilizing existing structures within the national system, while avoiding the creation of new parallel institutions for

implementation. The following strategic objectives are the general categories for the strategies and objectives contained in the Strategic Plan:

- 1. To promote public awareness and understanding on antimicrobial use, resistance prevention, and containment through effective communication and training.
- 2. To improve infection prevention and containment of resistant microorganisms in human health care, community and animal health through individual and environmental sanitation, hygiene and infection prevention and biosecurity measures.
- 3. To optimize the use of antimicrobial drugs in human and animal health-care settings through effective stewardship practices.
- 4. To strengthen the knowledge and evidence base of antimicrobial use and antimicrobial resistance through One Health surveillance to inform policy.
- 5. To invest in research and innovations to inform policy and implementation science.

2.0 Governance Mechanisms

For this plan to be successfully implemented, political, technical and financial commitment shall be sustained both nationally and internationally. Global political commitments, evidenced by the recent UN declaration on AMR and high-level meeting on AMR at the 2016 UNGA, are necessary and this commitment must be reflected at the country level where the actions are implemented. The increasing movements of people, animals, food and other products, as well as medical tourism, have facilitated the transmission of resistant microorganisms. Local action alone will not be sufficient to bring about the desired change. Concerted and coordinated national and international efforts are needed to influence opinion, obtain support, mobilize action, harness expertise and resources available in different sectors, and improve governance.

A multi-sectoral committee to oversee and provide overall coordination of the implementation of this AMR National Action Plan (AMR-NAP) will be put in place by the Government of Uganda and shall be known as the National Antimicrobial Resistance Sub-Committee (NAMRSC). In line with the recognition of the importance of a One Health Approach, the National Action Plan shall be coordinated by the National One Health Platform (NOHP). The NOHP is a collaboration between the Ministry of Health, Ministry of Agriculture Animal Health and Fisheries, the Ministry of Water and Environment and the Uganda Wildlife Authority through a Memorandum of Understanding with the objective of coordinating joint efforts to address health issues that affect all the sectors. This committee will be chaired by an independent expert conversant with AMR both nationally and globally. In addition, the committee will have representatives from key line Ministries, Departments and Agencies (MDAs), national and international organizations, academia and civil society organizations. The committee will act as an oversight mechanism with support from international technical agencies in health, agriculture and animal health sector such as the WHO, OIE, and FAO. The NAMRSC will establish Technical Working Committees (TWCs) to support and oversee the implementation of each of the strategic objectives. These TWCs will be composed of technical experts from MDAs, public and private institutions and the civil society with expertise in those areas.

2.1 National AMR Sub-Committee Composition

The NAMRC will include representatives of the following MDAs, organizations and institutions:

- 1. Ministry of Health (MoH)
- 2. Ministry of Agriculture Animal Industry, and Fisheries (MAAIF)
- 3. Ministry of Water and the Environment (MoWE)
- 4. Uganda Wildlife Authority (UWA)
- 5. National Drug Authority (NDA)
- 6. Uganda National Academy of Sciences (UNAS)
- 7. Public and Private Universities and Post-Secondary Teaching Institutions
- 8. National Medical Stores (NMS)
- 9. Research Institutions (Uganda National Health Research Organization, National Agricultural Research Organization, Uganda Virus Research Organization)
- 10. Professional Societies (Uganda Medical Association, Uganda Veterinary Association Pharmaceutical Society of Uganda, Uganda Allied Health Sciences)
- 11. Uganda Consumer Society
- 12. National Water and Sewerage Corporation (NWSC)
- 13. National Environment Management Authority (NEMA)
- 14. International agencies (WHO, OIE, FAO etc.)
- 15. Uganda National Council of Science and Technology (UNCST)
- 16. Uganda Police Force/Uganda People's Defense Force

2.2 Terms of Reference for the NAMRSC

- 1. Oversee the implementation of the NAP
- 2. Provide overall strategic guidance on the NAP-AMR implementation and monitoring
- 3. Coordinate mobilization of resources for the implementation of the strategy within the sectors and international collaborations
- 4. Monitor and provide strategic advice necessary changes to achieve the goals outlined in the NAP- AMR
- 5. Provide a platform to harmonize and establish consensus on implementation advice between private and public stakeholders
- 6. Support the mainstreaming of the national antimicrobial resistance action plan activities into related sector activities and international programmes
- 7. Review the knowledge and experiences generated on a regular basis to assess the performance and effects of interventions and provide updates to all stakeholders
- 8. Revise and/or update the NAP every five years to provide a strategic policy framework for AMR
- 9. Strengthen international collaborations to improve knowledge and understanding of AMR
- 10. Coordinate actions with other regional and international plans, including the African Union, WHO, FAO and OIE
- 11. Maintain national and international political support for action.
- 12. Collaborate in the development and consistent use of international standards to support evidence- based interventions and evaluation mechanisms for their effectiveness
- 13. Ensure sustainable coalitions, management and governance arrangements at all levels to bring together different sectors

Strategic Interventions

3.0 Strategic Objective 1: Promote Public Awareness, Training and Education

Previous reports have indicated that most Ugandans are not aware of the growing problem of AMR. This is not limited to the public but also pertains to human and animal health professionals. For this plan to be successfully implemented, it is critical that all stakeholders understand what is at stake. Understanding of antimicrobial use, resistance prevention and containment can be achieved only through raising awareness, effective communication, coordination, collaboration, education and training. Social engagement is needed to ensure a critical change in behavior in the way antimicrobials are used and to take action and promote best practices necessary for slowing the problem of AMR. Tuberculosis, HIV and malaria already have their own national control programs, and these efforts will focus specifically on antibiotic resistance awareness.

The goal of this intervention is to create public awareness and understanding and improve education on antimicrobial use, resistance prevention, and containment in humans, animals and the environment.

The following priority strategies are proposed:

3.0.1 Improve Public Awareness

Promote public awareness, education and empowerment for antimicrobial use and resistance prevention and containment

- 1. Develop and disseminate a comprehensive communication strategy for AMR for various stakeholders.
- 2. Develop core communication materials and tools for use by different stakeholders for different communication channels and/or platforms.
- 3. Conduct regular public awareness campaigns on antimicrobial use and resistance to change general practices and influence behavioral change.
- 4. Undertake awareness raising activities in primary, secondary and tertiary schools and other training institutions using specialized materials
- 5. Collaborate with non-governmental organizations (NGOs), Civil Society Organizations (CSOs), the private sector, international organizations, law enforcement and the media to deliver messages on antimicrobial use.
- 6. Engage and train the media to report on AMR.
- 7. Engage groups and engage/develop networks for the dissemination of information on antimicrobial use and resistance.
- 8. Enhance public awareness through the quick and efficient dissemination of relevant research findings as they are published.

3.0.2 Support Education and Training of Human, Animal, Plant and Environmental Health Professionals

Promote knowledge and skills in human, animal and environmental professionals on prudent antimicrobial use and resistance prevention.

- 1. Create AMR courses for undergraduate and postgraduate health professionals (human, animal and environment) on AMR prevention and containment.
- 2. Incorporate courses on antimicrobial stewardship, infection prevention and control, biosecurity and AMR into the continuous professional development curricula for all health, agriculture, animal and environmental professionals with a system of ensuring accountability.
- 3. Develop and/or review prescribing guidelines and promote responsible-use practices, including effective dissemination of guidelines.
- 4. Facilitate continued education and training to promote responsible prescribing practices, dispensing and administering principles for antimicrobials.

3.2 Strategic Objective 2: Improve Infection Prevention and Control

In order to prevent the spread of resistant infections, it is important to implement infection prevention programs across human and animal communities and health care settings through individual and environmental sanitation and hygiene, as well as through biosecurity measures throughout the entire value chain from farm to plate. Infection prevention and control (IPC) measures in healthcare facilities as well as immunization and sanitation and hygiene in the community reduce the risk of transmission of infections and minimize the need for and use of antimicrobials.

The goal of this intervention is to reduce the burden of infectious diseases.

The following interventions are proposed:

3.2.1 Strengthen Infection Prevention and Control Programs in Healthcare Facilities

- 1. Maintain up-to-date infection prevention guidelines and standards of professional practice and ensure their availability in all healthcare facilities.
- 2. Institute/strengthen and support minimum standards for infrastructure in healthcare facilities that promote IPC.
- 3. Institute/strengthen and support proper functioning of IPC committees in all healthcare facilities.
- 4. Create and promote specific guidelines for limiting the spread of multidrug-resistant organisms.
- 5. Support availability and proper use of infection prevention materials and supplies.
- 6. Encourage timely diagnosis and treatment of drug-resistant microorganisms.
- 7. Promote hand hygiene and other hygienic practices and behaviors that prevent transmission of infectious diseases.
- 8. Promote campaigns for infection control at healthcare facilities.

- 9. Institute systems of incentives or rewards that uphold and monitor good IPC practices.
- 10. Promote safe waste disposal and waste treatment practices in healthcare facilities.
- 11. Create and strengthen coordinating entities at all levels from local level facilities to the Ministry of Health for IPC.
- 12. Improve human resource systems, education, and commitment to professionalism.

3.2.2 Promote Infection Prevention and Control Practices in Communities

- 1. Develop and disseminate tools for information, education and communication/behavior change communication on IPC in communities, including schools and public places.
- 2. Promote food hygiene practices in all public places and communities.
- 3. Improve access to safe and clean water and sanitation throughout the country.
- 4. Promote safe waste disposal and waste treatment practices at all levels.
- 5. To promote public awareness and understanding on antimicrobial use, resistance prevention, and containment through effective communication and training.

3.2.3 Promote Farm Biosecurity Measures in Agriculture

- 1. Develop and disseminate farm biosecurity guidelines to different categories of animal farms, abattoirs and aquaculture facilities.
- 2. Promote hygiene, sanitation and infection prevention practices on farms.
- 3. Promote food safety campaigns and programs.
- 4. Promote good IPC practices in the agricultural, livestock and animal production industries.
- 5. Ensure minimum standards for infrastructure in animal and agricultural facilities that promote IPC.
- 6. Ensure availability and proper use of infection prevention materials and supplies in agricultural and animal facilities.
- 7. Promote safe waste disposal and waste treatment practices from agricultural and animal facilities.

3.2.4 Increase and Optimize Use of Vaccines to Prevent Infectious Diseases

- 1. Strengthen vaccination programs in human and animal health.
- 2. Improve coverage of vaccination programs across the country for vaccine preventable diseases in humans and livestock.
- 3. Increase the range of vaccines and their availability across the country.

3.3 Strategic Objective 3: Promote Optimal Access and Use of Antimicrobials

The major modifiable driver of AMR is the use of antimicrobial agents. Promotion of prudent use of these agents is therefore critical in prolonging their efficacy and curtailing acceleration of AMR. This will involve ensuring access and appropriate use of safe and effective antimicrobials, both in the human, animal and agricultural sectors. Achieving optimal antimicrobial use will require strengthening technical and regulatory frameworks, ensuring availability of appropriate medicines and changing behavior among prescribers, dispensers and consumers. Antimicrobial Stewardship Programs (ASPs) involve coordinated interventions designed to measure and improve the appropriate use of antimicrobials by promoting the selection of the optimal antimicrobial drug

regimen, including dose, duration of therapy and route of administration. They seek to achieve optimal clinical outcomes related to antimicrobial use, minimize toxicity and other adverse events, reduce the costs of health care for infections and limit the selection for antimicrobial resistant strains.

This strategic objective is cognizant of the existing regulatory and policy framework in Uganda to promote access and use of effective antimicrobial agents and diagnostics. In addition to this Uganda National AMR strategy, their implementation will be anchored in the following regulatory and policy instruments:

i) The National Drug Policy and Authority act and its subsequent revisions. The act establishes the NDA with a mandate to ensure the availability, at all times, of essential, efficacious and costeffective drugs and diagnostics for human and animal health in Uganda. This aspiration is further emphasized in the Uganda National Medicine Policy. ii) Regulations that establish each health profession in Uganda and their subsequent revisions or amendments, such as the pharmacy and drugs act, the veterinary surgeon's act, the medical and dental practitioners act, allied health professionals statute. These laws provide the basis for control of their professional practice, specifically and of relevant to this AMR strategy, the use of antimicrobial agents and diagnostics in their routine practice.

iii) The National Medicine Policy 2015 and the national pharmaceutical sector strategic plan 2015-2020, where measures to control antimicrobial resistance are incorporated in the wider appropriate medicine use intervention area.

The cross-cutting nature of these objectives is a deliberate attempt to add value to these existing systems, sector specific strategic plans and programs and not to supplant them. As a guiding principle, efforts to facilitate and provide synergy will create efficiency and embed sustainability to the Uganda National AMR strategy 2018-2028.

The goal of this intervention is to preserve the effectiveness and efficacy of antimicrobial agents for human and animal health through controlled access, effective antimicrobial stewardship, and appropriate use.

The following interventions are proposed:

3.3.1 Optimize Access to Effective Antimicrobial Medicines and Diagnostics in Human Health

- 1. Ensuring availability of affordable and accurate diagnostic tools to all health facilities
- 2. Enhance systems for financing access to diagnostics and antimicrobial medicines.
- 3. Enhance and strengthen the distribution mechanisms for provision of antimicrobials to human health providers in a timely and efficacious way.
- 4. Improve the supply chain for antimicrobials by creating a coordinating mechanism to manage the storage, pricing, selection and procurement of appropriate antimicrobials at the national, regional and local levels in order to reduce the costs, wastage and inappropriate selection of antimicrobials.
- 5. Where funding is available, enhance capacity and support for local producers of antimicrobials.

6. Regulate over-the-counter availability and self –medication with antimicrobial medicines.

3.3.2 Promote Optimal Prescribing, Dispensing and Use in Humans

- 1. Regularly update and ensure availability of prophylactic and treatment guidelines and protocols for infectious diseases in human health.
- 2. Institute/strengthen and support proper functioning of drug and therapeutics committees in all health care facilities.
- 3. Support the development and dissemination of antimicrobial stewardship working manuals and procedures.
- 4. Support implementation of antimicrobial stewardship through training, supervision, and monitoring.
- 5. Provide up-to-date and unbiased medicine information services to health providers.
- 6. Strengthen supervision of prescribing and dispensing outlets.
- 7. Initiate incentives and reward systems for excellence in adherence to best practices and standards.

3.3.3 Promote access to and prudent use of antimicrobials and diagnostics in Agriculture and Veterinary Medicine

- 1. Develop and disseminate prescription guidelines for improving appropriate use of antimicrobials in agriculture and veterinary medicine.
- 2. Promote antimicrobial stewardship programs in veterinary practice and educational programs.
- 3. Restrict broad or generalized use of antimicrobials as growth promoters or as feed additives.
- 4. Strengthen regulation and oversight for the supply chain and use of antimicrobials in agriculture and veterinary medicine.
- 5. Establish regular programs for monitoring antimicrobial residues in foods.

3.3.4 Promote Use of Quality, Safe and Efficacious Antimicrobial Agents

- 1. Strengthen licensing, approval, regulation and oversight over the antimicrobial supply chain (pharmaceutical manufacturers, distributors, importation, wholesalers and retailers).
- 2. Support capacity for regular quality assessment of antimicrobial agents in the NDA quality laboratories.
- 3. Support supervision of pharmacies and ensure adherence to Good Pharmacy Practices in all pharmacy outlets.
- 4. Strengthen regulation of the pharmaceutical companies and adherence to Good Manufacturing Practices
- 5. Regulate pharmaceutical and antimicrobial waste.

3.4 Strategic Objective 4: Surveillance

Evidence-based public policy and practices informed by good data, analytical skills and political support are essential for the successful implementation of public health programs. Surveillance (of antimicrobial resistance and use) data help identify program elements and practices capable of improving outcomes. AMR surveillance is essential to detect and monitor changes in antimicrobial use

and resistance, provide early warnings and indications of emerging and reemerging problems and monitor the impacts of interventions. It thus helps guide management of infectious diseases and

The goal of this intervention is to generate the knowledge and evidence needed through surveillance for identifying emerging and re-emerging AMR issues and informing best practices for slowing down AMR and guiding policy using the One Health approach.

informs policy and updates to treatment guidelines, infection control practices, antimicrobial use and essential medicines lists.

The following interventions are proposed:

3.4.1 Support Surveillance of AMR

- 1. Support the implementation of a national AMR surveillance programme to generate actionable data.
- 2. Develop Standard Operating Procedures (SOPs) and methodologies for surveillance of AMR in humans, food, agriculture, veterinary medicine, environment and wildlife consistent and harmonized with international standards.
- 3. Strengthen and support improvement of laboratory infrastructure, human resources, access to laboratory supplies and equipment for microbiological testing and quality data reporting platforms.
- 4. Support the routine generation and use of microbiological culture and sensitivity tests on prioritized microorganisms and antimicrobials in health facilities and on farms?
- 5. Support mechanisms for quality assurance systems and supervision to improve availability and reliability of routine microbiology laboratory testing.
- 6. Analyze, disseminate and share surveillance data and information to facilitate decision making on diagnoses and treatments in clinical public health, veterinary practice, environment and wildlife laboratories and food technologies.
- 7. Support One Health networks for data sharing at national and regional levels as well as systems for linking microbiology data to clinical and pharmaceutical data to support decisions for AMR prevention and control.
- 8. Establish an early warning system and monitor trends to determine the risk factors and drivers of resistance, resistance burden and impacts on public and animal health and the economy.
- 9. Utilize data generated, including all regions of the country and hard-to-reach areas, to evaluate and improve intervention outcomes.
- 10. Ensure the inclusion of AMR as a priority in the risk register, MDA plans, and any other mechanisms as needed.

3.4.2 Support Surveillance of Antimicrobial Use

- 1. Design and implement a national antimicrobial use surveillance plan that defines surveillance activities and the roles consistent with international surveillance standards.
- 2. Develop and implement procedures and methodologies for monitoring antimicrobials imported, used and disposed of in Uganda.
- 3. Monitor prescribing practices, dispensing practices, client/community use and consumption patterns in health care settings, veterinary health practice, agriculture, aquaculture, traditional

herbalists (indigenous technical knowledge groups) and communities.

4. Support collection and sharing of data to evaluate and monitor interventions aimed to improve appropriate use and access to antimicrobials.

3.4.3 Support Surveillance for Antimicrobial Drug Residues in Foods

- 1. Design and implement a national surveillance plan for monitoring antimicrobial residues in foods and animal feeds.
- 2. Support the use of standard procedures in accordance with international standards including the WHO/FAO Codex Alimentarius for monitoring antimicrobial residues in foods.
- 3. Collaborate with the WHO/FAO Codex Alimentarius and other international efforts to generate and share actionable data.

3.4.4 Foster Collaboration and Partnerships

- 1. Collaborate with the WHO, OIE, FAO and other national, regional and international efforts focused on the development and implementation of harmonized surveillance and capacity to detect and monitor antimicrobial use and resistance in prioritized pathogens.
- 2. Participate in mechanisms for national, regional and international communication of critical events that may signify new resistance trends with global One Health implications.
- 3. Use national, regional and international quality assurance standards for generation of quality data.

3.5 Strategic Objective 5: Research and Innovation

The goal of this intervention is to stimulate innovations aimed at finding technologies to slow down the emergence and spread of AMR.

The increasing prevalence and geographic distribution of AMR threatens to undermine decades of progress in effective prevention and control of infectious diseases. Major challenges include MDRTB, artemisinin resistance in malaria, HIV resistance to HAART and antimicrobial resistance in the most common bacterial agents causing pneumonia, diarrheal disease, neonatal sepsis, enteric fever, sexually transmitted diseases, maternal infections and other syndromic infections. Uganda must invest in research and innovations for tackling AMR including in areas such as the development of new diagnostics, preventives, therapeutic products and innovative ways of minimizing transmission of infectious agents and preventing infection.

The following interventions are proposed:

3.5.1 Promote Innovations in the Search for Alternative Treatments and Drug Discovery

- 1. Facilitate and support the Natural Chemotherapeutics Laboratories to expand their antimicrobial product development.
- 2. Support establishment of and international collaboration in high-throughput screening of antimicrobial compounds.
- 3. Support academia and other researchers in product development.

- 4. Support the development of alternative treatments for infections that do not rely on antimicrobials.
- 5. Link the indigenous technical knowledge (ITK) groups to the product development system.

3.5.2 Promote Innovations in Diagnostic Technology

- 1. Support investments and collaborations and strengthen capacity for research, development and testing of innovative diagnostic technologies for detection of resistance in real time.
- 2. Support evaluation of point-of-care diagnostics for detection of infectious diseases and detection of resistance, including linkage to testing sites and the NDA.
- 3. Create linkages and support for Ugandan scientists to take leadership roles in international research partnerships targeting AMR.

3.5.3 Collaborate with International Partners in Basic Intervention Research

- 1. Promote research to identify high-risk and high-burden resistant strains, their resistance mechanisms and their transmission.
- 2. Promote innovations for new antimicrobial drug development, vaccines, and other innovative therapies.
- 3. Invest and support collaboration in high-throughput genomics and sequencing technologies that have the potential to enhance product development.
- 4. Support research on the burden of AMR and its interventions to inform policy for investment in interventions.
- 5. Establish a research innovation fund to support innovations that slow down AMR.

3.5.4 Enhance Operational and Health Systems Research at the Local Level

- 1. Support local research on resistance and transmission pathways between the environment, humans, animals and food supply chain.
- 2. Promote local research on antimicrobial use patterns with the goal of producing more context specific stewardship approaches.

4.0 Implementation Plan

4.1 Introduction

This implementation plan presents a detailed, realistic, and costed implementation plan with specific activities and proposed resources required to carry out priority activities to operationalize the strategic plan. Given the complexity of the AMR threat and the response, it is essential that every stakeholder is clear about their contribution to combating AMR in Uganda, both within their own mandate as well as in the context of others. Ownership of the strategy by all stakeholders under the leadership of the Government of Uganda is critical to move forward and yield the desired results. This plan is important in presenting what needs to be done to prevent the emergence and re-emergence of AMR, to contain its spread, and to outline how Uganda fits into regional and global efforts to combat resistance. The Government of Uganda, through the National One Health Platform, will establish the NAMRSC according to the recommended composition and representation outlined within the Strategic Plan. The NAMRSC will be responsible for overseeing the implementation of the strategic plan with the support of technical working groups in each area. The Committee will provide overarching strategic direction and recommendations for action as necessary to all stakeholders engaged in combating AMR.

4.2 Objective

The objective of the implementation plan is to provide clarity on particular actions that need to be undertaken in line with each of the strategies outlined above. By providing guidance on the particular actions, suggested costs, and outputs, stakeholders can understand and act to provide support where needed and where their resources allow them to do so. As a result, the Implementation Plan can be both sufficiently flexible to adjust to contextual needs while maintaining a solid foundation that promotes accountability and transparency.

4.3 Structural Framework

The structural framework of the Implementation Plan is built on the foundation of evidence and data coming from the grassroots upwards with the NAMRSC providing guidance back to implementing stakeholders. The NAMRSC, with its multi-sectoral and multi-disciplinary composition, can provide comprehensive and thorough advice back to the Government of Uganda and other stakeholders on how to better improve the actions being undertaken to address AMR. The NAMRSC will be able to make comprehensive and thorough feedback through independent Technical Working Committees (TWCs), which will comprise multi-disciplinary local experts, who will gather evidence from local level implementers to be able to provide an impartial, objective, and balanced view of the realities on the ground. This structure allows for collective ownership of both the evidence, advice, and at the same time driving accountability and action in response to failures and success of the NAP-AMR.

The TWCs primary role will be to provide the technical knowledge and guidance necessary for action. Their actions are not limited to but may include baseline studies, consolidation and analysis of data, and/or identification of areas requiring improvement. Throughout the lifetime of this plan, the TWCs will continue to refine interventions and implementation strategies as well as M&E

mechanism aimed at improving the outcomes of each strategic objective. By accumulating and documenting the evidence gathered over the lifetime of the NAP-AMR, the following NAP-AMR can be strengthened based off of the lessons learned and evidence gathered.

In order to promote greater accountability and ownership of the NAP-AMR, experts from the Government of Uganda and/or implementers may be called upon to serve on the TWCs in order to provide the evidence for deliberation and evaluation. Since these Government of Uganda stakeholders will be supporting the District Health Teams in the planning and implementation of the plan at the sub-national and peripheral levels, their active participation will allow financial resources and technical expertise to be provided directly. Combining their expertise and participation in the development of technical advice, successful implementation of these proposed interventions will be more directly incorporated into the broader strategy of improving both animal and human health. At the community level, social mobilization through the Community Health Extension Workers (CHEWS) and other relevant animal health entities will be used as a means of promoting local participation and action. Gender specific strategies will be developed to ensure that both men and women are involved in the prevention and control of communicable diseases. At the national level, the Department of National Disease Control (MOH) and the Department of Livestock health and Entomology (MAAIF) in collaboration with other departments will be key focal points in providing data and information to the TWCs as well as key recipients of the NAMRSC's strategic guidance.

The NAMRSC and relevant departments will provide technical supervision and support to District Directors of Health Services and District Veterinary and Environment Offices. Together with the NAMRSC, the technical working groups and the government departments will co-ordinate with the private sector on the establishments of standards and regulations affecting the program, and for monitoring the performance of the plan. The district level, information will be fed into the national data capture system through the national reporting structures. The implementation organizational structure is presented in Fig 1 while the details of the plan are presented in the implementation matrix table.



Fig 1. Organization Structure

4.4 Implementation Plan Matrix

The implementation matrix was made basing on the WHO guidance and template for ease of harmonization with the M&E matrix. By using this approach, this table format allows for easier comparison of plans between members of the World Health Assembly. The table outlines activities and sub-activities to be taken under each proposed intervention in the strategic plan and defines the unit of measure, the targeted quantities, the timeline within which the activities are expected to be implemented, the location or place where the stated activities will be undertaken, the lead or responsible entity (in most cases these will be technical MDAs). The table also includes an estimate of the costs for the activity based on the unit and quantities proposed for the activity and propose possible sources of funds. It is anticipated that the TWCs will continuously review the targets and provide a more accurate estimation of the costs based on the baseline surveys and what can be realistically achieved within the timeframe.

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST (USD)	SOURCE OF	
							FUNDING	
Strategic Objective 1: Improve Public Awareness, Training and Education								
Intervention 1: Improve Public Awareness								
1.1 Support mechanisms	for coordinated comm	nunication and pub	lic awareness	on AMR				
1.1.1 Establish a Technical	PATE TWC	20	Year1	National	NAMRSC		Government	
Working Group (TWC) on						458	/Partners	
public awareness, training, and								
education (PATE TWC)								
1.2 Develop and dissem	inate a comprehensive	communication str	rategy for AM	R for various stal	ceholders			
1.2.1 Conduct a needs assessment	AMR		Year1	Countrywide	Communications		MOH/MAAI	
of communications needs	communications	1			department of MOH,	30,000	F/	
	needs				MAAIF, and MWE		Partners	
1.2.2 Disseminate needs	Number of	80	Year 1	National	Communications	3000	MoH/MAAIF	
assessment to stakeholders	Stakeholders				Department of MoH,		/ Partners	
	reached				MAAIF, and MWE			
1.2.3 Develop a	Communication		Year1	National/	Communications		MOH/MAAI	
communications strategy for	Strategy	1		District level	department of MOH and	10,486	F/	
the AMR NAP					MAAIF		Partners	

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST (USD)	SOURCE OF FUNDING
1.2.4 Print and distribute strategy	Copies of the strategy	5,000	Year1	National/ District level	Communications department of MOH and MAAIF	27,778	MOH/MAAIF/ Partners
1.2.5 Disseminate strategy among stakeholders	MOH/MAA IF, CSO, FBO, Dev-partners	100	Sep 2018	National/ District level	Communications department of MOH and MAAIF	3,643	MOH/MAAIF/ Partners
1.3 Develop core commu	unication materials and	tools for use by	different stakeh	olders for differe	ent communication channels	and/or plat	forms.
1.3.1 Develop core communication messages for different stakeholders	Communication messages	10	Year 1	National	Communications department of MOH and MAAIF, faith based organizations, CSO	10,486	MOH/MAAIF/ Partners
1.3.2 Print and/or distribute materials and tools	Copies	5,000	Year 1	National/ District level	Communications department of MOH and MAAIF, faith based organizations, CSO	27,778	MOH/MAAIF/ Partners
1.3.3 Disseminate materials and tools among stakeholder s	MOH/MAA IF, CSO, FBO, Dev-partners	100	Year 1	National/ District level	Communications department of MOH and MAAIF, faith based organizations, CSO	556	MOH/MAAIF/ Partners
1.4 Conduct regular pub Change through annual e	lic awareness campaig events.	ns on antimicrob	al use and resis	tance to change g	general practices and influence	ce behavior	al
1.4.1 Conduct ToT for district health educators and veterinary officers	District health educators and veterinary officers	242	Year 1	National	Communications department of MOH and MAAIF, faith based organizations, CSO	40,525	MOH/MAAIF/ Partners
1.4.2 Conduct district-level communications training sessions for health and veterinary workers on AMR	Health and veterinary workers	726	Year 1	Regional Level	Communications department of MOH and MAAIF, faith based organizations, CSO	54,210	MOH/MAAIF/ Partners
1.4.3 Organize activities to raise awareness during the World Antibiotic Awareness Week	Awar eness activit ies	5	Year 1	National/ District level	Communications department of MOH and MAAIF, faith based organizations, CSO	15,000	MOH/MAAIF/ Partners

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF
						(USD)	FUNDING
1.4.4 Set up billboards along major	Billboards		Year 1	Countrywide	Communications		Gov't/Partners/
travel routes		50			department of MOH and	41,667	Private sector
					MAAIF, faith based		
					organizations, CSO		
1.4.5 Print and distribute	Leaflets and Flyer		Year 1-5	National/	Communications		MOH/MAAIF/
awareness- raising		25,00		District level	department of MOH and	13,889	Partners
Leaflets/fliers		0			MAAIF, faith based		
					organizations, CSO		
1.4.6 Air radio/TV segments with	TV/Radio		Year 2-5	National/	Communications		MOH/MAAIF/
key messages	segments/qu	14		Regional/Distric	department of MOH and	19,444	Partners
	arter			t s	MAAIF, faith based		
					organizations, CSO		
1.4.7 Conduct public dramas (at	Public Drama per		Year 2-5	National/	Communications		MOH/MAAIF/
major national events—	year	5		Regional/Distric	department of MOH and	6,944	Partners
Independence Day, Labor Day				t s	MAAIF, faith based		
Etc.)					organizations, CSO		
1.5 Undertake awareness	s raising activities in p	rimary, secondary	and tertiary sc	hools and other the	aining institutions using spec	cialized mat	erials
1.5.1 Identify existing school health	School health program	ns	Year 1	National	Communications		MOH/MAAIF/
programs and determine integration		5			department of MOH,	10,486	Partners
of AMR messages into these.					MOES and MAAIF,		
-					faith based organizations,		
			N 2	NY 1			
1.5.2 Train focal persons at	AMR focal persons	5 000	Year 2	National	Communications department of MOH	205 625	MOH/MAAIF/
different levels and sectors of the		5,000			MOES and MAAIE.	305,625	WOES/Faithers
education system					faith based organizations,		
					CSO		
1.5.3 Disseminate materials and	School AMR		Year 2	National/	Communications		MOH/MAAIF/
tools to focal persons	focal persons	5,000		District level	department of MOH,	27,778	Partners
	_				MOES and MAAIF,		
					faith based organizations,		
1.5.4 Train relevant education	Education partners	1 000	Year 2	National	Communications	00.051	MOH/MAAIF/
partners		1,000			MOES and MAAIF,	20,071	r ai ulei s

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF				
						(USD)	FUNDING				
					faith based organizations,						
					CSO						
1.6 Collaborate with nor	1.6 Collaborate with non-governmental organizations (NGOs). Civil Society Organizations (CSOs). Faith Based Organizations (FBOs) the										
Private sector, internatio	nal organizations, law	enforcement and	the media to de	liver messages o	n antimicrobial use.						
1.6.1 Disseminate training materials	Partners		Year 2	National/	Communications		MOH/MAAIF/				
and tools to partners		1,000		Regional/Distric	department of MOH and	5,556	Local				
				ts	MAAIF		Government/				
	1	0					Partners				
1.7 Engage and train the	media to report on AN	AR.	-	1	1	T					
1.7.1 Train media on AMR	Journalist/		Year 2	National	Communications		MOH/MAAIF/				
reporting	communication	200			department of MOH and	3,958	Local				
	experts				MAAIF		/Partners				
172 Distribute communication	Package of materials		Year 2	National/	Communications		MOH/MAAIF/				
materials and tools to the media	r dekuge of materials	200	1 cui 2	Regional/Distric	department of MOH and	1 111	Local				
		200		t e	MAAIF	1,111	Government/				
				15			Partners				
1.8 Engage groups and c	levelop networks for th	ne dissemination of	of information o	on antimicrobial u	use and resistance.						
1.8.1 Conduct a survey to identify	Survey Report with		Year 1	National	Communications		MOH/MAAIF/				
pre-existing networks to assist	lists of gaps	1			department of MOH and	5,000	Partners				
with dissemination of materials					MAAIF						
and tools											
to key											
1.8.2 Design messages for social	Messages		Year 2	National	Communications		MOH/MAAIF/				
media networks for AMR		10			department of MOH and	5,000	Partners				
awareness					MAAIF						
1.8.3 Include AMR data in	Epidemiologic al		Year 2-5	National	Communications		MOH/MAAIF/				
weekly epidemiological reports	reports	104			department of MOH and	5,000	Partners				
for					MAAIF						
MoH/MAAIF											
1.9 Enhance public awar	eness through quick an	nd efficient disser	nination of rele	vant research find	dings as they are published.						
1.9.1 Identify stakeholders (national	Researchers		Year 1	National	PATE TWC/ Universities						
and global) conducting research on		unlimited		and		-					
AMR				internationa							
				1							

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF		
						(USD)	FUNDING		
1.9.2 Periodically review	Popular		Year 2-5	National	PATE TWC/Universities				
research findings and translate	versions of	unlimited				5,000			
them into popular versions	research								
	reports								
1.9.3 Share latest research with	Policy makers		Year 2-5	National	PATE TWC/Universities		MOH/MAAIF/		
relevant policymakers		100				2,292	Partners		
Objective 2: Support Education and Training of Human, Animal and Environmental Health Professionals									
2.1 Create AMR courses Containment.	for under graduate and	l postgraduate hea	alth professiona	als (human, anim	al and environment) on AMR	preventior	ı and		
2.1.1 Conduct a needs assessment	Needs assessment		Year 1	Countrywide	Universities, health		Professional		
of AMR related gaps in the	Report	1			and veterinary	5,000	councils/boards		
professional education system at					professionals				
different levels					councils				
2.1.2 Disseminate the needs	Educational and		Year 1	National	Universities, health		Professional		
assessment findings to	curriculum review	100			and veterinary	556	councils/boards		
relevant educational and	bodies				professionals				
curriculum-approval bodies					councils				
2.1.3 Review and update	New or		Year 2	National	Universities, health and		Universities,		
curriculums based on gaps	updated	100			veterinary institutions and	16,871	health and		
identified in needs assessment	curriculum				professionals councils		veterinary		
							professionals		
							councils		
2.1.4 Train professional educators	Health professional		Year 2	National	Universities, health and		Universities,		
at different levels on AMR issues	teacher/educators/lect	200			veterinary institutions and	33,529	health and		
	urers				professionals councils		veterinary		
							professionals		
							councils		
2.1.5 Train	Health/veteri		Year 3	National	Universities, health and		Universities,		
health/veterinary	nary	2,000			veterinary institutions and	333,357	health and		
professionals on	professional				professionals councils		veterinary		
AMK							professionals		
							councils		
2.1.6 Conduct a consultative	Health,	250	Year 4	National	Universities and	10,000	Universities,		
workshop identifying factors	veterinary, and				traditional health		health and		
	traditional						veterinary		

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF		
						(USD)	FUNDING		
Contributing to usage of					consortiums or				
alternative medicines					organizations				
	Health professionals						professional		
	ficatui professionais						councils		
Strategic Objective	2: Infection Prevention a	and Control							
Objective 3: Strengt	hen Infection Prevention	n and Control Pi	rograms in Hea	althcare Faciliti	es				
Strengthen coordinate	ed mechanisms for infecti	on prevention and	l control						
1.1.1 Establish a Technical	IPC TWC	20	Year 1	National	NAMRSC		Government/		
Working Group (TWC) on						458	Partners		
Infection Prevention and Control									
(IPC TWC) with TORs									
3.1 Maintain and disseminate up-to -date National infection prevention and control manuals including guidelines and standards of professional									
practice	•								
3.1.1 Update the IPC policy	IPC Policy	1	Year 1	National	NAMRSC		Government/		
						10,486	Partners		
3.1.2 Revise IPC manual	IPC guidelines		Year 1	National	Departments of Clinical		Government/		
for infection prevention		1			services (MOH), Quality	10,486	Partners		
control					Nursing Associations and				
					Licensing Councils				
3.1.3 Print and distribute	Conjes		Vear 2	National	Departments of Clinical		Government/		
IPC Guidelines	copies	4 000	rear 2	National	services (MOH)	<u>,,,,,,</u>	Partners		
		1,000			Quality assurance	22,222			
					(MOH)				
3.1.4 Disseminate IPC and	Health care workers		Year 2	Facility Level	Departments of Clinical		Government/		
standards of professional practice	2	5,000			services (MOH), Quality	27,778	Partners		
guidelines at all healthcare					assurance (MOH), MoLG				
facilities									
3.2 Institute/strengthe	en and support minimum s	standards for infra	astructure in hea	althcare facilities	that promote IPC.				
3.2.1 Under take an assessment o	f Health care facilities		Year 1	Health	Departments of Clinical		Government/		
the current status and needs of IP	PC	3,584		facility level	services (MOH), planning	20,000	Partners		
in nearth facilities					(MOH), QA (MoH), MoLG				

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF
						(USD)	FUNDING
3.2.2 Update guidelines for health care facility infrastructure that support minimum IPC standards	IPC compliant Infrastruc ture Guideline s	1	Year 1	National	Departments of Clinical services (MOH), planning (MOH)	10,486	Government/ Partners
3.2.3 Disseminate the guidelines	Stakeholders	500	Year 1	National	Departments of Clinical services (MOH), planning (MOH), MoLG	2,778	Government/ Partners
3.2.4 Under take support supervision to support implementation of IPC at health facility level	Hea lth faci litie s	3,584	Year 2-5	health facility level	Departments of Clinical services (MOH), planning (MOH)	961,929	Government/ Partners
3.3 Institute/strengthen	and support proper fur	nctioning of IPC c	ommittees in all	healthcare facili	ties.		
3.3.1 Setup functional IPC committees with TORs	committees	3,584	Year 2-5	Facility	Departments of Clinical services (MOH), Quality assurance (MOH) and Livestock Health and Entomology (MAAIF)	10,000	Government/ Partners
3.3.2 Train IPC committee members on their functions	IPC members	3,584	Year 2-5	National	Directorate of Clinical services (MOH), QA (MoH)	69,758	MOH/Partners
3.3.3 Regularly undertake performance monitoring and mentoring of the IPC committee members	Mentoring sessions for IPCs	3,584	Year 2-5	Facility	Directorate of Clinical services (MOH), QA (MoH)	641,193	MOH/Partners
3.4 Create and promote	specific guidelines for	limiting the sprea	ad of multidrug-	resistant (MDR)	organisms.		
3.4.1 Update guidelines for prevention and control of MDR organisms	МОР	1	Year 1	National	Departments of Clinical services (MOH), Quality assurance (MOH)	10,486	Government/ Partners

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF
						(USD)	FUNDING
3.4.2 Print and distribute the	Copies		Year 2	National	Departments of		Government/
MDR control		4,000			Clinical services	22,222	Partners
Guidelines							
					(MOH), Quality		
					assurance (MOH)		
3.4.3 Train health care workers	Health care workers		Year 2	Facility Level	Departments of		Government/
at facility level on the control of		2 000		5	Clinical services	38 958	Partners
MDR		2,000			(MOH), Quality	50,750	
					assurance (MOH)		
3.5 Support availability	and proper use of infe	ction prevention m	aterials and sup	pplies.			
3.5.1 Update lists of IPC	List of IPC		Year 1	National	IPC TWC		Government/
products, including equipment	materials and	20				458	Partners
and supplies	supplies						
3.5.2 Procure and distribute in a	Materials		Year 2-5	National	Departments of		Government/
timely manner IPC supplies and		Assorted			Clinical services	4,000,00	Partners
equipment at health care					(MOH), Quality	0	
facilities					Assurance (MOH)		
3.6 Encourage timely dia	agnosis and treatment	of drug-resistant m	nicroorganisms				
3.6.1 Procure and timely distribute	Materials		Year 1-5	Facility Level	Planning (MOH), NMS,		Government/
tools for rapid diagnosis of		assorted			CPHL	2,000,00	Partners
drug resistant organisms						0	
3.6.2 Train health care workers	Health care workers		Year 1-5	Facility Level	Departments of Clinical		Government/
at facility level on the treatment		2,000			services (MOH), Quality	38,958	Partners
and management of patients with					assurance (MOH), MoES,		
MDR					MAAIF		
infections							
3.6.3 Procure and timely distribute	Drugs		Year 1-5	Facility Level	Departments of Clinical		Government/
drugs for treatment of MDR		assorted			services (MOH) and	3,000,00	Partners
					Health and Entomology	0	
					(MAAIF) NMS		
					(10111111), 10115		
3.6.3 Procure and timely distribute drugs for treatment of MDR	Drugs	assorted	Year 1-5	Facility Level	Departments of Clinical services (MOH) and Livestock Health and Entomology (MAAIF), NMS	3,000,00 0	Government/ Partners

Image: constraint of the section of the sectin section of the sectin section of the section of the section of	SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF			
3.7 Promote hand hygier and other hygienic practices and behaviors that prevent transmission of infectious diseases 3.7.1 Train health care workers at facility level on hand hygienic practices and other hygienic practices and other hygienic practices and other hygienic practices and behaviors that prevent transmission of infectious diseases Note and hygier and the analysis of the prevent transmission of infectious diseases Bealth care workers at factor and health and the promotion (MOH), Quality assurance (MOH) 13,447 Government/Partners 3.7.2 train freedom transmission of infectious diseases Health talks of patters Health care workers at factor and the promotion (MOH), patters below of the patters below of the prevent prevent materials for standard and transmission based precurity Health care workers af factor and the prevent prevert prevent prevent prevent prevent preven							(USD)	FUNDING			
3.7.1 Train health care workers at facility level on hand hygiene and other hygiene and other hygiene practices and behaviors that prevent transmission of infectious diseases 7,168 Year 1-5 Facility Level Departments of Clinical services (MOH), Quily assurance (MOH) 139,447 Government/ Pattners 3.7.2 Under take health talks to protect themselves from acquisition and transmission of infectious diseases Health care workers 10,00 Year 1-5 Facility Level Department of health promotion (MOH), health facility in-charges, QA (MOH) 13,889 Government/ 3.7.3 Train personnel on correct use of Personal Protective Health care workers 14,33 Year 2-5 Facility Level Departments of Clinical services (MOH), OPIL Partners 3.8.1 Train health care workers on IPC health care workers on leadth care workers on standard and transmission based precations health care workers Year 2-5 Facility Level Departments of Clinical services (MOH), OPIL Partners 3.8.1 Train health care workers on IPC health care workers on leadth care workers 14,33 Year 2-5 Facility Level Departments of Clinical services (MOH), QA (MOH) Partners 3.8.2 Under take support supervision visits to reinforce infection control practices health care facilities 3.854 Year 2-5 Facility Level Departments of Clinical services (MOH), QA (MOH), QA (MOH)	3.7 Promote hand hygiene and other hygienic practices and behaviors that prevent transmission of infectious diseases.										
facility level on hand hygiene and other hygienic practices and behaviors that prevent transmission7,168PartnersClinical services (MOH), Quality assurance (MOH)139,447Partners3.7.2 Under take health falks to patients about IPC behaviors to diseasesHealth talks 0NearYear 1-5Facility Level promotion (MOH), health facility in charges, QA (MOH)13,889Government/ Partners3.7.3 Train personnel on correct use of Personal Protective Equipment and materials for standard and transmission based precautionsHealth care workers aYear 2-5Facility Level promotion (MOH), charges, QA (MOH)79,644Government/ Partners3.8.1 Train health care workers on visits to reinforce infection control syster visits to reinforce infection origination and transmission or infectionsHealth care workers a, 3543Year 2-5Facility Level promotion (MOH), OA (MOH), CPHLDepartments of Clinical services (MOH), QA (MOH)79,644Government/ Partners3.8.1 Under take support visits to reinforce infection control pratuesIealth care workers on a, 3554Year 2-5Facility Level produce (MOH), QA (MOH)Departments of Clinical services (MOH), QA (MOH), QA (MOH)79,644Government/ Partners3.9.1 Develop guidelines for awardsIui care discussionYear 2-5Facility Level produce incentives or rewardsPartners PartnersGovernment/ Partners3.9.2 Droide incentives for operationalizing the awardsSet of incentives assorateYear 2-5national pational pastoreDepartme	3.7.1 Train health care workers at	Health care workers		Year 1-5	Facility Level	Departments of		Government/			
other hygienic practices and behaviors that prevent transmissionandandand(MOH), Quality assurance (MOH)and3.7.2 Under take health talks to patients about IPC behaviors to protect themselves from acquisition and transmission of infectious diseasesHealth talks 10,00 0Year 1-5 PartnersFacility Level promotion (MOH), health facility in- charges, QA (MOH)Department of health promotion (MOH), health facility in- charges, QA (MOH)TassesGovernment/ Partners3.7.3 Train personnel on correct use of Personal Protective Equipment and materials for standard and rassmission based precautionsHealth care workers aYear 2-5 aFacility Level personnel on correct partners of Clinical services (MOH), CPHLDepartments of Clinical services (MOH), CPHL79,644Partners3.8.1 Train health care workers on typervision visits to reinforce infection control practicesIa,33 aYear 2-5 aFacility Level personnel control of the 2-5Departments of Clinical services (MOH), QA (MOH), QA (MOH), QA79,644Partners3.8.2 Under take support visits to reinforce infection control practicesIa,33 aYear 2-5 aFacility Level services (MOH), QA (MOH), QA (MOH), QA79,644Oovernment/ Partners3.9.1 Develop guidelines for awardsOuidelinesIa,33 aYear 2-5Facility Level practicesDepartments of Clinical services (MOH), QA (MOH), QA (MOH)Government/ Partners3.9.1 Develop guidelines for grooperationalizing the awardsSet of incentives s	facility level on hand hygiene and		7,168			Clinical services	139,447	Partners			
behaviors that prevent transmission of infectious diseases 3.7.2 Under take health talks to protect themselves from acquisition and transmission of infectious diseases 3.7.3 Train personale on correct use of Personal Protective Equipment and materials for standard and transmission based precautions 3.8.1 Train personale on correct use of Personal Protective Equipment and materials for standard and transmission based precautions 3.8.1 Train personale on correct use of Personal Protective Equipment and materials for standard and transmission based precautions 3.8.1 Train personale on correct use of Personal Protective Equipment and materials for standard and transmission based precautions 3.8.1 Train personale on correct use of Personal Protective Equipment and materials for standard and transmission based precautions 3.8.1 Train based precautions 3.8.1 Train personale on correct use of Personal Protective Equipment and materials for standard and transmission based precautions 3.8.1 Train based precautions 3.8.1 Train based precautions assorted 3.9.1 Develop guidelines for diversion visits to reinforce infection control practices 3.9.1 Develop guidelines for diversion control practices 3.9.1 Develop guidelines for diversion standard and trainsmismisment based precautions 3.9.2 Institute systems of interatives or rewards + utphold and motive good IPC practices. 3.9.1 Develop guidelines for diversion for operationalizing the awards 3.0 Provide incentives for operationalizing the awards 3.00 Provide incentives disposal and waste trainer practices in baser trainer bitters. 3.00 Provide incentives disposal and waste trainer trainer practices in baser trainer bitters. 3.00 Provide incentives for operationalizing the awards 3.00 Provide incentives disposal and waste trainer trainer practices in baser trainer bitters.	other hygienic practices and					(MOH), Quality					
of infectious diseasesof	behaviors that prevent transmission					assurance (MOH)					
3.7.2 Under take health talks to patients about IPC behaviors to protect themselves from acquisition and transmission of infectious of infectious of the early interval of the early interva	of infectious diseases										
patients about IPC behaviors to protect themselves from acquisition and transmission of infectious diseases10,00 0promeprometion (MOH) health facility in- charges, QA (MOH)13,889Partners3.7.3 Train personnel on correct use of Personal Protective Equipment and materials for standard ad transmission based precautionsHealth care workers 614,33 6Year 2-5Facility Level personal Protective (MOH), CPHLDepartments of Clinical services (MOH), CPHL79,644Government/ Partners3.8 Promote campaigns for IPC at healthcare for transmission based precautionsPalth care workers 614,33 6Year 2-5Facility Level services (MOH), QA (MOH)Departments of Clinical services (MOH), QA (MOH)Government/ Partners3.8.1 Under take support supervision visits to reinforce infection control practiceshealth care workers or services infection controlhealth care facilities 3,854Year 2-5Facility Level services (MOH), QA (MOH)Popartments of Clinical services (MOH), QA (MOH)Government/ Partners3.9.1 Develop uicellines for awardsGuidelines a sorted1Year 2-5Facility Level personal campaigned for the services (MOH), PA (MOH)Departments of Quality assurance (MOH)Government/ Partners3.9.2 awardsProvide incentives for operationalizing the awardsSet of incentives assortedYear 2-5national personal campaigned for operationalizing the awardsDepartment of Quality assurance (MOH)So,000Government/ Partners<	3.7.2 Under take health talks to	Health talks		Year 1-5	Facility Level	Department of health		Government/			
protect themselves from acquisition and transmission of infectious diseases 0 14,33 Year 2-5 Facility Level Departments of Clinical services (MOH), CPHL 79,644 Partners 3.7.3 Train personnel on correct use of Personal Protective Equipment and materials for standard and transmission based precautions Health care workers and and transmission based precautions 14,33 Year 2-5 Facility Level Departments of Clinical services (MOH), CPHL 79,644 Partners 3.8.1 Train health care workers on PPC health care workers on PPC health care facilities services (MOH), QA 79,644 Government/ Partners 3.8.2 Under take support supervision visits to reinfection control partners health care facilities supervision visits to reinfection control partners Associate transmission of Clinical services (MOH), QA 79,644 Government/ Partners 3.9.1 Train health care support supervision visits to reinfection control partners health care facilities associate Year 2-5 Facility Level services (MOH), QA 79,644 Government/ Partners 3.9.1 Train visit to reinfection control visits to reinfection control partners facility Level associate Departments of Clinical services (MOH), QA (MOH) for Operationalizing the awards	patients about IPC behaviors to		10,00			promotion (MOH),	13,889	Partners			
and transmission of infectious diseasesand transmission diseasesand tra	protect themselves from acquisition		0			health facility in-					
diseasesImage: constraint personal on correct use of personal Protective Equipment and materials for standard ardHealth care workers pImage: constraint personal on correct pHealth care workers pImage: constraint personal protective pPersonal Protective pDepartments of Clinical services (MOH), CPHLPoptationes of pPoptationes pPopt	and transmission of infectious					charges, QA (MoH)					
3.7.3 Train personal on correct use of Personal Protective Equipment and materials for standard and transmission based precautions Health care workers of 14,33 of 6 Year 2-5 Facility Level Protective Equipment and materials for standard and transmission based precautions Departments of Clinical services (MOH), CPHL Partners 3.8.1 Train health care workers on PC health care workers on the protective equipment and materials of the protection control protection control practices health care facilities Year 2-5 Facility Level equipment and materials of Clinical services (MOH), QA (MOH) Post Partners Government/Partners 3.8.2 Under take support supervision visits to reinforce infection control practices health care facilities Year 2-5 Facility Level equipments of Clinical services (MOH), QA (MOH) Post Partners Government/Partners 3.9.1 Devision visits to reinforce infection control practices health care facilities 3,854 Year 2-5 Facility Level Partners of Quality Advected (MOH) Partners Government/Partners 3.9.1 Devision visits to reinforce infection control practices fullelines 1 Year 1 national Departments of Quality Assurance (MOH) partners Government/Partners 3.9.1 Devision visits to reinforce infection control practices for operationalizing the awards Set of incentives assorated 1 Set of incentives asorate massorate massorate (MOH)	diseases										
use of Personal Protective Equipment and materials for standard and transmission based precautions14,33 6Image: the standard and 6Clinical services (MOH), CPHL79,644Partners3.8 Promote campaigns for UPC at healthcare for S1.1 Train lealth care workers on IPC5.8 Promote campaigns for UPC at healthcare for ass.1 Train lealth care workers on BC health care workers on A_0^2 health care workers A_0^2 Year 2-5Facility Level Services (MOH), QA (MOH)79,644Government/ Partners3.8.2 Under take support supervision visits to refrore infection control assuredhealth care facilities A_0^2 Year 2-5Facility Level Services (MOH), QA (MOH)Pop444Government/ Partners3.9.1 Dervise wards1.0 refronce trained for supervision wardsGovernment/ assortedYear 1 assortednational assortedDepartments of Quality Assurance (MOH)10,486Government/ Partners3.9.2 wardsFrovide incentives for operationalizing the awardsSet of incentives assortedYear 2-5 assortednational assortedDepartment of Quality assurance (MOH)Government/ Partners3.10 Promote safe waste disposal and waste tratement practicesYear 2-5 assortednational assortedDepartment of Quality assurance (MOH)So,000 Partners3.10 Promote safe waste disposal and waste tratement practicesYear 2-5 assortednational assortedDepartment of Quality assurance (MOH) and HR (MOH)So,000Government/ Partners	3.7.3 Train personnel on correct	Health care workers		Year 2-5	Facility Level	Departments of		Government/			
Equipment and materials for standard and transmise based precautionsendendendendendendendend3.8 Promote campaigus3.8 Promote campaigus5.1 Cat healthcare transmise5.1	use of Personal Protective		14,33			Clinical services	79,644	Partners			
standard Intermediate transmission based precautionsImage: Standard Intermediate resultsImage: Standard Intermediate standard IntermediateImage: Standard IntermediateImage: Standard Intermediate standard IntermediateImage: Standard Interm	Equipment and materials for		6			(MOH), CPHL					
transmission based precautionsImage: constraint of the section of the	standard and										
3.8 Promote campaigns (> IPC at healthcare is litties3.8.1 TraiI=alth care workers on IPChealth care workers on IPChealth care workers on IA,33 6Year 2-5Facility Level PartinersDepartments of Clinical services (MOH), QA (MoH)79,644Government/ Partners3.8.2 U/Jecttake support supervisiov visits to reinfection controlhealth care facilities 3,854Year 2-5Facility Level PartnersDepartments of Clinical services (MOH), QA (MoH)Government/ Partners3.9.1 Deviceis Institute systems of centres or rewards1Year 1national antionalDepartments of Quality Assurance (MOH)-Government/ Partners3.9.2For operationalizing the awardsSet of incentives assortedYear 2-5national PartnersDepartment of Quality assurance (MOH) and Boyoon10,486Government/ Partners3.9.2For operationalizing the awardsSet of incentives assortedYear 2-5national PartnersDepartment of Quality assurance (MOH) and Boyoon50,000Government/ Partners	transmission based precautions										
3.8.1 Train health care workers on IPC health care workers on IPC health care workers on IPC health care facilities of the care facilities supervision wists to reinforce infection control practices health care facilities of the care facilities of the care facilities of the care for the care	3.8 Promote campaigns	for IPC at healthcare fa	acilities								
IPCInformation<	3.8.1 Train health care workers on	health care workers		Year 2-5	Facility Level	Departments of Clinical		Government/			
Image: constraint of constraints o	IPC		14,33			services (MOH), QA	79,644	Partners			
3.8.2 Under take support supervision visits to reinforce infection control practices. health care facilities associated asociated associated associated associated assoc			6			(MoH)					
supervision visits to reinfection control practices 3,854 and and services (MOH), QA (MOH) and Partners 3.9 Institute systems of recentives or rewards 3.9 Institute systems of remarks or rewards upbed incentives Image: Control of	3.8.2 Under take support	health care facilities		Year 2-5	Facility Level	Departments of Clinical		Government/			
visits to reinforce infection control practices. Image: Monthing and the systems of control of practices of rewards to	supervision		3,854			services (MOH), QA	-	Partners			
practices Image: Construct systems of the systems	visits to reinforce infection control					(MoH)					
3.9 Institute systems of incentives or rewards that uphold and monitor good IPC practices. 3.9.1 Develop guidelines for awards Guidelines 1 Near 1 national Departments of Quality Assurance (MOH) 10,486 Government/Partners 3.9.2 Provide incentives for operationalizing the awards Set of incentives assorted Year 2-5 national Department of Quality Assurance (MOH) and HR (MOH) 50,000 Government/Partners 3.10 Promote safe waste tisposal and waste treatment practices in healthcare facilities.	practices						<u> </u>				
3.9.1 Develop guidelines for awards Guidelines 1 Year 1 national Departments of Quality Assurance (MOH) 10,486 Government/ Partners 3.9.2 Provide incentives for operationalizing the awards Set of incentives assorted Assorted Department of Quality Assurance (MOH) 10,486 Government/ Partners 3.9.2 Provide incentives for operationalizing the awards Set of incentives assorted Year 2-5 national Department of Quality assurance (MOH) and HR (MOH) 50,000 Government/ Partners 3.10 Promote safe waste disposal and waste treatment practices in healthcare facilities. Journal of the partners Journal of the partners Journal of the partners Journal of the partners Journal of the partners Journal of the partners Journal of the partners Journal of the partners Journal of the partners Journal of the partners Journal of the partners Journal of the partners Journal of the partners Journal of the partners Journal of the partners Journal of the partners Journal of the partners Journal of the partners Journa of the partners Journal of	3.9 Institute systems of 1	ncentives or rewards t	hat uphold and mo	nitor good IPC	practices.	1		1			
awards 1 Image: Constraint of the second secon	3.9.1 Develop guidelines for	Guidelines		Year 1	national	Departments of Quality		Government/			
3.9.2 Provide incentives for operationalizing the awards Set of incentives assorted Year 2-5 national Department of Quality assurance (MOH) and HR (MOH) 50,000 Government/Partners 3.10 Promote safe waste disposal and waste treatment practices in healthcare facilities. Set of incentives assorted Set of incentincentives	awards		1			Assurance (MOH)	10,486	Partners			
for operationalizing the awards assorted assorted assurance (MOH) and HR (MOH) 50,000 Partners 3.10 Promote safe waste disposal and waste treatment practices in healthcare facilities. 3.10 Promote safe waste disposal and waste treatment practices in healthcare facilities. Source (MOH) and HR (MOH) Source (MOH) and HR (MOH) and HR (MOH) Source (MOH) and HR (MOH)	3.9.2 Provide incentives	Set of incentives		Year 2-5	national	Department of Quality		Government/			
awards Image: safe waste disposal and waste treatment practices in healthcare facilities.	for operationalizing the		assorted			assurance (MOH) and	50,000	Partners			
3.10 Promote safe waste disposal and waste treatment practices in healthcare facilities.	awards					HR (MOH)					
	3.10 Promote safe waste	3.10 Promote safe waste disposal and waste treatment practices in healthcare facilities.									
3.10.1 Train health care workers health care workers Year 2-5 Facility Level Departments of Clinical MOH/Partners	3.10.1 Train health care workers	health care workers	· · ·	Year 2-5	Facility Level	Departments of Clinical		MOH/Partners			
on safe waste disposal and waste 14.33	on safe waste disposal and waste	nearth cure workers	14.33	10u 2 5		services (MOH) OA	79 644	in on in a monors			
treatment practices for healthcare 6	treatment practices for healthcare		6			(MoH)	, , , , , , , , , , , , , , , , , , , ,				
Workers.	Workers.					(/					

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF			
						(USD)	FUNDING			
3.11 Create and strengthen communication platform for IPC related committees at all levels from local level facilities to the Ministry of Health										
3.11.1 Establish a	Coordination		Year 2-5	Facility level	Facility management,		Government/			
communication platform among	committee	3,854			MoH	107,056	Partners			
IPC related committees e.g.										
medicines & therapeutics										
committee, AMR										
stewardship										
committee, infection prevention										
Control committee, Laboratory										
Committee and Clinical										
Committee										
3.11.2 Develop guidelines for the	Guidelines		Year 2-5	Facility level	IPC TWC, Local IPC		Government/			
functioning of the communication		20		5	Committees	458	Partners			
platform										
3.12 Improve health wor	ker knowledge and sk	ills on IPC	1	<u> </u>	1	1	1			
3.12.1 Con duct survey on training	Training needs report		Year 1	national	department of Quality		Government/			
needs for health		1			assurance (MOH) and HR	20,000	Partners			
professionals regarding IPC					(MOH)					
3.12.2 Con duct regular continued	health care workers		Year 2-5	Facility level	Healthcare facilities		Government/			
profession development		2,000				55,556	Partners			
(CPD) training regarding										
IPC										
3.12.3 Integrate IPC content in the	updated curriculum		Year 2-5	national	clinical services (MOH)		Government/			
curriculum/ education for all		100			and Health training	16,871	Partners			
health training institutions					institutions					
Objective 4: Promote I	nfection Prevention a	and Control Pract	tices in Comm	unities						
4.1 Develop and dissemi Including schools and pu	inate tools for informat ublic places.	tion, education and	l communicatio	on/behavior chan	ge communication on IPC in	communiti	28,			
4.1.1 Under take a survey on	survey		Year 1	national	Department community		Government/			
the knowledge/ attitudes/		1			health (MOH)	20,000	Partners			
perceptions										
and practices in the com munity										

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF	
						(USD)	FUNDING	
4.1.2 Develop tools for information,	Tools		Year 2	national	Department of health		Government/	
education and communication		40			promotion (MOH)	20,257	Partners	
/behavior change communication								
on IPC in communities, including								
schools and public places.								
behavioral change								
Communication strategy								
4.1.3 Dissemination of information	public		Year 2-5	communit	Department of health		Government/	
on infection control in	awareness	500		y level	promotion (MOH)	277,778	Partners	
the community	campaigns			-		<i>,</i>		
4.2 Promote food hygier	ne practice s in all publ	ic places and comr	nunities.			<u> </u>		
4 2 3 Develop minimum standards	Guidelines		Year 1	National	department of community		Government/	
for food hygiene, handling and		1			health (MOH)	10 486	Partners	
preparation		1				10,100		
4.2.1 Train food vendors and	Food		Year 2-5	Countrywide	Local Government and		Government/	
supervisors for proper food	vendors and	5.000		j	MoLG	27.778	Partners	
handling practices	supervisors	- ,				- ,		
	1							
4.2.2 Enforce regular checkups of	Food handlers		Year 2-5	communit	Local Government,		Government/	
food handlers for infectious	examined	5,000		y level	MoLG, community health	72,806	Partners	
diseases of public health					(MOH)			
importance related to food								
4.2.4 Undertake food inspection of	Facilities		Year 2-5	districts	Local Government		Government/	
foods	inspected	5,000			and	138,889	Partners	
and food products for public					MoLG			
consumption								
4.3 Improve access to safe and clean water throughout the country.								
4.3.1 Carry out a baseline to obtain	survey		Year 1-5	national	community health (MOH)/		Government/	
information on safe water usage in		1			UNBS /QAD (MOH),	20,000	Partners	
relation infection control and					MoWE, NEMA			
prevention								
is concerned								

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	LOCATION RESPONSIBLE ENTITY		SOURCE OF		
						(USD)	FUNDING		
4.3.2 Increase safe water	safe water	each	Year 1-5	Countrywide	MoWE		Government/		
coverage in communities	sources	community				30,000,0	Partners		
						00			
4.3.3 Review standards and	Guidelines		Year 1-5	communi	department of quality		Government/		
guidelines for assessing water		1		ty level	assurance and	10,486	Partners		
safety in the context of AMR					inspection (MOH),				
					(MOH)/ UNBS_MoWE				
					NEMA				
4.3.4 Conduct periodic water	Water Consumption	_	Year 1-5	communi	community health (MOH)/		Government/		
safety analyses at	points	2,000		ty level	local government/ UNBS	114,472	Partners		
consumption points					-				
4.4 Promote safe waste disposal an d waste treatment practices.									
4.4.1 Revie w and update IEC	Set of IEC		Year 1-5	National	community health (MOH),		Government/		
materials	materials	1			health promotion (MOH)	10,486	Partners		
on safe waste disposal			_						
4.4.2 Procure and make	Materials		Year 1-5	Facility level	Department of community		Government/		
available waste disposal		assorted			health (MOH), QAD	2,000,00	Partners		
materials for infectious					(MOH)/ NEMA, Planning	0			
wastes wherever					(MoH)				
generated	T . T 1	+		NT- (a mal	Desident		C		
4.4.5 Conduct training of trainers	101 trained	101	Year 1-5	National	bealth (MOH) OAD	50.921	Government/ Partners		
(101) for waste hand ers		121			(MOH)/	59,831	1 artificis		
					NEMA				
4.4.3 Conduct mentorships sessions	Health		Year 1-5	Facility level	Department of community		Government/		
for waste handlers	facilities	1,740		-	health (MOH), QAD	48,333	Partners		
					(MOH)/				
		<u> </u>			NEMA				
4.4.4 Set up health care waste	Health care		Year 1-5	regional	Department of community	10.050.0	Government/		
treatment facilities at each health	facility	3,854			(MOH)/	19,270,0	Partners		
facility					NEMA	00			
4.5 Reduce transmission of AMR at the household level.									
4.5.1 Sensitization of the public on	Public awareness		Year 1-5	national	community health		Government/		
AMR	campaigns	50			(MOH), health promotion	69,444	Partners		
	_				(MOH), local educational				
					institutions				

SUB-ACTIVITY	UNIT	QUANTITY	TI	MELINE	LOCATIO	ON RESPONSIBLE F	ENTITY	COST	SOURCE OF
								(USD)	FUNDING
4.5.3 Contact tracing and	Patients with MDR		Ye	ar 1-5	household le	evel NDC (MOH) and lo	ocal		Government/
management of		1,000				government	government		Partners
patients with drug									
resistant									
microorganisms	Individuala		Va	or 1 5	household le	wal NDC (MOH) and h	2001		Covernment/
antibiotic	marviauais	1 000	16	al 1-3	nousenoia le	government	Jeal	120 000	Partners
treatment at household level		1,000				government	government		1 urtilers
Objective 5: Promote Farm Biosecurity Measures in Agriculture									
5.1 Develop and dissemin	nate farm biosecurity	guidelines to dif	ferent	categories	of animal far	ms, slaughter facilities,	abattoirs	and aquacu	ılture
Facilities.									
5.1.1 Revie w and update	e Guidelines	Ye	ar 1	National	Dep	artment of Livestock		MAAIF/	partners
biosecurity guidelines f or different	t	1			Hea	lth and Entomology,	10,486		
categories of animal farms, slaughter	r				MA	AIF Fishery			
facilities, abattoirs and aquaculture	•				Dep	partment			
facilities.									
5.1.2 Print and distribute biosecurity	Copies of the	Ye	ar 1	National	Dep	partment of Livestock		MAAIF/	partners
guidelines to veterinarians and other	guidelines	5,000			Hea	lth and Entomology	27,778		
stakeholder s									
5.1.3 Sensitize stakeholders on	Stakeholders	Ye	ar 1	National	Dep	artment of Livestock		MAAIF/	partners
biosecurity guidelines		5,000			Hea	lth and Entomology	97,292		
5.1.4 Train district veterinary officer	s on DVOs	Ye	ar 1	National	Dep	partment of Livestock		MAAIF/	partners
biosecurity guidelines		121			Hea	lth and Entomology	23,827		
5.1.5 Promote biosecurity practice	es on Radio/TV	Ye	ar 2-5	National	Dep	partment of Livestock		MAAIF/	partners
farms and animal facilities (e.g. abat	toirs) segments	50			Hea	lth and Entomology	69,444		
5.2 Promote hygiene, sanitation and infection prevention practices on farms.									
5.2.1 Train farmers in on-farm sanita	tion Farmers	Ye	ar 2	National	Dep	partment of Livestock		MAAIF/	partners
and good hygiene practices		5,000			Hea	lth and Entomology	97,292		
5.2.2 Under take regular checks on	Animal	Ye	ar 2-5	Farm leve	el Dist	trict veterinary office,		MAAIF	partners
sanitation and hygiene on animal	facilities and	500			Dist	trict Veterinary Officers	134,222		
facilities and farms	farms								
5.2.3 Regular checks on animal feed	s for feed checks	Ye	ar 2-5	Farm leve	el Dist	trict veterinary office		MAAIF	partners
contamination		2,000					114,472		
5.3 Promote food safety of	campaign s and progr	ammes.							
SUB-ACTIVITY	UNIT	QUANTI	ry T	IMELINE	LOCATION	RESPONSIBLE I	ENTITY	COST	SOURCE OF
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								(USD)	FUNDING
5.3.1 Sensitize farmers and the generation	al Public		Year 2-5	5 National	Depa	rtment of Livestock		MAAIF/	partners
public on production of safe animals	for awareness	100			Healt	h and Entomology	55,556		
human consumption	campaigns								
5.4 Promote good biosecu	urity practices in the	agricultural,	livestock	and animal	production ind	ustries.			
5.4.1 Train farmers in standard anima	al Farmers		Year 2-5	5 districts	Distri	ct Veterinary office,		MAAIF/	partners
husbandry practices that reduce the ne	eed	5,000			QA (I	MAAIF)	97,292		
to use antimicrobial agents									
5.4.2 Provide regular advisory extens	ion Follow up				MoL	G, MAAIF		MAAIF/	partners
services to farmers	visits	2,000					55,611		
5.5 Ensure minimum stan	5.5 Ensure minimum standards for infrastructure in animal and agricultural facilities that promote biosecurity								
5.5.1 Develop/update standards for fa	arm Standards		Year 1	National	Depa	rtment of		MAAIF/	partners
infrastructure that promote infection		1			Lives	tock Health and	10,486		
prevention in animal handling faciliti	es				Entor	nology, Planning			
and farms					(MA)	AIF)			
5.5.2 Print and distribute animal facil	ity Copies of the		Year 1	National	Depa	rtment of Livestock		MAAIF/	partners
and farm infrastructure standards	guidelines	2,000			Healt	h and Entomology,	11,111		
					MoE	8		_	
5.5.3 Train district veterinary officer	s on DVOs		Year 2	National	Depa	rtment of Livestock		MAAIF/j	partners
facility and farm infrastructure standa	ards	121			Healt	h and Entomology	20,369		
5.5.4 Conduct regular advisory/supp	ort Facilities		Year 2-5	5 National	Depa	rtment of Farm		MAAIF/	partners
supervision /inspection	of	2,000			Infras	tructure and	55,611		
abattoirs/slaughter houses a	and				of Ve	t Public Health.			
aquaculture facilities					MoL	J,			
					KCC	A			

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF			
						(USD)	FUNDING			
5.5.5 Sensitize stakeholders on	meetings		Year 2-5	National/region	Department of Farm		MAAIF/partners			
the need for ante-mortem and		1,000		al	infrastructure and	19,514				
post-mortem inspection					Department of Vet Public					
					Health, MoLG					
5.6 Ensure availability and proper use of infection prevention materials and supplies in agricultural and animal facilities										
5.6.1 Develop/disseminate	Guidelines		Year 1	National	Department of Livestock		MAAIF/partners			
guidelines for infection prevention		1			Health and Entomology,	10,486				
materials for animal facilities and					MoLG					
1arms	Animal facility		Veer 2.5	National	Department of Livestock		MAAIE/partners			
animal facility operators on the	operators and	1 000	1 Cal 2-5	Ivational	Health and Entomology	10 514	MAAII/partiters			
midalinas	formore	1,000			ficatul and Entoniology	19,514				
guidennes	lamers									
5.7 Promote safe waste of	lisposal and waste trea	atment practices fr	om agricultural	and animal facil	ities.					
5.7.1 Conduct a baseline	Baseline report		Year 2-5	National	Department of Livestock		MAAIF/partners			
assessment of	1	1			Health and Entomology,	20,000	1			
the current status of animal		-			MAAIF	,				
facility and farm waste disposal										
5.7.2 Develop/disseminate	Guidelines		Year 2-5	National	Department of Livestock		MAAIF/partners			
guidelines for		1			Health and Entomology,	10,486				
safe waste disposal for animal					MoLG					
facilities and farms										
5.7.3 Sensitize farmers and	Farmers and		Year 2-5	National	Department of Livestock		MAAIF/partners			
animal facility operators on safe	animal facility	1,000			Health and Entomology	19,514				
waste disposal	operators									
and treatment practices	T 1									
5.7.4 Sensitize stakeholders and	Farmers and		Year 2-5	National	Department of Livestock		MAAIF/partners			
farmers on animal facility and	animal facility	1,000			Health and Entomology,	19,514				
farm waste recycling	operators		_		MoLG					
5.7.5 Procure incinerators for	Incinerators		Year 2-5	National	Department of Livestock		MAAIF/partners			
abattoirs and sick animals		20			Health and Entomology,	400,000				
					MAAIF					

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF				
						(USD)	FUNDING				
Objective 6: Increase and Optimize Use of Vaccines to Prevent Infectious Diseases											
6.1 Strengthen vaccinat	ion programs in huma	n and animal healt	h.								
6.1.1 Procure vaccine and supply	Vaccines		Year 2-5	National	Department of national		Government/				
vaccines for humans an d animals		5,000, 000			Disease Control (NDC) and livestock health and entomology (MAAIF)	25,000,0 00	Partners				
6.1.2 Develop/review	Regulations		Vear 1	National	MoH Department of		Government/				
regulations for vaccination s for animals with vaccination schedules	Regulations	1		Trational	national Disease Control (NDC) and livestock health and entomology (MAAIF)	10,486	Partners				
6.1.3 Conduct campaigns to provide information , awareness and schedules about vaccination s in Uganda	public awareness campaign	50	Year 2-5	National	Department of national Disease Control (NDC) and livestock health and entomology (MAAI F), Community Health (MoH)	69,444	Government/ Partners				
6.1.4 Under take vaccination of	vaccinated		Year 2-5	National	Department of		Government/				
individuals against a broader range of diseases	individuals	15,00 0,000			national Disease Control (NDC)	75,000,0 00	Partners				
6.1.5 Under take vaccination of animals against a broader range of diseases	vaccinated animals	5,000, 000	Year 2-5	National	Department of national Disease Control (NDC) and livestock health and entomology (MAAIF)	25,000,0 00	Government/ Partners				
6.2 Improve coverage o	f vaccination program	s across the countr	y for vaccine p	reventable diseas	ses in humans and livestock.		•				
6.2.1 Conduct a baseline assessment for animal and human vaccines program and services coverage	baseline study	1	Year 1	National	Department of national Disease Control (NDC) and livestock health and entomology (MAAIF), NDA, UNEPI	20,000	Government/ Partners				

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF
						(USD)	FUNDING
6.2.2 Develop a vaccine stock management tool to monitor vaccine stocks to prevent stock outs	Tool	1	Year 1	National	Department of national Disease Control (NDC) and	10,486	Government/ Partners
					livestock health and entomology (MAAIF)		
6.2.3 Review vaccine schedules to optimize uptake (combination vaccines to increase uptake and reduce cost)	Revised vaccination schedule	1	Year 1	National	Department of national Disease Control (NDC) and livestock health and entomology (MAAIF), UNEPI	10,486	Government/ Partners
6.2.5 Support routine maintenance of a functional cold chain	Cold chain	4 per facility per year	Year 2-5	health facility level	Department of national Disease Control (NDC) and livestock health and entomology (MAAIF)	50,000	Government/ Partners
6.3 Increase the range of	f vaccines and their av	ailability across th	ne country.	1			•
6.3.1 Revie w and recommend introduction of new vaccines for both human and animals	Updated vaccine list	1	Year 1	National	Department of national Disease Control (NDC) and livestock health and entomology (MAAIF)	10,486	Government/ Partners
6.3.2 Under take research to measure the impact/best methods of vaccinating animals	study	1	Year 2	National	Department of national Disease Control (NDC) and livestock health and entomology (MAAIF)	50,000	Government/ Partners

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF	
						(USD)	FUNDING	
Strategic Objective 3:	Optimal Access and	Use of Antimicrol	bials					
Objective 7: Promote	Optimal Prescribing	and Use						
7.1 Create mechanisms	for coordination and s	upport of Antimic	obial Stewards	ship and ensuring	g Optimal Use			
7.1.1 Establish a Technical Working Group (TWC)	ASO TWC	20	Year 1	National	NAMRSC	458	MOH/MAAIF/ Partners	
Optimal Us e (ASO TWC)								
7.2 Regularly update and ensure availability of prophylactic, prescribing/treatment guidelines and protocols for infectious diseases in human health								
7.2.1 Review and update prescribing guidelines for formulaic and	Prescribing guideline	1	Every 2 years	National	Departments of Clinical services (MOH) and NDA	40,000	MOH/MAAIF/ Partners	
7.2.2 Disseminate prescribing guidelines in both print and online to all health facilities	Copies of the guidelines	5,000	Year 1-5	National/ District level	Departments of Clinical services (MOH) and NDA	3,778	MOH/MAAIF/ Partners	
7.2.3 Training prescribers and dispensers on the guidelines	Prescribers and dispensers	3,000	Year 2-5	National/ Regional	Departments of Clinical services (MOH) and NDA	70,000	MOH/MAAIF/ Partners	
7.2.4 Sensitize regulatory agencies and policymakers to improve adherence to prescribing guidelines	Regulatory bodies	2	Year 1	national	Departments of Clinical services (MOH) and Livestock Health and Entomology (MAAIF)	5,486	MOH/MAAIF/ Partners	
7.3 Facilitate continued antimicrobials.	education and training	to promote respon	nsible prescrib	ing practices, dis	pensing and administration p	rinciples for	:	
7.3.1 Conduct a needs assessment to inform AMR-related CME trainings for relevant professions	Report with lists recommendation for AMR related CMEs	1	Year 1	National	Professional associations and councils and boards	5,000	Universities, health and veterinary professionals councils	
7.3.2 Organize ToT sessions for different professionals	ToT sessions	20	Year 1	National	Departments of Clinical services (MOH) and Livestock Health and Entomology (MAAIF)	50,000	MOH/MAAIF/ Partners	

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF
						(USD)	FUNDING
7.3.3 Conduct AMR-specific CMEs through the professional associations	CMEs/CPDs	25	Year 1-5	National	Departments of Clinical services (MOH) and Livestock Health and Entomology (MAAIF)	12,929	MOH/MAAIF/ Partners
7.4 Incorporate courses	on antimicrobial stew	ardship and AMR	into the contin	uous professiona	l development curricula for al	l health,	
agriculture, animal and	environmental profess	ionals with a syst	em of ensuring	accountability.			
7.4.1 Share findings of needs assessment to stakeholder s	Stakeholders	500	Year 1	National	Professional associations and regulatory councils and boards	5,000	Universities, health and veterinary professionals councils
7.4.2 Develop training manuals for the health professional CME on AMR	Training manuals	1	Year 2	National	Professional Councils, Universities	10,486	Universities, health and veterinary professionals councils
7.4.3 Sensitise relevant professional boards and council s on the training needs of their professions	Professional boards and councils	4	Year 2	National	Professional associations and regulatory councils and boards	15,000	Universities, health and veterinary professionals councils
7.5 Institute/strengthen	and support proper fur	nctioning of Medi	cines and Thera	apeutics committe	ees in all health care facilities		
7.5.1 Activate Medicines and Therapeutic Committees (MTCs) at national and health facility levels with clear TORs	MTCs	348	Year 1-5	Regional	Departments of Clinical services (MOH) and NDA	70,000	MOH/MAAIF/ Partners
7.5.2 Train MTCs in their functions	MTC members	1,740	Year 2-5	National	Directorate of Clinical services (MOH)	20,000	MOH/Partners
7.5.3 Regularly undertake performance monitoring and mentoring of the therapeutic committees	Mentoring sessions for MTCs	348	Year 1-5	Facility	Directorate of Clinical services (MOH)	50,000	MOH/Partners

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF				
						(USD)	FUNDING				
7.6 Support the develop	7.6 Support the development and dissemination of antimicrobial stewardship working manuals and procedures.										
7.6.1 Develop the antimicrobial stewardship working manuals and procedures	МОР	1	Year 1	National	Departments of Clinical services (MOH) and Livestock Health and Entomology (MAAIF)	10,486	MOH/Partners				
7.6.2 Print and distribute antimicrobial stewardship working manuals	Copies	5,000	Year 1	National	Departments of Clinical services (MOH) and Livestock Health and Entomology (MAAIF)	2,857	MOH/Partners				
7.6.3 Train healthcare workers on antimicrobial stewardships for both public and private workers	Healthcare workers on antimicrobial stewardships	1,000	Year 2-5	National/ Regional and healthcare facilities (including clinics, pharmacies	Departments of Clinical services (MOH) and Livestock Health and Entomology (MAAIF)	200,000					
7.7 Provide up to date s	nd unbiased medicine	information servi	ces to human a	and drug shops)	providers						
7.7.1 Share suggestibility and	AST and		Veen 1 5	National and	Departments of Clinical		MOIL/Doute one				
antimicrobial use data regularly to stakeholders	Antimicrobial usage data shared	Monthly (12)	1 car 1-3	facility based	services (MOH), NDA and Livestock Health and Entomology (MAAIF)	20,000	non/rarmers				
7.7.2 Provide and share other update scientific and popular literature to improve prescribing practices	Information shared	Monthly (12)	Year 1-5	National and facility based	Departments of Clinical services (MOH), NDA and Livestock Health and Entomology (MAAIF)	20,000	MOH/Partners				

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF				
						(USD)	FUNDING				
7.8 Strengthen supervision of prescribing and dispensing outlets for human and animal antimicrobials											
7.8.1 Develop a tool for more efficient supervision and monitoring of healthcare facilities and pharmacies/drug stores	Supervision tool		Year 1	National	Departments of Clinical services (MOH), NDA and Livestock Health and Entomology (MAAIF)	10,486	MOH/MAAIF/ Partners				
7.8.2 Train professional councils and licensing organs on supervision and monitoring dispensing outlets	Professional councils and licensing organs members trained	20	Year 1	National	Departments of Clinical services (MOH), NDA and Livestock Health and Entomology (MAAIF), Professional Councils	20,000	MOH/MAAIF/ Partners				
7.8.3 Conduct CMEs to improve prescription and good pharmacy practice for health and veterinary prescribers	Health and veterinary prescribers	1,000	Year 2		Departments of Clinical services (MOH), NDA and Livestock Health and Entomology (MAAIF), Professional Councils	200,000	MOH/MAAIF/ Partners				
7.8.4 Review and update regulations on prescription of antimicrobials	Updated regulations	1	Year 1	National	Departments of Clinical services (MOH), NDA and Livestock Health and Entomology (MAAIF), Professional Councils	10,486	MOH/MAAIF/ Partners				
7.8.6 Develop digital/manual tools for tracking and tracing prescriptions at dispensing facilities	Prescription tracking tool	2	Year 1	National	Departments of Clinical services (MOH), NDA and Livestock Health and Entomology (MAAIF), Professional Councils	2,000,00 0	MOH/MAAIF/ Partners				
7.8.7 Disseminate the tools for tracking and tracing prescriptions	Shared tools	2	Year 1	Regionals	Departments of Clinical services (MOH), NDA and Livestock Health and Entomology (MAAIF), Professional Councils	140,000	MOH/MAAIF/ Partners				

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF
						(USD)	FUNDING
7.9 Initiate incentives a	nd reward systems for	excellence in adh	erence to best p	practices and stan	ıdards		
7.9.1 Develop tools for the	Performance		Year 1	National	Professional Councils		MOH/MAAIF/
Licensing bodies and	monitoring	1				10,486	Partners
Professional Councils to track	tool					-)	
performance of adherence to best							
practices							
and standards							
7.9.2 Develop guidelines for	Guideline		Year 1	National	Professional Councils		MOH/MAAIF/
award of incentives for						10,486	Partners/MPS
practices							
practices							
7.10 Institute/strengther	n stewardship committ	ees					
7.10.1 Develop procedures and	MOP		Year 1	National	Departments of Clinical		local protocols
protocols		1			services (MOH), UNHLS	50,000	developed
for antimicrobial prescriptions at							
both public and private facilities							
7.10.2 Establish stewardship	Stewardship		Year 1	Health	Hospital Administration		Hospital
committees at	committees	348		facility level		-	
health care facilities							
7.10.3 Update National guidelines	MOP		Year 1	National	Departments of Clinical		Hospital
for		1			services (MOH), UNHLS	50,000	
handling resistant							
microorganism to prevent							
transmission							
7.10.4 Integrate data from	Integrated data	12	Year 1	Health facility	Departments of Clinical		Hospital
different committees (IPC,		(monthly)		level	services (MOH), UNHLS	50,000	
MTC, QA etc.) to inform best							
practices for containment of							
resistant organisms a t health							
facilities							
7.10.5 Develop a tool for	Audit tool		Year 1	Health facility	Departments of Clinical		Hospital
auditing antimicrobial		1		level	services (MOH), UNHLS	2,500	
prescriptions practices at							
health care facilities							
7.10.6 Con duct audits of	Facilities adhering	5	Year 1-5	Health facility	Departments of Clinical		Hospital
antimicrobial prescription s	to prescription	(one per		level	services (MOH), UNHLS	2,500	
practices at health care facilities	guidelines	annum					
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SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF		
						(USD)	FUNDING		
Objective 8: Optimize	Access to Effective Ar	itimicrobial Med	licines and Di	agnostics in Hu	man and Animal Health				
8.1 Ensuring availability	y of affordable and accu	arate diagnostic to	ools to all healt	h facilities					
8.1.1 Procure adequate diagnostic tools (equipment, supplies, services) for infectious diseases at both public and private facilities and animal health facilities including Point of Care diagnostics	Procured diagnostic supplies and equipment	assorted	Year 1-5	National and facility based	Departments of Clinical services (MOH), NADDEC, Livestock Health and Entomology (MAAIF), UNHLS,	3,200,00 0	MOH/MAAIF/ Partners		
8.1.2 Establish a subcommittee that evaluates/re commends appropriate/affordable and accurate diagnostic tools	Committees at health facilities	348	Year 1	National and facility based	Departments of Clinical services (MOH), NADDEC, Livestock Health and Entomology (MAAIF), UNHLS,	5,000	MOH/MAAIF/ Partners		
8.2 Enhance systems for financing access to antimicrobial medicines or preventative AMR programs.									
8.2.1 Identify optimal financing mechanisms for antimicrobial medicines or preventive AMR programs	recommendations on Financing		Year 1	National	Departments of Clinical services (MOH), Livestock Health and Entomology (MAAIF),	50,000	MOH/MAAIF/ Partners		
8.2.2 Lobby for financing for adequate antibiotics at all health care facilities	Lobbying activities	TBD	Year 1-5	National	ASO TWC	TBD	MOH/MAAIF/ Partners		
8.3 Enhance and strengt	hen the distribution me	chanisms for prov	vision of antim	icrobials to huma	an health providers in a timely	and efficie	ent way.		
8.3.1 Expand support to human health stakeholder s engaged in medication distribution	Assessment or implementation bes practices	n st 1	Year 1	National	Departments of Clinical services (MOH), Livestock Health and Entomology (MAAIF),	75,000	MOH/MAAIF/ Partners		
8.4 Improve the supply chain for antimicrobials by creating a coordinating mechanism to manage the storage, pricing, selection and procurement of appropriate antimicrobials at the national, regional and local levels in order to reduce the costs, wastage and inappropriate selection of antimicrobials									
8.4.1 Train suppliers of antimicrobials at national levels in efficient supply chain management	National supplies managers trained	50	Year 1	National	Departments of Clinical services (MOH), Livestock Health and Entomology (MAAIF),	20,000	MOH/MAAIF/ Partners		

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF
						(USD)	FUNDING
8.4.2 Train health facility procurement officers in procurement management of antimicrobials to ensure availability of appropriate antimicrobials and related supplies	Facility Procurement officers trained	348	Year 1	National	Departments of Clinical services (MOH), Livestock Health and Entomology (MAAIF),	20,000	MOH/MAAIF/ Partners
8.4.3 Train facility pharmacists in antimicrobial chain management and forecasting of need antimicrobials at their facilities	Trained pharmacists	348	Year 1	National	Departments of Clinical services (MOH), Livestock Health and Entomology (MAAIF), NDA, NMS, JMS, Private distributors	20,000	MOH/MAAIF/ Partners
8.5 Enhance capacity a	and support f or local provide the support of the s	roducers/manufactu	rers of antimic	crobials.			
 8.5.1 Expand support to existing incentive structures for local production of antimicrobials and compliance with standards of current good manufacturing practices 8.5.2 Train local producers of 	Funds provided	5	Year 1 Year 1	National National	NDA NDA	500,000	NDA, MOFPED NDA, Partners
antimicrobials in compliance with standards of current good manufacturing practices	manufacturers trained	100				50,000	
8.5.3 Train regulators to enhance turnaround time for registration process for all producers of antimicrobials	Regulators trained	50	Year 1	National	NDA	20,000	NDA, Partners
Objective 9: Promote	Access to and Pruder	nt Us e of Antimic	obials in Agr	iculture and Vet	terinary Medicine	1.	•
9.1 Develop and disser	ninate prescription gui	delines for improvin	ng appropriate	use of antimicrol	bials in agriculture and veteri	nary medi	cine
9.1.1 Develop Prescribing/treatment guidelines in animals	Prescribing guidelines	4	Year 1	National	Department Livestock Health and Entomology (MAAIF)	100,000	MAAIF/Partners

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF
						(USD)	FUNDING
9.1.2 Print and distribute the prescribing guidelines to all health facilities	Copies of the guidelines	5,000	Year 1-5	National/ District level	Communications department of MOH and MAAIF, faith based organisations, CSO	12,778	MOH/MAAIF/ Partners
9.1.3 Train veterinarians on prescription guidelines	veterinarians trained	500	Year 1	National	Department Livestock Health and Entomology (MAAIF)	50,000	MAAIF/Partners
9.1.4 Share digital animal prescribing guidelines to improve the usability	Digital copies available	5	Year 1	National	Department Livestock Health and Entomology (MAAIF), NDA	5,000	MAAIF/Partners
9.2 Support the develop sector	pment and disseminati	on of antimicrobia	l stewardship v	working manuals	and procedures for the agricul	ture and ve	terinary
9.2.1 Develop antimicrobial stewardship programs f or agriculture and veterinary practice	MOPs	1	Year 1	National	Department of Livestock Health and Entomology (MAAIF) and NDA	10,000	MAAIF/Partners
9.2.2 Print and distribute antimicrobial stewardship working manuals	Copies	5,000	Year 1	National	Department of Livestock Health and Entomology (MAAIF) and NDA	12,857	MAAIF/Partners
9.2.3 Train veterinary and agriculture practitioners on antimicrobial stewardships for both public and private practitioners	Veterinary and agriculture practitioners	500	Year 2-5	National/ Regional and veterinary facilities	Department of Livestock Health and Entomology (MAAIF) and NDA	100,000	MAAIF/Partners
9.3 Restrict broad or ge	eneralized u se of antir	nicrobials as grow	th promoters o	r as fee d additiv	es	•	•

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF
						(USD)	FUNDING
9.3.1 Conduct a risk assessment on the use of growth promoters and use of antimicrobial agents as feed	Risk assessment report	1	Year 1	National	Department of Livestock Health and Entomology (MAAIF) and NDA	20,000	MAAIF/Partners
9.3.2 Develop regulations/guidelines on the use of growth promoters and use of microbial agents as feed additives	Regulations	1	Year 1	National	Department of Livestock Health and Entomology (MAAIF) and NDA	20,000	MAAIF/Partners
9.3.3 Print and distribute the regulation/guidelines on growth promoters and feed additives	Copies of the guidelines	5,000	Year 1	National/ District level	Department of Livestock Health and Entomology (MAAIF) and NDA	12,778	MOH/MAAIF/ Partners
9.3.4 Sensitize farmers/animal health professionals and feed producers on growth promoters	Farmers/anima l health professionals and feed producers	1,000	Year 2-5	Regional	Department of Livestock Health and Entomology (MAAIF) and NDA	55,000	MAAIF/Partners
9.4 Strengthen regulation	n and over sight for t	he supply chain a	nd use of antim	nicrobials in agric	culture and veterinary medicir	ne.	,
9.4.1 Conduct a situational analysis of the existing regulations and their implementation / enforcement	Baseline status	1	Year 1	National	Department of Livestock Health and Entomology (MAAIF) and NDA	50,000	MOH/MAAIF/ Partners
9.4.2 Train drug supplier, pharmacists, veterinarian s and agricultural suppliers to in supply chai n management of the agricultural and veterinary antimicrobials	Report with recommendations	1	Year 1	National	Department of Livestock Health and Entomology (MAAIF) and NDA	50,000	MOH/MAAIF /Partners
9.4.3 Train drug distributors and animal health work ers on distribution mechanisms of antimicrobials	Trained animal health workers and drug distributors	500	Year 2-5	National/ regional	Department of Livestock Health and Entomology (MAAIF) and NDA	50,000	MOH/MAAIF/ Partners

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST (USD)	SOURCE OF		
Objective 10: Promo	te Use of Ouality, Sa	fe and Efficacious	antimicrobia	agents		(03D)	FUNDING		
10.1 Strengthen licens	ing, approval, regulat	ion and oversight o	over the antimic	robial supply ch	ain (pharmaceutical manufact	urers, distrib	outors.		
importation, wholesale	ers and retail ers)				····· (P·······························				
10.1.1 Expand support to and	Recruitment		Year 1-5	National and	NDA		NDA		
recruitment of professionals in		100		regional		186,111			
NDA to improve efficiency in									
their oversight and regulatory									
function									
10.1.2 Expand support to	Automated system		Year 2-5	National and	NDA		NDA/Partners		
automated system for improving	effectiveness	6		regional		1 ,500,			
processes						00			
						0			
10.1.3 Sensitize private	Private Sector		Year 2-5	National and	NDA		NDA/Partners		
providers of antibiotics of NDA	awareness on	5.000		regional		2.000.			
regulations to increase	regulations	2,000		-		00			
compliance						0			
10.2 Support capacity for regular quality assessment of antimicrobial agents in the NDA quality laboratories.									
10.2.1 Procure supplies and	Supplies and		Vear 2.5	National			NDA		
againment for testing quality of	oquipmont	assorted	1 Cai 2-5	Ivational	NDA	5 000	NDA		
equipment for testing quanty of	equipment	assorted				5,000			
10.2.2 Collaboration with	MOU		Voor 2	National					
external	MOUS	5		Inational	NDA	5 000	NDA		
laboratories for testing quality of		5				5,000			
antimicrobials									
10.2.3 Undertake routine	QA/QC		Year 2-5	National	NDA		NDA		
QA/QC checks for sustained		4				20,000			
compliance to WHO									
prequalification									
in chemical analysis and relevant									
international standards									
10.2.4 Undertake	Renovated		Year 2-3	National	NDA		NDA		
infrastructure	facilities	1				200,000			
improvements for NDA quality									
control lab									
10.2.5 Procure and install a	Information		Year 2	National	NDA		MOH/MAAIF/		
laboratory information	management	1				10,000	Partners		
management system (LIMS)	system								

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF		
						(USD)	FUNDING		
10.3 Support supervision	of Pharmacies and	ensure adherence	to Good Pharma	acy Practices in a	ll Pharmacy outlets		•		
10.3.1 Con duct inspections on	Pharmacies		Year 1-5	National and	NDA		NDA		
pharmacies	inspected	quarterly		regional		40,000			
against GP P and establish									
compliance to OTC and self									
medication prescribing									
10.4 Regulate over-the-counter availability and self-medication with antimicrobial medicines.									
10.4.1 Enforce compliance	Facilities		Year 1-5	National and	NDA		NDA		
to OTC dispensing	inspected	quarterly		regional		40,000			
guidelines									
10.5 Strengthen regulation	on of the pharmaceut	tical companies an	d adherence to	Good Manufactur	ring Practices		•		
10.5.1 Establish	MOUs		Year 1	National	NDA		NDA		
Harmonisation		3				20,000			
mechanisms with WHO and other									
NDA on the compliance									
assessment s for									
pharmaceutical companies									
10.6 Regulate pharmace	utical and antimicrob	pial waste	1				•		
10.6.1 Develop guidelines for	Guidelines		Year 1	National	NDA		NDA		
disposal of pharmaceutical and		1				9,999			
antimicrobial waste by									
the health facilities and general									
public									
10.6.2 Print and disseminate	Copies of the		Year 1	National	NDA		NDA		
disposal	guidelines	500				10,000			
guidelines									
10.6.3 Sensitize pharmacies and	Pharmacies and		Year 2-5	national	NDA		NDA		
drug dealers on pharmaceutical	Drug handlers	500							
waste disposal									

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SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF
						(USD)	FUNDING
Strategic Objective 4: S	Surveillance						
Objective 11: Support	Surveillance of AM	R					
11.1 Support the implem	entation o f a nation	al AMR surveillar	ice programme	to generate action	able data		
11.1.1 Establish a national Technical Working Group (TWC) for AMR surveillance (SURV TWC)	SURV TWC	1	Year 1	National	NAMRSC	500	Government /Partners
11.1.2 Conduct a baseline survey and needs assessment on AMR surveillance system	Baseline report		Year 1	Countrywide	National Health Laboratory Services (MOH) NADDEC (MAAIF)	15,000	MOH/MAAIF/ Partners
11.1.3 Develop an integrated AMR surveillance plan	Integrated AMR Surveillance plan	1	Year 1	National	National Health Laboratory Services (MOH) NADDEC (MAAIF)	10,057	MOH/MAAIF/ Partners
11.1.4 Print and distribute the AMR surveillance plan	copies	1,000	Year 1	National	National Health Laboratory Services (MOH) NADDEC (MAAIF)	5,556	MOH/MAAIF/ Partners
11.1.5 Select priority surveillance sites and agree on harmonized surveillance methodologies	List of surveillance sites	14	Year 1	National	National Health Laboratory Services (MOH) NADDEC (MAAIF)	833	MOH/MAAIF/ Partners
11.2 Develop/review Sta environment and wildlife	indard Operating Pro	ocedures (SOPs) for monized with inte	or surveillance rnational stand	of AMR in humans ards	s, food, agriculture, veterinar	y medicine	· ·
11.2.1 Develop a manual of SOPs for AMR surveillance	Manual of Procedures (MOP)	1	Year 1	National	National Health Laboratory Services (MOH) NADDEC (MAAIF)	10,057	MOH/MAAIF/ Partners
11.2.2 Identify priority organisms, samples and testing panels in coordination with international partners	List	1	Year 1	National	NationalHealthLaboratoryServices(MOH)NADDEC(MAAIF)	833	MOH/MAAIF/ Partners

Image: constraint of the second structure of the second struct	SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF
11.3 Strengthen and support improvement of laboratory infrastructure, human resources, access to laboratory supplies and equipment for microbiological testing and quality data reporting platforms. 11.3.1 Undertake Renovations Year 2-3 National Health Health MOH/MAAIF/ 11.3.1 Undertake Renovations 20 Year 2-3 National Motional Health A,000,00 MOH/MAAIF/ infrastructure and equipment for microbiological isolation and susceptibility testing 20 Year 2 National National Health A,000,00 Partners 11.3.2 Equip laboratories Equipment Year 2 National National Health MOH/MAAIF/							(USD)	FUNDING
microbiological testing and quality data reporting platforms. 11.3.1 Undertake improvements in infrastructure and equipment for microbiological isolation and susceptibility testing Renovations 20 Year 2-3 National National Laboratory Services (MOH) Health A,000,00 MOH/MAAIF/ 11.3.2 Equip laboratories Equipment Year 2 National National Health MOH/MAAIF/	11.3 Strengthen and supp	port improvement of	flaboratory infrast	ructure, human	resources, access	to laboratory supplies and eq	uipment fo	r
11.3.1 Undertake improvements in infrastructure and equipment for microbiological isolation and susceptibility testing Renovations 20 Year 2-3 National National Health Laboratory MOH/MAAIF/ 11.3.2 Equipment Equipment Year 2 National National Health MOH/MAAIF/	microbiological testing a	and quality data repo	rting platforms.					
infrastructure and equipment for microbiological isolation and susceptibility testing 20 20 20 20 20 20 20 20 20 20 20 20 20	11.3.1 Undertake	Renovations		Year 2-3	National	National Health		MOH/MAAIF/
microbiological isolation and susceptibility testing Equipment Vear 2 National Health MOH/MAAIF/	improvements in		20			Laboratory Services	4,000,00	Partners
susceptibility testing 11.3.2 Equip laboratories Equipment Year 2 National Health MOH/MAAIF/	microbiological isolation and					(MOH) NADDEC (MAAIF)	0	
11.3.2 Equip laboratories Equipment Year 2 National Health MOH/MAAIF/	susceptibility testing							
11.3.2 Equip laboratories Equipment Year 2 National Health MOH/MAAIF/								
	11.3.2 Equip laboratories	Equipment		Year 2	National	National Health		MOH/MAAIF/
micro 20 Laboratory Services 4,000,00 Partners	micro	i	20			Laboratory Services	4,000,00	Partners
biological isolation and (MOH) NADDEC 0	biological isolation and					(MOH) NADDEC	0	
susceptibility testing (MAAIF)	susceptibility testing					(MAAIF)		
11.3.3 Train laboratory staff inLaboratoryYear 2NationalNational Health LaboratoryMOH/MAAIF/	11.3.3 Train laboratory staff in	Laboratory		Year 2	National	National Health Laboratory		MOH/MAAIF/
logistics and supply management staff 40 Services (MOH) NADDEC 10,629 Partners	logistics and supply management	staff	40			Services (MOH) NADDEC	10,629	Partners
(MAAIF)						(MAAIF)		
11.3.4 Procure and install a LIMS software Year 2-3 National National Health Laboratory MOH/MAAIF/	11.3.4 Procure and install a	LIMS software		Year 2-3	National	National Health Laboratory		MOH/MAAIF/
laboratory information 20 Partners	laboratory information		20			Services (MOH) NADDEC	10,000	Partners
management system (LIMS)	management system (LIMS)	<u> </u>	L			(MAAIF)		
11.4 Support the routine use of microbiological culture and sensitivity tests on prioritized microorganisms and antimicrobials in health facilities and on farms	11.4 Support the routine and on farms	use of microbiologi	cal culture and sen	sitivity tests or	n prioritized micro	organisms and antimicrobials	in health f	acilities
11.4.1 Re-train clinicians and Clinicians Year 2-3 National National Health Laboratory MOH/MAAIF/	11.4.1 Re-train clinicians and	Clinicians		Year 2-3	National	National Health Laboratory		MOH/MAAIF/
veterinarians on appropriate sample 70 Services (MOH) NADDEC 35,000 Partners	veterinarians on appropriate sample		70			Services (MOH) NADDEC	35,000	Partners
collection and submission (MAAIF)	collection and submission					(MAAIF)		
11.4.2 Procure consumables for materials Year 2-5 National Health MOH/MAAIF/	11.4.2 Procure consumables for	materials		Year 2-5	National	National Health		MOH/MAAIF/
sample assorted Laboratory Services 4,000,00 Partners	sample		assorted			Laboratory Services	4,000,00	Partners
collection, microbiological (MOH) NADDEC 0	collection, microbiological					(MOH) NADDEC	0	
materials and susceptibility (MAAIF)	materials and susceptibility					(MAAIF)		
testing panels and reagents	testing panels and reagents				*1 1 *1*.		1 • 1	
11.5 Support mechanisms for quality assurance systems and supervision to improve availability and reliability of routine micro biology	11.5 Support mechanism	is for quality assuran	ice systems and su	pervision to im	prove availability	and reliability of routine mic	ro biology	
	laboratory testing			N/ 0.5				
11.5.1 Procure and make Reference Year 2-5 National National Health Laboratory MOH/MAAIF/	11.5.1 Procure and make	Reference	. 1	Year 2-5	National	National Health Laboratory	10.000	MOH/MAAIF/ Partners
available control strains and materials assorted (MAAIE)	available control strains and	materials	assorted			(MAAIF)	10,000	
	reference materials	<u>CI: : :</u>		V 2(NT 4° 1			
11.3.2 Irain laboratory stall, Clinicians, I and Stational Health MOH/MAAIF/	11.3.2 Irain laboratory stall,	Clinicians,	100	1 ear 2-6	national	Inational Health	10.000	MOH/MAAIF/
veterinarians and chinicians on veterinarians 100 [Laboratory Services 10,000] Farthers (MOH) NADDEC	quality control and quality	and lab staff	100			(MOH) NADDEC	10,000	1 41 41015
and tab stati	quanty control and quanty					(MAAIF)		

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF
						(USD)	FUNDING
11.6 Enroll the various p	participating laborate	ories in national an	d international	Extern al Quality	Assurance programs		
11.6.1 Accredit the participating laboratories	Laboratories	20	Year 3	National	National Health Laboratory Services (MOH) NADDEC (MAAIF)	20,000	MOH/MAAIF/ Partners
11.6.2 Con duct annual review of the manual of SOPs	Manual of Procedures	1	Year 3-5	National	National Health Laboratory Services (MOH) NADDEC (MAAIF)	10,000	MOH/MAAIF/ Partners
11.6.3 Undertake regular supervision and mentorship of the hospital surveillance sites	Surveillance sites	14	Year 3	Facility	National Health Laboratory Services (MOH) NADDEC (MAAIF)	20,000	MOH/MAAIF/ Partners
11.6.4 Designate national microbiology reference labs	Reference labs	4	Year 3	National	National Health Laboratory Services (MOH) NADDEC (MAAIF)	1,000	MOH/MAAIF/ Partners
11.7 Analyze, dissemina public health, veterinary	te and share surveill practice, environme	ance data and info ent and wildlife lab	rmation to faci poratories and f	litate decision mak ood technologies	ing on diagnoses an d treatm	ents in clir	nical
11.7.1 Procure and install computers for data management disseminating information to partners	Computers	40	Year 2	National	National Health Laboratory Services (MOH) NADDEC (MAAIF)	40,000	MOH/MAAIF/ Partners
11.7.2 Train personnel on data management and reporting	Laboratory staff	40	Year 2	National	National Health Laboratory Services (MOH) NADDEC (MAAIF)	8,000	MOH/MAAIF/ Partners
11.7.4 Share data locally, nationally and internally	Reports		Year 2-5	National	National Health Laboratory Services (MOH) NADDEC (MAAIF)	50,000	MOH/MAAIF/ Partners
11.8 Support One Health and pharmaceutical data	n networks for data s to support decisions	haring at national for A MR preven	and regional le tion and contro	vels as well as syst I	ems for linking microbiolog	y data to cl	inical
11.8.1 Undertake an assessment to identify data needs for the various stakeholders to inform actions for minimizing AMR	Assessment Report	1	Year 2	National	NationalHealthLaboratoryServices(MOH)NADDEC(MAAIF)	10,000	MOH/MAAIF/ Partners
11.8.2 Develop a tool for sharing data at different levels and to different stakeholders	Tool for sharing data at different levels and to different stakeholders	1	Year 2	National	National Health Laboratory Services (MOH) NADDEC (MAAIF)	10,000	MOH/MAAIF/ Partners

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF
						(USD)	FUNDING
11.9 Establish an early w	varning system and a	monitor trends to c	letermine the ri	sk factors and driv	ers of resistance, resistance b	urden and	impacts
on public and animal hea	alth and the econom	у	1	1	1		1
11.9.1 Adopt international	Adopted		Year 2	National	National Health Laboratory		MOH/MAAIF/
standards for AMR early warning	standards	1			Services (MOH) NADDEC (MAAIF)	5,000	Partners
11.9.2 Sensitize laboratory staff,	Staff		Year 2	National	National Health		MOH/MAAIF/
clinicians,	sensitized	100			Laboratory Services	5,000	Partners
and veterinarians on					(MOH) NADDEC		
identification and evaluation of					(MAAIF)		
risks	D'1		V 0.5	NT / 1			
11.9.3 Com pile and provide	Risk events		Year 2 - 5	National	National Health Laboratory	5 000	MOH/MAAIF/
information on identified risks		4			(MAAIF)	5,000	
11.10 Utilize data genera	ated, including all re	gions of the count	ry and hard-to-	reach areas, to eval	uate and improve A MR inte	rvention o	utcomes
11.10.1 Disseminate AMR data	Reports		Year 2-5	Districts	Departments of National		MOH/MAAIF/
throughout the country including		121			Disease Control (MOH)	5,000	Partners
remote and hard-to reach areas					and Livestock Health		
					and Entomology		
11 11 Ensure the inclusion	on of AM D as a priv	ority in the risk red	ristor MDA pl	ng and any other	(MAAIF)		
		onty in the fisk reg	gister, MDA pla				
11.11.1 Train risk registrars to	Risk		Year 2	National	Departments of National		MOH/MAAIF/
incorporate risk reporting in to their	educators	100			and Livestock Health	2,014	Partners
registers					and Entomology		
					(MAAIF)		
Objective 12: Support	Surveillance of Ant	timicrobial Use		1			
12.1 Design and implem	ent a national antim	icrobial use survei	llance plan that	t defines activities	and roles consistent with inte	rnational	
surveillance standards							
12.1.1 Undertake a baseline survey	Baseline		Year 1	National	Departments of Clini	cal	MOH/MAAIF/
and needs assessment and identify	assessment	1			services (MOH)/Natio	nal 10,000	Partners
gaps for implementing an	report				Drug Authority/and Livesto	ock	
antimicrobial use surveillance plan					(MAAIF)		
12.1.2 Develop an integrated	AMR use Plan		Year 1	national	Departments of		
antimicrobial use surveillance		1			Clinical service	ces 20.000	
plan		-			(MOH)/Natio	na	
					1 Drug Authority/and		
					Livestock Health and		
					Entomology (MAAIF)		

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF
						(USD)	FUNDING
12.1.3 Print and distribute	copies		Year 1	national	Departments of		MOH/MAAIF/
antimicrobial use plan		1,000			Clinical	5,479	Partners
					(MOH)/Nati		
					onal Drug Authority/and		
					Livestock Health and		
					Entomology (MAAIF)		
12.1.4 Disseminate the national	stakeholders		Year 2	National	Departments of Clinical		MOH/MAAIF/
surveillance of antimicrobial use		200			services (MOH)/NDA/and	10,486	Partners
plan					Entomology (MAAIF)		
12.2 Develop and imple	ment procedures and	methodologies fo	r monitoring a	ntimicrobials impor	rted, used and disposed of in	Uganda	
12.2.1 Develop and manual of	Manual of		Year 1	National	Departments of Clinical		MOH/MAAIF/
procedures and methodologies	Procedures	1			services (MOH)/NDA/and	10.486	Partners
for routine monitoring		-			Livestock Health and		
antimicrobial use					Entomology (MAAIF)		
12.2.3 Train hospital, pharmacy	Health, Pharmacy		Year 2	National	Departments of Clinical		MOH/MAAIF/
and veterinary staff to collect and	and veterinary	1,000			services (MOH)/NDA/and	30,000	Partners
share antimicrobial use data	staff				Livestock Health and		
routinely					Entomology (MAAIF)		
12.2.2 Collect, collate and share	Reports		Year 2	National	Departments of Clinical		MOH/MAAIF/
antimicrobial use data regularly		1,000			services (MOH)/NDA/and	30,000	Partners
					Livestock Health and		
					Entomology (MAAIF)		
12.3 Monitor prescribing	g practices, dispensir	ng practices, client	/community us	e and consumption	patterns in health care settin	igs, veterin	ary
health practice, agricultu	re, aquaculture, trad	itional herbalists (indigenous tech	hnical knowledge g	roups) and communities		
12.3.1 Identify antimicrobial use	List of		Year I	National	Departments of Clinical services	5 000	MOH/MAAIF/
and practice indicators	indicators				(MOH)/NDA/and	5,000	
					Livestock Health and		
					Entomology (MAAIF)		
12.3.2 Develop a manual of	Manual of		Year 1		Departments of		
procedures for monitoring	Procedures	1			Clinical services		
prescription and dispensing					(MOH)/NDA/and Livestock Health and		
practices					Entomology (MAAIF)		

UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF
					(USD)	FUNDING
Monthly Reports	12	Year 2-5	National	Departments of Clinical services (MOH)/NDA/and Livestock Health and Entomology (MAAIF)	20,000	MOH/MAAIF/ Partners
and sharing of data to	o evaluate and mor	nitor interventi	ons aimed to impro	ove appropriate use and acces	ss to antim	icrobials
Reports	1,000	Year 2-5	Countrywide	Departments of Clinical services (MOH) NDA, and Livestock Health and Entomology (MAAIF)	20,000	MOH/MAAIF/ Partners
Quarterly reports	4	Year 2-5	National	Departments of Clinical services (MOH) NDA, and Livestock Health and Entomology (MAAIF)	5,000	MOH/MAAIF/ Partners
te the imp act of pha	rmaceutical promo	otion on antimi	icrobial use			
Tools	1	Year 2-5	National	Departments of Clinical services (MOH)/NDA/and Livestock Health and Entomology (MAAIF)	5,000	MOH/MAAIF/ Partners
Quarterly reports	4	Year 2-5	National	Departments of Clinical services (MOH)/NDA/and Livestock Health and Entomology (MAAIF)	5,000	MOH/MAAIF/ Partners
Surveillance for An	timicrobial Drug	Residues in F	oods		Ι	
nent a national surv	veillance plan for	monitoring a	ntimicrobial resid	ues in foods and animal fee	ds	
Assessment Report	1	Year 1	National	NADDEC/UNBS	20,000	MAAIF/Partners
	UNIT Monthly Reports and sharing of data to Reports Quarterly reports Unit Quarterly reports Quarterly reports Quarterly reports Surveillance for Annent a national surveillance Assessment Report	UNITQUANTITYMonthly Reports12and sharing of data to evaluate and monorReports1,000Quarterly reports4Tools1Tools1Quarterly reports4Surveillance for Antimicrobial Drug ReportAssessment ReportAssessment Report1	UNITQUANTITYTIMELINEMonthly Reports12Year 2-5and sharing of data to evaluate and monitor interventiReports1,000Year 2-5Quarterly reports4Year 2-5Quarterly reports4Year 2-5Tools1Year 2-5Quarterly reports4Year 2-5Surveillance for Antimicrobial Drug Residues in Feat a national surveillance plan for monitoring an Assessment ReportYear 1	UNITQUANTITYTIMELINELOCATIONMonthly Reports12Year 2-5Nationaland sharing of data to evaluate and monitor interventions aimed to improReports1,000Year 2-5CountrywideQuarterly reports4Year 2-5NationalQuarterly reports4Year 2-5NationalTools1Year 2-5NationalQuarterly reports4Year 2-5NationalQuarterly reports4Year 2-5NationalQuarterly reports4Year 2-5NationalQuarterly reports4Year 2-5NationalQuarterly reports1Year 2-5NationalQuarterly reports4Year 2-5NationalQuarterly reports1Year 1NationalSurveillance for Antimicrobial Drug Residues in FootsMationalAssessment Report1Year 1National	UNITQUANTITYTIMELINELOCATIONRESPONSIBLE ENTITYMonthly Reports12Year 2-5NationalDepartments of Clinical services (MOH)/NDA/and Livestock Health and Entomology (MAAIF)and sharing of data to evaluate and monitor interventions aimed to improve appropriate use and accerPepartments Of Clinical services (MOH) NDA, and Livestock Health and Entomology (MAAIF)Quarterly reports1.000Year 2-5CountrywideDepartments Of Clinical services (MOH) NDA, and Livestock Health and Entomology (MAAIF)Quarterly reports4Year 2-5NationalDepartments Olinical services (MOH) NDA, and Livestock Health and 	UNITQUANTITYTIMELINELOCATIONRESPONSIBLE ENTITY RESPONSIBLE ENTITY (USD)Monthly Reports12Year 2-5NationalDepartments of Clinical services (MOH)/NDA/and Livestock Health and Entomology (MAAIF)20,000and sharing of data to evaluate and monitor interventions aimed to improve appropriate use and access to antim20,000Reports1,000Year 2-5CountrywideDepartments of Clinical services (MOH) NDA, and Livestock Health and Entomology (MAAIF)20,000Quarterly reports4Year 2-5NationalDepartments of Clinical services (MOH) NDA, and Livestock Health and Entomology (MAAIF)5,000Quarterly reports4Year 2-5NationalDepartments of Clinical services (MOH) NDA, and Livestock Health and Entomology (MAAIF)5,000Tools1Year 2-5NationalDepartments of Clinical services (MOH)/NDA/and Livestock Health and Entomology (MAAIF)5,000Quarterly reports4Year 2-5NationalDepartments of Clinical services (MOH)/NDA/and Livestock Health and Entomology (MAAIF)5,000Quarterly reports4Year 2-5NationalDepartments of Clinical services (MOH)/NDA/and Livestock Health and Entomology (MAAIF)5,000Quarterly reports4Year 2-5NationalDepartments of Clinical services (MOH)/NDA/and Livestock Health and Entomology (MAAIF)5,000Surveillance for Antimicrobial Drug Residues in Foods Report1NationalNADDEC/UN

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF
						(USD)	FUNDING
13.1.2 Develop a national plan for	Monitoring plan	1	Year 1	National	NADDEC/UNBS		MAAIF/Partners
monitoring of antimicrobial	of antimicrobial					20,000	
residues in foods and animal feeds	residues in						
	foods						
13.1.3 Print and distribute	copies		Year 1	National	NADDEC/UNBS		MAAIF/Partners
national surveillance plan for		5,000				27,397	
monitoring residues in							
foods and animal feeds							
13.1.4 Disseminate the national	stakeholders		Year 2	National	NADDEC/UNBS		MAAIF/Partners
surveillance		500				10,000	
plan							
13.2 Support the use of s	standard procedures	in accordance with	h international	standards including	g the WHO/FAO Co dex Alin	nentarius f	or
monitoring antimicrobia	l residues in foods						
13.2.1 Develop or adopt	Manual of		Year 1	National	NADDEC and UNBS		MAAIF/Partners
international	Procedures	1					
standards f or antimicrobial							
residues in foods	X7. 1		X 2		NADDEC INDO		
13.2.2 Train veterinarians and	Veterinary and		Year 2	National	NADDEC and UNBS	4.0.000	MAAIF/Partners
laboratory personnel on	laboratory	50				10,000	
monitoring antimicrobial	staff						
residues in food and animal feeds				NY			
13.2.3 Identify and prioritize	List of priority		Year I	National	NADDEC and UNBS		MAAIF/Partners
samples and	samples	1				5,000	
antimicrobial residues for testing	Depoyations		Voor 1	National	NADDEC and UNDS		MAAIE/Dorthors
infrastructure	Kellovations	2	Teal 1	Inational	INADDEC allu UNDS	200.000	MAAIF/Faitueis
and renovations for the laboratories		2				800,000	
13.2.5 Equip national laboratories	Equipment		Year 2		NADDEC and UNBS		
for monitoring antimicrobial	- 1	assorted					
residues		ubborteu					
13.2.6 Train personnel in	Veterinary and		Year 1	National	NADDEC and UNBS		MAAIF/Partners
laboratory logistics and supply	laboratory	50				20.000	
management	staff					-0,000	
13.2.7 Procure laboratory	LIMS software		Year 2	National	NADDEC and UNBS		MAAIE/Partners
information	Linio soleware	2	rour 2	i valionai		10.000	
management system		-				10,000	

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF
						(USD)	FUNDING
13.2.8 Procure and consumables	procurement		Year 2	National	NADDEC and UNBS		MAAIF/Partners
and supplies		assorted				400,000	
13.2.9 Enroll the various labs in	Labs		Year 2	National	NADDEC and UNBS	,	MAAIF/Partners
national and international external		2				5,000	
quality assurance						-,	
programs		A 1:	1			4.5	
15.5 Collaborate with th	e who/rao codex	Annentarius and	u other internation	onal errorts to gene	erate and share actionable da	la	
13.3.1 Summarise and share data in	Reports		Year 2	National/	NADDEC		MAAIF/Partners
standardized formats regularly		12		regional		20,000	
13.3.3 Hold regular	Stakeholders		Year 2 -5	National	NADDEC		MAAIF/Partners
dissemination meetings for		100				10,000	
sharing data summaries							
with stakeholders							
Objective 14: Foster C	ollaboration and Pa	artnerships					
14.1 Collaborate with th	e WHO, O IE, FAO	and other nationa	l, region al and	international effor	ts focused on the developme	nt and	
implementation of harm	onized surveillance a	and capacity to de	etect and monito	r antimicrobial use	e and resistance in prioritized	l pathogens	
14.1.1 Organize a harmonization	International		Year 2	National	Departments of National		MOH/MAAIF/
workshop with international	partners	5			Disease Control (MOH)	10,000	Partners
partners and other stakeholder s on					and Livestock Health		
the surveillance					and Entomology		
tools and methodologies					(MAAIF)		
14.1.2 Participate in regional and	Partners		Year 2 -5	National/	Departments of National		MOH/MAAIF/
global data sharing plat forms,		5		International	Disease Control (MOH)	5,000	Partners
including GLASS					and Livestock Health		
					and Entomology		
14.2 Participate in mach	anisms for national	regional and inter	mational comm	unication of critica	(MAAIF)	v resistance	trands
with global One Health	implications	regional and inter		unication of critica	i events that may signify nev	v resistance	trends
14.2.1 Identify AMR critical events	Report		Year 2	National	Departments of National		MOH/MAAIF/
that are consistent with internationa		5	1 cui 2	i tutionui	Disease Control (MOH)	5 000	Partners
standards	1	5			and Livestock Health	5,000	
Standards					and Entomology		
					(MAAIF)		
14.2.2 Institute global	Reports		Year 2 -5	National	Departments of National		MOH/MAAIF/
reporting mechanisms for		5			Disease Control (MOH)	5,000	Partners
critical events					and Livestock Health		
					(MAAIF)		

14.3 Use national, regional and international quality assurance standards for generation of quality data									
SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST (USD)	SOURCE OF FUNDING		
14.3.1 Develop manual of procedures for Quality assurance mechanisms for surveillance	Manual of Procedures	1	Year 2 -5	National	Departments of National Disease Control (MOH) and Livestock Health and Entomology (MAAIF)	10,000	MOH/MAAIF/ Partners		
14.3.1 Train personnel in Quality assurance mechanisms for surveillance	Laboratory staff	100	Year 2 -5	National	Departments of National Disease Control (MOH) and Livestock Health and Entomology (MAAIF)	10,000	MOH/MAAIF/ Partners		
14.3.2 Enroll all laboratory surveillance partners in relevant quality assurance mechanisms	Enrollment	22	Year 2 -5	National	Departments of National Disease Control (MOH) and	5,000	MOH/MAAIF/ Partners		
					Livestock Health and Entomology (MAAIF)				
Focus Area 5: Research and Inn ovation									
Objective 15: Promote	Innovation in the S	Search for Altern	ative Treatme	nts and Drug Dise	covery				
15.1 Support mechanism	s for coordinated re	search and innova	tion						
15.1.1 Establish a Technical Working Group (TWC) on Research and innovation (RI TWC)	RI TWC	1	Year 1	National	NAMRSC	500	MOH/MAAIF/ Partners		
15.1.2 Provide hands-on training to	Researchers		Year 1-5	National	UNCST, MoSTI		UNCST, MoSTI		
researchers on grant writing		100				10,000			
15.1.3 Advocate, lobby and AMR research	Report	continuous	Year 1	National	UNCST, RI TWC, MoSTI	10,000	UNCST, MoSTI		
15.1.4 Sensitize researchers on intellectual property rights and patenting	Report	200	Year 1	National	UNCST, RI TWC, URSB	10,000	Workshop report		
15.2 Facilitate and suppo Development	ort the Natural Chen	notherapeutics Lab	poratories (NCL) and other partne	rs to expand their antimicrobi	al product			

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF
						(USD)	FUNDING
15.2.1 Con duct a baseline	Assessment		Year 1	National	RI TWC in collaboration		MOH/MAAIF/
survey and needs assessment on	Report	1			with	40,000	Partners
antimicrobial resources in the					NCL		
country, an d identify							
opportunities and gaps to be filled							
15.2.2 Con duct a study to identify	Report		Year 1	National	NCL/Universities/NDA		MOH/MAAIF/P
challenges and opportunities for		1				30,000	artners
enhancing antimicrobial product							
development							
15.3 Support the establis	shment of internation	al col laborations	in high through	put screening of	antimicrobial compounds		
15.3.1 Develop governance	Research		Year 1-5	National	MoH, MoSTI		List of
structures and policies that	network	1				5,000	researchers
encourage development and							engaged
research of							
antimicrobial compounds							
15.4 Support academia a	and other researchers	in product develo	pment				
15.4.1 Provide seed funding for	Research		Year 1-5	National	UNCST/Academic		Minister of
proposal development	groups	100			and partners	100,000	Science
							Technology
							anu Innovation/UN
							C ST
15.4.2 Post calls for funding	Posts		Year 1-5	National	UNCST/Academic		UNCST
opportunities onto institutional		continuous			and partners	-	
websites and mailing							
lists of stakeholders							
15.4.3 Establish a database of	Database	TBD	Year 1-5	Countrywide	Research		UNCST/NCL/
biological materials, including	compounds				institution	200,000	N DA
plants, fungi, and other compounds					s, UNCST,		
with suspected					NCL, NDA, NaCOTHA		
antimicrobial properties							
15.5 Support research in	alternative treatmen	ts for infections					
15.5.1 Explore and share	Researchers		Year 1-5	National	RI TWC, NaCOTHA, MoH,		UNCST
innovative ideas about		100			MAAIF, NFA	10,000	
alternative treatments to							
infectious diseases							
15.6 Link the indigenous	s technical knowledg	ge (ITK) groups to	the product de	velopment system			

SUB-ACTIVITY	UNIT	QUANTITY	TIMELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF
						(USD)	FUNDING
15.6.1 Facilitate the establishment	of MOUs		Year 1-5	National and	MoH,NCL,NDA, THETA		UNCST/NCL/
MoUs between IT Ks, the Natio	onal	5		regional		1,000	N DA
Chemotherapeutic Laboratories	and						
other							
stakeholders							
15.6.2 Carry out country-wide survey	of survey		Year 1	National	THETA, Universities		UNCST/NCL/
indigenous knowledge on antimicrob	ial	1				20,000	N DA
solutions							
Objective 16: Promote I	nnovations in Dia	gnostic Technolo	gy				
16.1 Support investments	and collaborations	and strength inca	pacity for resear	rch, development a	and testing of innovative diag	nostic tecł	nologies
for detection of resistance	in real time.	Ũ		· •	Č Č		U
16.1.1 Con duct a baseline survey	Report		Year 1	National	MoSTI, Universities		UNSCT
and needs assessment to identify the		1				300,000	
opportunities and challenges in							
innovative diagnostics							
6.1.2 Enhance the capacity of	Regulatory		Year 1	National	NDA		MoSTI
national regulatory bodies to assess	bodies	1				10,000	
and approve potentially innovative						,	
antimicrobial							
diagnostic technologies							
16.2 Support validation of	f point-of -care diag	gnostic s for detec	tion of infectiou	us diseases and det	tection of resistance.		•
16.2.1 Undertake an assessment of th	e Assessmen		Year 1	National	MoSTI		MoSTI
point of	t Report	1				20,000	
care diagnostics in different stages of						,	
development							
16.2.2 Sensitize stakeholders on	Stakeholders		Year 1-5	National	NDA, URSB		MoSTI
regulatory systems an d processes		100				10,000	
for approval of diagnostic							
technologies							
16.2.3 Train regulatory agency staff i	n Report		Year 1-5	National	NDA, UNCST		NDA, WHO,
approval processes for diagnostics		20				5,000	OIEC, IBA
16.3 Create linkages and s	support for Uganda	n scientists to tak	e leadership role	es in international	research partnerships targetin	g AMR.	

SUB-ACTIVITY	UNIT	QUANTITY	TIME	ELINE	LOCATION	RESPONSIBLE ENTITY	COST	SOURCE OF
							(USD)	FUNDING
16.3.1 Identify and disseminate	Opportunities	TBD	Year 1	-5	National	MoH/MAAIF		List of
opportunities for Ugandan							5,000	potential
scientists in international							,	partnerships
research partnerships and								
offer mentorship								
16.3.2 Provide seed funding to	Researchers in	TBD	Year 2	2	National	MoH, MAAIF, MoSTI	TBD	Researchers
support Ugandan scientists in	leadership					- , ,		i
research leadership	1							n
								leadership roles
Objective 17: Collabor	ate with Internation	nal Partners in Ba	asic Inte	erventio	on Research			
17.1 Promote research to	o identify high-risk a	nd high-burden re	sistant s	trains, t	heir resistance	nechanisms and their transmiss	sion.	
17.1.1 Organize workshops to	workshops	4 (1 per year)	Year 1	-5	National	MoH, MAAIF, Academia		UNCST
share knowledge on high-risk and	-						5,000	
high-								
burden resistant strains								
17.1.2 Expand seed funding	Pilot studies	TBD	TBD		National	UNCST, MoSTI	TBD	MoSTI,
provided for pilot studies of new								UNCST
antimicrobials								
17.2 Promote innovation	s for new antimicrol	bial drug developn	nent, vao	ccines, a	and other innov	ative therapies.		1
17.2.1 Identify and disseminate	Stakeholders		Year N	National	UNCST		t	JNCST
opportunities for participation in		100	1-5			5.000		
the development of antimicrobials		100				.,		
vaccines								
and other innovative therapies								
17.2.2 Identify and twin local	MOUs		Year N	National	MoH.		I	JNCST
laboratories		5	1-5		MAAIF,	RI 5 000		
with foreign lab oratories to		0			TWC	2,000		
support the local production of								
vaccines								
17.2.3 Establish and maintain	Biological		Year N	National	CPHL,		τ	JNCST
microbial collections and other	Resource	1	1-5		Academia	1 5,000		
biological resources for research	Centres					,		
an d development								
of AMR solutions								

SUB-ACTIVITY	UNIT	QUANTIT	Y TIM	IELINE	LOCA	ΓΙΟΝ	RESPONSIBL	E ENTITY	COST	SOURCE OF
47.02									(USD)	FUNDING
17.3 Invest and support collaboration in high-throughput genomics and sequencing technologies that have the potential to enhance product development										
17.3.1 Undertake a baseline survey	and Assessme		Year 1				RI TWC		UNCST	
needs assessment to identify cur	rrent nt Report	1			Nat	ional		5,000		
capabilities and gaps in high-through	put				1100	ionai				
genomics and sequencing in the cour	ntry									
17.3.2 Establish a National	Genomic		Year 1-5				UNCST		MoSTI	
Genomics and	s center	1			Nat	ional		3 ,000,		
Bioinformatics Centre (NGBC)	to				Inat	101141		00		
support AMR research	MOLL		V 1 5				UNICOT	0	UNICOT	
facilitate collaboration of	MOUS	1	rear 1-5		Nat	ional	UNCSI	500	UNCSI	
NGBC with other		1						300		
international centres of excellence										
17.4 Support research on	the burden of AM	R to inform po	olicy for inv	vestment in	n interven	tions.		<u> </u>		
17.4.1 Undertake research to examin	e Report		Year 1	National	MA	AIF, Mo	oH, Research		Governmen	t and
the burden of A MR in the country		1			Insti	tutions		150,000	partners	
17.5 Establish a research	innovation fund to	support innov	vations that	slow dow	n AMR.					
17.5.1 Advocate and lobby for fun	ding Research		Year 1	National	Mos	STI			Funding	support
support for research innovations f	from and	1						5,000,00	promises	from
government and pharmaceutical	innovation							0	government	and other
companies	fund								funders	
Objective 18: Enhance	Operational and	Health Systen	ns Researcl	h at the L	ocal Leve	el				
18.1 Support local researc	ch on resistance ar	d transmission	n pathways	between t	he enviro	nment, l	humans, animals a	and food su	pply chain	-
18.1.1 Organize One Health worksho	ops Report		Year 1	National	Mol	H, UNH	RO, MAAIF			One
to identify priorities for research on		1						5,000		Health
resistance and transmission pathways	5									Platform
18.1.2 Identify and disseminate	Report		Year 1-5	National	UNI	HRO, M	IoH, MAAIF			One
opportunities for One Health research	h	continuous						5,000		Health
funding										Platform
18.2 Promote local resear	ch on antimicrobi	al use patterns	with the go	a l of proc	lucing mo	ore cont	ext specific stewa	rdship app	roaches.	
18.2.1 Identify priorities for	workshops		Year 1	national	UN	CST			UNCST	
research to establish and improve		1						5,000		
antimicrobial prescription and use										
patterns										

18.2.2 Conduct research to assess	research		Year 1	national	MOH/NDA/RITWC		UNCST
behavioral, cultural and anthropological		5				200,000	
practices on antimicrobial use in society,							
prescription practices and motivators							

5.0 Monitoring and Evaluation

5.1 Introduction

The Monitoring & Evaluation Plan provides a guidance framework for evaluating progress made regarding the NAP-AMR. In accordance with the Strategic Plan and the Implementation Plan, the strategic actions are coupled with the relevant indicators that can provide insight and evidence to the NAMRSC. The usage of this Monitoring & Evaluation plan can thus provide an initial foundation to all stakeholders regarding pertinent and relevant indicators that can alert relevant stakeholders to failures and successes in the implementation of the NAP-AMR.

5.2 Goal and Objectives of the M&E Plan

The AMR NAP M&E plan goal is aligned with GAP which is the global framework for the containment of AMR. These goals align with the goal of increasing stewardship of the health agenda by the MoH. The stewardship function of the MoH focuses around provision of appropriate guidance to implement health programs as well as priorities for implementation. In order to provide appropriate guidance, there is need for an M&E system that provides timely and accurate information to government and partners in order to inform performance reviews, policy discussions and periodic revisions to the national strategic and operational plans.

Goal of the M&E

The goal of the AMR NAP M&E plan is to establish a system that is robust, comprehensive, fully integrated, harmonized and well-coordinated to guide monitoring of the implementation of the AMR NAP and evaluate impact.

Specific Objectives of the M&E

The specific objectives of the AMR NAP M&E plan are:

- 1. To provide a framework for tracking progress and demonstrating results of the AMR NAP over the medium term.
- 2. To build capacity of the U N A M R C to regularly and systematically track progress of implementation of the NAP.
- 3. To facilitate NAMRSC and other stakeholders assess the performance in accordance with the agreed objectives and performance indicators to support management for results (evidence-based decision making),
- 4. To improve compliance with broader government policies
- 5. To facilitate continuous learning (document and share the challenges and lessons learnt) by stakeholders during implementation of the NAP

Key Outputs of the M&E

The expected key outputs of the M&E framework are:

- 1. A functional sector-wide unified integrated, harmonized and well- coordinated M&E system with effective and timely feedback to stakeholders.
- 2. Performance reports (baseline survey reports, periodic progress reports, annual performance reports, financial audit reports etc.)
- 3. Basic statistical data on health service delivery, resources, outputs and beneficiaries.
- 4. Regular updates on core performance indicators.
- 5. National infrastructure for M&E.

M&E Outcomes

The M&E Plan should result in:

- 1. Timely reporting on progress of implementation of the AMR NAP
- 2. Timely meeting of reporting obligations to government and partners
- 3. Objective decision making for performance improvement
- 4. Accountability to government, partners and citizens
- 5. Policy dialogue with stakeholders
- 6. Evidence-based policy development and advocacy
- 7. Institutional memory on AMR NAP implementation

5.3 Structural Framework

The structure of the Monitoring & Evaluation matrix can be generally characterized as an out comer requirement model. This model establishes what the desired outcome for any focus area or objective is and pairs it with the respective strategic actions being taken. With each of these strategic actions being taken, the monitoring & evaluation indicators establishes how those actions contribute to the achievement of the desired outcome. In doing so, stakeholders can evaluate where there are bottlenecks to the desired outcome and/or highlight where the relationship between the desired outcome and the strategic activity did not create as much impact as desired. As a result, the NAP-AMR monitoring & evaluation framework provides critical information that can aide both in mid-course changes as the NAP-AMR is implemented and also guide planning in the future.

5.4 Methodology

The development of the AMR NAP M&E plan was drafted by the UNAS Standing Committee on AMR. UNAS spearheaded the development of the NAP by undertaking the situational analysis in 2015 and the AMR strategy in 2017. With support from WHO, UNAS drafted the AMR M&E plan which was subjected to stakeholder review and approval by various stakeholders.

The plan relied on the AMR strategy and implementation plan and aimed to provide a framework for monitoring performance of the implementation of the proposed interventions in the strategy. The process also took into consideration the Global Action Plan (GAP) on AMR approved by the

global community and the various international agencies; in particular, WHO/OIE/FAO tripartite plans. In order to ensure uniformity with other national plans for ease of global monitoring, the plan followed the WHO guidance in development of the M&E plan.

The plan provides a summary of the key outcome and output indicators while the process indicators are provided in the detailed M&E framework in Appendix 1.

5.5 Monitoring and Evaluation Framework Matrix

The monitoring evaluation matrix summary below follows the standard programmatic M&E format that includes required inputs or basic resources needed, the process or activities, the outputs (results at the level of the programme), the outcomes (results at the level of the population) and their desired impact over the long term. This is in consonance with WHO format for ease of comparison with WHO member countries. The detailed matrix that follows in Appendix 1 gives more details of the indicators for the targets and their sources of verification according to the proposed activities.

Planning	Input	Process	Output	Outcome	Impact and Goals
	Basic resources	Activities	Results at level of the programme	Results at level of populations	Ultimate effect in long term
Strategic Objective 1: Public Awareness and professional competencies in AMR improved	Communication strategy for all stakeholders Funding for communication to the public and the professionals secured	Coordinated communication and public awareness on AMR	A national coordination (PATE) committee in place	Increased public awareness and knowledgeable public on AMR Increase in the public that complete antibiotic treatment courses Proportion of public who know use of antibiotics causes resistance	
		A comprehensive communication strategy for AMR in place	communication strategy in place		Increased knowledge on
		Communication materials and tools for use by different stakeholders for different communication channels and/or platforms.	Tailored communication materials on AMR for the public and farmers available		AMR Responsible use of antibiotics
		Regular public awareness campaigns on antimicrobial use and resistance undertaken	Proportion of planned public awareness campaigns implemented at district and national levels		
		Awareness raising in primary, secondary and tertiary schools and other training institutions using specialized materials undertaken	Percentage of veterinary and health training institutions that have incorporated AMR in their core curricular, Proportion of primary and secondary schools incorporating AMR in health education sessions	Increase in the public that are not self-medicating Demonstrated competencies of health care workers, animal and	
		Collaboration established with NGOs, Civil Society Organizations (CSOs), Faith Based Organizations (FBOs) the private sector,	Functional coordination forum linking stakeholders established, Proportion of	environmental professionals in AMR related issues	

Planning	Input	Process	Output	Outcome	Impact and Goals
	Basic resources	Activities	Results at level of the programme	Results at level of populations	Ultimate effect in long term
		International organizations, law enforcement and the media to deliver messages on antimicrobial use.	stakeholders participating in the forum		
		Media trained to report on AMR.	Percentage of media houses trained in AMR Number of media practitioners trained in AMR,		
		Networks for the dissemination of information on antimicrobial use and resistance developed.	Number of functional dissemination networks established by region		
		AMR included as a priority in the risk register, MDA plans.	Number of MDA plans with AMR as a priority in the risk registers		
		Research findings translated to popular versions and disseminated	Number of Research findings translated into popular versions Number of popular version research findings disseminated		
		AMR courses for under and graduates on AMR prevention and containment developed	Proportion of health care workers, animal and environmental professionals demonstrating AMR competencies		
		AMR courses for under and graduates on AMR prevention and containment developed	Proportion of undergraduate and postgraduate courses with updated AMR content		
		AMR courses for under and graduates on AMR prevention and containment developed	Proportion of undergraduate and postgraduate courses with updated AMR content		

Planning	Input	Process	Output	Outcome	Impact and Goals
	Basic resources	Activities	Results at level of the programme	Results at level of populations	Ultimate effect in long term
Strategic Objective 2: Improved Infection	Infections and Control Guidelines	Strengthened coordination mechanisms for infection prevention and control	A functional national coordination IPC TWC committee in place	Reduction in Incidence of healthcare acquired	Reduction in incidence of infections in health facilities, farms &
Prevention and Control	Biosecuty Guidelines	Updated national infection prevention and control manuals and guidelines disseminated	Proportion of health facilities with updated IPC manuals	infections	communities, and overall
Planning	Input	Process	Output	Outcome	Impact and Goals
	Basic resources	Activities	Results at level of the programme	Results at level of populations	Ultimate effect in long term
	Funding for IPC secured	IPC compliant infrastructure in healthcare facilities	Proportion of health facilities with IPC compliant infrastructure	Reduced in incidence of infections in the community Reduced incidence of infectious diseases in animals and Agriculture Reduced incidence of vaccine preventable diseases in human s and animals	environmental contamination

Planning	Input	Process	Output	Outcome	Impact and Goals
	Basic resources	Activities	Results at level of the programme	Results at level of populations	Ultimate effect in long term
	Prescription and Treatment Guidelines Antimicrobial	Strengthened coordination mechanisms for coordination and support of Antimicrobial Stewardship and ensuring Optimal Use	A functional Technical working group (ASO TWC) in place	Effectiveness and efficacy of antimicrobials preserved	Successful treatment of infectious disease
	stewardship Guidelines	Up-to-date prophylactic, prescribing/treatment guidelines and protocols for infectious diseases in human health	Proportion of health care facilities with up-to-date Prophylactic, prescribing/treatment guidelines and protocols for infectious	Effective and timely treatment of	
Focus Area 3: Antimicrobial					
	Funding for IPC materials			infectious diseases Effective and timely treatment of	
Stewardship and Optimal Use		Responsible prescribing practices, dispensing and administration	Proportion of health care workers adhering to prescribing	infectious diseases in animals and	
		With a system of ensuring accountability.	practices,	agriculture	
		Institute/strengthen and support proper functioning of Medicines and Therapeutics committees in all	Proportion of health care facilities with functional		
		health care facilities			
			MTCs		
Planning	Input	Process	Output	Outcome	Impact and Goals
----------	-------	--	--	---------	------------------
		Support the development and dissemination of antimicrobial stewardship working manuals and	(1) Up-to-da the antimicrobial manuals and procedures (2)Proportion of health care workers with the manuals		
		Procedures. Provide up-to-date and unbiased medicine information services to human and animal health providers.	Proportion of human and animal health providers accessing up-to-date medical information		
		Strengthened super vision of prescribing and dispensing outlets for human and animal antimicrobials	Proportion of prescribing and dispensing outlets for human and animal antimicrobials adhering to guidelines and standards		
		Incentives and reward sys terms for excellence in adherence to best practices and standards	Proportion of healthcare rewards and sanctions committees that have included prescribing practices as a criteria		
		Functional stewardship committees at all health care facilities	Proportion of health care facilities with functional stewardship committees		
		Affordable and accurate diagnostic tools available at all health facilities	proportion n of healthcare facilities with diagnostic tools		
		Financing mechanisms for antimicrobial medicines or preventative AMR programs Enhanced.	proportion of the medicine budget allocated to financing antimicrobials medicine		
		Timely and efficient distribution mechanisms for pro vision of	Proportion of deliveries of a antimicrobials to health care facilities done on time		

Planning	Input Process		Output	Outcome	Impact and Goals
		antimicrobials to health care providers			
		Output 8.5: Capacity of local	Proportion of local		
		producers/manufacturers of	antimicrobial manufacturers		
		Antimicrobials enhanced.	with increased capabilities		
		Promote Access to and Prudent Use of Antimicrobials in Agriculture and Veterinary Medicine	Effective and timely treatment of infectious diseases in animals and agriculture		
			Proportion of health care		
		Up-to-date prescription guidelines	facilities with up-to-date		
			prescription guidelines		
		Up-to-date antimicrobial	Proportion of agriculture and		
			veterinary practitioners with		
		procedures for the agriculture and	up-to-date antimicrobial		
		veterinary sector	stewardship working manuals		
		vetermary sector	and procedures		
		Restricted broad or generalized use	Proportion of feed		
		of antimicrobials as growth	manufacturers not using		
		promoters or as feed additives	antimicrobials in feeds		
		Supply chain and use of	Proportion of agriculture and		
		Antimicrobials in agriculture and	veterinary practitioners		
		veterinary medicine strengthened.	adhering to the regulations		
		Promote Use of Quality, Safe and	Effective treatment of		
		Capacity for regular quality	Number of analyses		
		assessment of antimicrobial agents	undertaken in a year and Rate		
		in the NDA quality laboratories	of turnaround time for		
		Strengthened.	analyses		
		Improved supervision of Pharmacies	Proportion of pharmacy outlets		
		1 1	adhering to GPP		

Planning	Input	Process	Output	Outcome	Impact and Goals
		Over-the-counter availability and self-medication with antimicrobial medicines adherence to regulations improved	Proportion of drug outlets adhering to regulations regarding OTC		
		Strengthened regulation of the pharmaceutical companies and adherence to Good Manufacturing Practices	Proportion of pharmaceutical companies adhering to GMPs		
		Strengthened regulation of the pharmaceutical and antimicrobial waste	Proportion of facilities adhering to guidelines for pharmaceutical and antimicrobial waste disposal		
Manual of procedures for Surveillance of AMR Manual of procedures for Surveillance of antimicrobial use Manual of and for Surveillance of antimicrobial reciduas in foods	Manual of	A national AMR surveillance programme in place	A fully functional surveillance programme	Increased evidence	
	SOPs and methodologies for surveillance of AMR in place	Proportion of laboratories adhering to standard procedures to generate AST data	based decisions on antimicrobial use Reduced levels of antimicrobial drug	Early detection and response to emerging MDR	
	procedures for Surveillance of antimicrobial use	Laboratory infrastructure, human resources, supplies and equipment improved	 (1) Suitable infrastructure (2) Well trained human resource (3) Suitable equipment in place 	residues in foods Harmonized and coordinated AMR surveillance system	problems
	Manual of and for Surveillance of antimicrobial residues in foods Funds for AMR surveillance	Microbiological culture and sensitivity tests performed routinely	Proportion of laboratories undertaking microbiological culture and AST		
Strategic		Quality assurance systems for microbiology laboratory testing in place	Proportion of laboratories with QA/QC system in place		
Objective 4: Surveillance		Laboratories enrolled in national and international external quality	Proportion of laboratories enrolled in external quality		
		assurance programs	assurance programs		
			Proportion of health care and		
		Surveillance data and information	veterinary facilities utilizing		
		disseminated to healthcare facilities	AST data to inform their decision of choice of antimicrobials		

Planning	Input	Process	Output	Outcome	Impact and Goals
		One Health networks created to widely share data	Number of One Health functional networks created		
		An early warning system to monitor trends off AMR established	Proportion of facilities with an early warning system in place		
		Countrywide utilization of data	Proportion of health care facilities utilizing AMR data	-	
		Support Surveillance of Antimicrobial Use	Evidence based decisions on antimicrobial use		
		A national antimicrobial use surveillance plan in place	A functional national antimicrobial use surveillance plan		
		Procedures and methodologies for monitoring antimicrobials developed	Proportion of facilities with and using standard procedures to monitor antimicrobial use		
		Robust data on prescribing practices, dispensing practices, client/community use generated	Proportion of facilities generating prescribing practices, dispensing practices data		
		Antimicrobial use data generated and shared	Proportion of facilities generating antimicrobial use data		
		Data on impact of pharmaceutical promotion on antimicrobial use generated	Amount of data about impact of pharmaceutical promotion		
		Support Surveillance for Antimicrobial Drug Residues in Foods	Reduced levels of antimicrobial drug residues in foods		

Planning	Input	Process	Output	Outcome	Impact and Goals
		A national surveillance plan for monitoring antimicrobial residues in foods and animal feeds in place	A functional plan for monitoring antimicrobial residues in foods in place		
		Standard procedures for monitoring antimicrobial residues in foods in place	Number of laboratories with and using standard procedures for monitoring antimicrobial residues in foods		
		Collaborating with WHO/FAO Codex Alimentarius and other international partner established	An international platform for sharing data		
		Foster Collaboration and Partnerships among AMR stakeholdersHarmonized and coordinated AMR surveillance system			
		Harmonized surveillance and capacity to detect and monitor antimicrobial use and resistance in prioritized pathogens established	Increased capacity for surveillance AMR and use		
		Mechanisms for participation international, regional and international communication of critical events established	A platform for communicating AMR critical events		
		National, regional and international quality assurance standards in place	Proportion of facilities with QA/QC procedures in place		
		Mechanisms for coordinated research and innovation in place	A platform (RI TWC)for coordinated research in AMR	Effective control of	
	Funds for Research and	Enhanced antimicrobial product development by the Natural Chemotherapeutics Laboratories (NCL) and other partners	Number of new antimicrobial products developed by NCL and other partners and approved	resistant infections Accurate and cost effective diagnosis of infections	

Planning	Input	Process	Output	Outcome	Impact and Goals
	Innovation secured	International collaborations in high-throughput screening of antimicrobial compounds established	Number of international collaborations in high through putting screening of antimicrobial compounds established	High quality basic intervention research	
Strategic Objective 5: Research and Innovation		Academia and other researchers supported in product development	Number of new antimicrobial products developed by academia and other researchers and approved	Evidence-based health systems operations	Reduced
		Research in alternative treatments for infections supported	Number f alternatives for treatment of infectious diseases developed		emergence and spread of AMR
		Linkages between indigenous	Number of ITKs developed into antimicrobial products		
		Technical knowledge (ITK) groups to the product development system established			
		Promote Innovations in Diagnostic Technology	Accurate and cost effective diagnosis of infections		
		Capacity for research, development and testing of innovative diagnostic technologies strengthened	Number of new innovative diagnostics developed		
		Point-of-care diagnostics for detection of infectious diseases and detection of resistance validated	of-care diagnostics for on of infectious diseases tection of resistance approved		
		Ugandan science leaders in international research on AMR	Number of Uganda scientists with leadership position in international research partnerships		

Planning	Input	Process	Output	Outcome	Impact and Goals
		Collaborate with International Partners in Basic Intervention Research	High quality basic intervention research		
		High-risk and high-burden resistant strains identified	Number of high-risk and high burden resistant strains reported routinely		
		Innovations for new antimicrobial drug development, vaccines, and other innovative therapies	Number of innovative new antimicrobial drug development, vaccines, and other innovative therapies developed		
		Collaborations in high-throughput genomics and sequencing technologies established	Number of high-throughput genomics and sequencing technologies available		
		The burden of AMR established	The proportion of burden infectious diseases that is attributed to AMR		
		A research innovation fund to support innovations that slow down AMR established.			
		Transmission pathways between the environment, humans, animals and food supply chain established	Elucidation of resistance transmission pathways		
		Local Antimicrobial use patterns established	Patterns and trends of antimicrobial use locally		

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Appendix 1: Detailed Monitoring and Evaluation Matrix

The following M&E matrix provides the framework for a more specific and detailed targets for monitoring the implementation of the plan. It was developed basing on the WHO recommended templates which enables a more uniform and standard way to monitor the AMR NAP implementation across countries. The table therefore provides the indicators for each target as defined in the implementation plan against the baseline values and proposes performance values either as proportions of the targets or yes or no statements, as well as the frequency of data collection, suggested data sources, and means of verification. It should be noted that most the baseline values were not accurately defined at the time of the design of this plan and it is expected that first activity in the M&E process will be to establish those baselines values (where there was no data available, or verify the estimates provided) against which progress will be measured.

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline		
Strategic Objective 1: Public Aware ness and professional competencies in AMR improved		Desired Outc portion of pro	Desired Outcome: increase in (1) Proportion of the public aware and knowledgeable on AMR, (2) Pro portion of professional healthcare workers who know about AM R						
Objective 1: Public Awareness improved		Desired Outc Proportion of	ome: increas f the public o	e in (1) proportion f the not self-me	on of public who kn dicating (animal and	ow use of antibiotics caus d humans)	es resistance (2)		
Output 1.1 Coordinated communication and public awareness on AMR		Indicator: A national coordination (PATE) committee in place							
1.1.1 Establish a Technical Working Committee (TWC) on public awareness, training, and education, with clear terms of reference (PATE	TWC formed with list of members and ToR	Yes/No	1	Once	Report of inauguration with list of members	Observation/Document review/Key informant interview	No PATE TWC		
Output 1.2 A comprehensive communication strategy for AMR in place		Indicator: (1) A comprehensive communication strategy in place							
1.2.1 Conduct a needs assessment of communications needs	List of communication needs for AMR identified	Yes/No	1	Once	Assessment report	Observation/Document review/Key informant interview	No KAP study		

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline
1.2.2 Develop a communications strategy for the AMR NAP	Strategy draft complete and approved	Yes/No	1	3 meetings	Draft Report	Observation/Document review/Key informant interview	No Communication strategy
1.2.3 Print and distribute strategy	# of copies printed and distributed	Proportion	5000	once	Copies of the strategy and distribution list	Observation/Document review/Key informant interview	TBD
1.2.4 Disseminate strategy among stakeholders	# of stakeholders aware of the AMR communication strategy	Proportion	100	once	Dissemination Report	Observation/Document review/Key informant interview	Draft strategy
Output 1.3 Communication materials and tools for use by different stakeholders for different communication channels and/or platforms		Indicators: T	ailored comn	nunication mater	ials on AMR for the	e public and farmers avail	able
1.3.1 Develop core communication messages for different stakeholders	# of and type communications messages available for different stakeholders	Proportion	10	Annual	Copies of the messages	Observation/Document review/Key informant interview	TBD
1.3.2 Print and/or distribute materials and tools	# of copies printed and distributed	Proportion	5000	1	Copies and list of distribution list	Observation/Document review/Key informant interview	Drafts available
1.3.3 Disseminate materials and tools among stakeholders through mechanisms such as National and District AMR Conferences	# of stakeholders with appropriate communications materials and tools	Proportion	100	2	Dissemination Report	Observation/Document review/Key informant interview	Drafts available

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline
Output 1.4 Regular public aw antimicrobial use and resistan	areness campaigns on ce undertaken	Indicators: Pr levels	roportion of p	planned public av	vareness campaigns	implemented at district a	nd national
1.4.1 Conduct ToT for District health educators (including but not exclusive to DHOs, CAOs)	# of district health educator trainees trained	Proportion	280	7	Training reports	Observation/Document review/Key informant interview	Materials available
1.4.2 Conduct district-level communications training sessions for health and veterinary workers on AMR (including but not exclusive to DHOs, DVOs)	# of health workers trained	Proportion	140	Annual	Training reports	Observation/Document review/Key informant interview	No data available
1.4. Organize activities to raise awareness during the World Antibiotic Awareness Week	# and type of activities organized	Proportion	5	Annual	Reports	Observation/Document review/Key informant interview	No data available
1.4.4 Set up billboards along major travel routes	# of Billboards set up	Proportion	50	Annual	Reports	Observation/Document review/Key informant interview	TBD
1.4.5 Print and distribute awareness raising Leaflets /flyers	# of Flyers/leaflets created and delivered to regional hubs	Proportion	50000	Annual	Copies and distribution reports	Observation/Document review/Key informant interview	TBD
1.4.6 Air radio/TV segments with key messages	# of Radio segments on the radio and TV	Proportion	14	Annual	Media monitoring reports	Observation/Document review/Key informant interview	TBD
1.4.7 Conduct public dramas (at major national events— Independence Day, Labor Day etc.)	# of dramas conducted at national events	Proportion	5	Annual	Reports	Observation/Document review/Key informant interview	TBD

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline		
Output 1.5 Awareness raising in primary, secondary and tertiary schools and other training institutions using specialized materials undertaken		Indicators: 1) incorporated AMR in heal	Indicators: 1) percentage of veterinary and health training institutions that have incorporated AMR in their core curricular, 2) proportion of primary and secondary schools incorporating AMR in health education sessions						
1.5.1 Identify existing school health programs and determine integration of AMR messages into these.	# of school health programs in which AMR has been integrated	Proportion	5	Annual	Copies of the new or updated reports	Observation/Document review/Key informant interview	TBD		
1.5.2 Train focal persons at different levels and sectors of the education system	# of Focal persons trained	Proportion	5000	Once	Training reports	Observation/Document review/Key informant interview	TBD		
1.5.3 Disseminate materials and tools to focal persons	# school focal persons to whom communications materials have been delivered	Proportion	5000	Once	Distribution lists to focal persons	Observation/Document review/Key informant interview	TBD		
1.5.4 Train relevant education partners	# of education partners trained on AMR issues	Proportion	1000	Annual	Training Report	Observation/Document review/Key informant interview	TBD		
Output 1.6 Collaboration established with NGOs, Civil Society Organizations (CSOs), Faith Based Organizations (FBOs) the private sector, international organizations, law enforcement and the media to deliver messages on antimicrobial use		Indicators: 1) Functional coordination forum linking stakeholders established, 2) proportion of stakeholders participating in the forum							
1.6.1 Disseminate training materials and tools to partners	# of partners to whom training materials have been delivered	Proportion	100	Once	Training reports	Observation/Document review/Key informant interview	TBD		
Output 1.7 Media trained to report on AMR.		Indicators: 1) A MR,	Percentage	of media houses	trained in AMR 2)	Number of media practitic	oners trained in		
1.7.1 Train media on AMR reporting	# of journalists/people trained in AMR reporting	Proportion	200	Annual	Training reports	Observation/Document review/Key informant interview	TBD		

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline	
1.7.2 Distribute communication materials and tools to the media	# and type of communications materials and tools distributed to the media	Proportion	200	Annual	Delivery reports	Observation/Document review/Key informant interview	TBD	
Output 1.8 Networks for the d	issemination of							
information on antimicrobial	use and resistance	Indicators: 1)	Number of f	functional dissen	nination networks es	stablished by region		
1.8.1 Conduct a survey to identify existing networks to assist with dissemination of materials and tools tokey	List of existing and potential networks that can be used to disseminate information on AMR	Yes/No	1	Annual	Needs assessment report	Observation/Document review/Key informant interview	TBD	
1.8.2 Design messages for social media networks for AMR awareness	# of messages designed for social media networks	Proportion	10	Annual	Copies of the messages	Observation/Document review/Key informant interview	TBD	
1.8.3 Include AMR data in weekly epidemiological reports for MoH/MAAIF	#of reports that have AMR data or information included	Proportion	104		Copies of the epidemiological reports	Observation/Document review/Key informant interview	TBD	
Output 1.9 Research findings	translate d to popular	Indicators: 1) Number of Research findings translated into popular versions 2) Number of popular version						
1.9.1 Periodically review research findings and translate them into popular versions	# of Popular versions of research synthesis published	Proportion	unlimited	Annual	Copies of synthesized versions	Observation/Document review/Key informant interview	TBD	
1.9.2 Share latest research with relevant policymakers	Amount of policy relevant information shared with policy makers	Proportion	1	monthly	Copies of materials shared with policy makers	Observation/Document review/Key informant interview	TBD	

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline			
Objective 2: Support Education and Training of Human, Animal and Environmental Health Professionals		Desired Outc environmenta	Desired Outcome: (1) increased proportion of health care workers, animal and environmental professionals demonstrating AMR competencies (under development).							
Output 2.1 AMR courses for under and graduates or AMR prevention and containment developed		Indicators: (1) Proportion of undergraduate and postgraduate courses with updated AMR content								
2.1.1 Conduct a needs assessment of AMR-related	Assessment conducted	Yes/No		Once	Assessment report	Observation/Document review/Key informant interview	No data available			
gaps in the education system at different levels										
2.1.2 Conduct a dissemination workshop on the e needs assessment findings to relevant educational and curriculum- approval bodies	Workshop held	Yes/No		1	Disseminati on meeting report	Observation/Document review/Key informant interview	TBD			
2.1.3 Conduct workshops to review or update curriculums based on gaps identified in needs assessment	Meetings held	Yes/No		8	Meeting reports with Updated curricula	Observation/Document review/Key informant interview	50% content existing			
2.1.4 Conduct training workshops for educators	Number of trainings	Yes/No		4	Training reports with list participants	Observation/Document review/Key informant interview	No data available			
2.1.5 Convene training workshops of health professionals on AMR	Workshop held	Yes/No		1	Disseminati on meeting report	Observation/Document review/Key informant interview	TBD			

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline			
2.2.1 Conduct a needs assessment for AMR- related gaps in CPD trainings for relevant professions	Assessment conducted	Yes/No		once	Assessment report	Observation/Document review/Key informant interview	No data available			
2.2.2 Convene a meeting to share findings of needs assessment in stakeholder dissemination meetings	Meeting held	Yes/No		5	Meeting reports	Observation/Document review/Key informant interview	TBD			
2.2.3 Conduct meetings to develop training manuals of health professional CPD on AMR	Meetings held	Yes/No		1	Sensitizatio n meeting reports	Observation/Document review/Key informant interview	TBD			
2.2.4 Conduct sensitization sessions for relevant professional boards and councils and facilitate revision of guidelines for prescriptions	Sensitizatio n sessions held	Yes/No		7 (I per region)	Training workshops reports	Observation/Document review/Key informant interview	TBD			
Strategic Objective 2: Impre Prevention and Control	oved Infection	Desired Outcoverall environment	Desired Outcome: Reduction in incidence of infections in health facilities, farms & communities, and overall environmental contamination							
Objective 3: Strengthen Infect Control Programs in Healthca	tion Prevention and re Facilities	Desired Outcome: Reduction in incidence of healthcare acquired infections								
Output 2.1 Strengthened coord infection prevention and control	dination mechanisms for ol	Indicators: A	functional n	ational coordinat	ion IPC TWC com	mittee in place				
3.0.1 Establish a Technical Working Group (TWC) on Infection Prevention and Control (IPC TWC) with TORs	ToR signed, TWC formed with list of members	Yes/No	1	1	NAMRS C minutes	Observation/Document review/Key informant interview	None			
Output 3.1 Updated national i control manuals and guideline	nfection prevention and es disseminated	Indicators: P	r oportion of	f health facilities	with updated IPC n	nanuals				

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline
3.1.1 Update the IPC policy	Updated IPC policy	Yes/No	1	Once	Function al TWC with TOR, TWC Meeting minutes	Observation/Document review/Key informant interview	TBD
3.1.2 Revise IPC manual for infection prevention control	Updated IPC manual for approved health facility structural designs	Yes/No	1	Once	Updated IPC policy	Observation/Document review/Key informant interview	
3.1.3 Print and distribute IPC Guidelines	# of copies of the Guidelines printed and distributed	Yes/No	4000	once	Printed copies and distribution reports	Observation/Document review/Key informant interview	
3.1.4 Disseminate IPC and standards of professional practice guidelines at all health-care facilities	# of health workers to whom the guidelines have been disseminated by facility	Yes/No	5000	once	Dissemination reports	Observation/Document review/Key informant interview	TBD
Output 3.2 IPC compliant infr healthcare facilities	astructure in	Indicators: Pr	roportion of l	health facilities v	vith IPC compliant	infrastructure	
3.2.1 Undertake an assessment of the current status and needs of IPC in health facilities	Baseline and needs for IPC at health facilities	Yes/No	3584	annually	Baseline report	Observation/Document review/Key informant interview	TBD
3.2.2 Update guidelines for health care facility infrastructure that support minimum IPC standards	IPC compliant Infrastructure Guidelines	Yes/No	1	once	IPC compliant Infrastructure Guidelines	Observation/Document review/Key informant interview	TBD

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline
3.2.3 Disseminate the guidelines	# of stakeholders knowledgeable about the IPC guidelines	Yes/No	500	once	Dissemination reports	Observation/Document review/Key informant interview	TBD
3.2.4 Undertake support supervision to support implementation of IPC at health facility level	# health facilities supported	Yes/No	3584	annually	Supervision reports	Observation/Document review/Key informant interview	TBD
Output 3.3: Functional IPC co Facilities.	ommittees in healthcare	Indicators: Pr	roportion of l	nealthcare faciliti	es with functional	IPC committees (N= 3584	4)
3.3.1 Setup functional IPC committees with TORs	# of health Facilities with Functional IPC committees	Yes/No	3584	annually	List of IPC committees and meeting minutes	Observation/Document review/Key informant interview	TBD
3.3.2 Train IPC committee members on their functions	# of MTC members by facility trained	Yes/No	3584	annually	Training report with list of participants	Observation/Document review/Key informant interview	TBD
3.3.3 Regularly undertake performance monitoring and mentoring of the IPC committee members	# of MTC members by facility mentored	Yes/No	3584	annually	Monitoring reports	Observation/Document review/Key informant interview	TBD
Output 3.4 Guidelines for limiting the spread of mult drug resistant (MDR) organisms disseminated		Indicators: Pr	roportion of l	nealthcare faciliti	es with MDRO cor	ntrol guidelines (N=3584)	
3.4.1 Update guidelines for prevention and control of MDR organisms	Updated guidelines for prevention of MDR	Yes/No	1	once	Copies of the updated guidelines	Observation/Document review/Key informant interview	TBD

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline		
3.4.2 Print and distribute the MDR control Guidelines	# of copies of the Guidelines printed and distributed	Yes/No	4000	once	Printed copies and distribution reports	Observation/Document review/Key informant interview	TBD		
3.4.3 Train health care workers at facility level on the control of MDR	# of health workers trained in MDR control by facility	Yes/No	2000	annually	Training reports with list participants	Observation/Document review/Key informant interview	TBD		
Output 3.5: Proper use of infe- materials and supplies	ction prevention	Indicators: (1 supplies) Proportion	of health facilitie	es using appropriate	Infection prevention mate	erials and		
3.5.1 Update lists of IPC products, including equipment and supplies	Updated list of IPC materials and supplies	Yes/No	1	Once	Updated list of IPC materials	Observation/Document review/Key informant interview	TBD		
3.5.2 Procure and distribute in a timely manner IPC supplies and equipment at health care facilities	List of IPC supplies, materials and equipment procured by facility	Yes/No	assorted	annually	Delivery reports	Observation/Document review/Key informant interview	TBD		
Outputs 3.6: Timely diagnosis	and treatment of	Indicators: (1) Proportion of healthcare facilities timely diagnosing MDRO (2) Proportion of							
3.6.1 Procure and timely distribute tools for rapid diagnosis of drug resistant organisms	List of diagnosis supplies for MDR procured by facility	Yes/No	assorted	annually	Delivery reports	Observation/Document review/Key informant interview	TBD		
3.6.2 Train health care workers at facility level on the treatment and management of patients with MDR infections	# of health workers trained on the treatment and management of MDR infections	Yes/No	2000	annually	Training reports with list participants	Observation/Document review/Key informant interview	TBD		
3.6.3 Procure and timely distribute drugs for treatment of MDR	List drugs for treatment of MDR procured by facility	Yes/No	assorted	annually	Delivery reports	Observation/Document review/Key informant interview	TBD		

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline
Output 3.7: Adherence to star	dards fo r hand	Indicators: (1) Proportion	of health facilitie	es adhering to stand	lards of hand hygiene and	other hygienic
hygiene and other hygienic pr	actices health care	practices					
facilities							
3.7.1 Train health care	# of health workers to						
workers at facility level	whom the guidelines				Training reports	Observation/Document	
on hand hygiene and	have been	Yes/No	7168	annually	Training reports	review/Key informant	TBD
other hygienic practices	disseminated by				with list	interview	
and	facility						
behaviors that prevent					participants		
transmission of infectious							
diseases							
3.7.2 Undertake health					Training reports		
talks to patients about					with list	Observation/Document	
IPC behaviours to protect	# Health talks	Yes/No	10000	annually	participants	review/Key informant	TBD
themselves from	to patients					interview	
acquisition and	conducted						
transmission of							
infectious diseases							
3.7.3 Train personnel on							
correct use of Personal						Observation/Document	
Protective Equipment and	# Health workers	Yes/No	14336	annually	Supervision	review/Key informant	TBD
materials for standard and	trained on PPE use				reports	interview	
transmission based							
precautions							
Output 3.8: Increased awarene	ess about IPC at						
healthcare facilities		Indicators: P	roportion of h	healthcare faciliti	es with workers ad	hering to IPC guidelines	
					Training reports		
3.8.1 Train health care	# Health workers				with list	Observation/Document	
workers on	trained on IPC	Yes/No	14336	annually	participants	review/Key informant	TBD
					· ·	interview	
2.9.2 Undertaire group and					Supervision	Observation/Decourset	
5.6.2 Undertake support	# healthcare facilities				Supervision	observation/Document	
supervision visits to	# nearmare facilities	Yes/No	3854	annually	reports	interview/Key informant	TBD
remiorce injection control	supported					interview	
practices							

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline			
Output 3.9: IPC good practice for rewards and sanctions in h	es included as criteria lealth care facilities	Indicators: Proportion of healthcare rewards and sanctions committees that have included IPC good practices as a criteria								
3.9.1 Develop guidelines for awards	Guidelines available	Yes/No	1	once	Copies of the guideline s	Observation/Document review/Key informant interview	TBD			
3.9.2 Provide incentives for operationalizing the awards	List and type of incentives	Yes/No	assorted	annually	Report about the incentive s	Observation/Document review/Key informant interview	TBD			
Output 3.10: Safe waste disposal and waste treatment practices in healthcare facilities improved		Indicators: Pr	roportion of h	health care facilit	ies with safe waste	disposal and waste treatm	ent practices			
3.10.1 Train health care workers on safe waste disposal and waste treatment practices for healthcare workers.	# of health care workers trained on waste disposal	Yes/No	14336	annually	Training reports with list participants	Observation/Document review/Key informant interview	TBD			
Output 3.11 Functional Comm IPC related committees at all administrative levels in place	nunication platforms for health care	Indicators: Percentage of health care administrative levels with functional communication platforms for IPC								
3.11.1 Establish a communication platform among IPC related committees e.g. medicines & therapeutics committee, AMR stewardship committee, infection prevention Control committee, Laboratory Committee and Clinical Committee	# of Communication platforms established by facility	Yes/No	3854	annually	Reports/ minutes of joint meetings	Observation/Document review/Key informant interview	TBD			
3.11.2 Develop guidelines for the functioning of the communication platform	Guidelines for the communication platform in place	Yes/No	1	annually	Copies of the guidelines	Observation/Document review/Key informant interview	TBD			

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline		
3.12 Improve health worker k IPC	nowledge and skills on	Indicators: pe	Indicators: percentage of health workers in a facility with competencies to implement IPC						
3.12.1 Conduct survey on training needs for health professionals regarding IPC	Baseline and needs for health professionals regarding IPC	Yes/No	1	annually	Baseline report	Observation/Document review/Key informant interview	TBD		
3.12.2 Conduct regularcontinuedprofessiondevelopment(CPD)training regarding IPC	# of health workers undertaking CPDs on IPC and how many	Yes/No	2000	annually	Training reports with list participants	Observation/Document review/Key informant interview	TBD		
3.12.3 Integrate IPC content in the curriculum/education for all health training	# of revised curricula in health training institutions that	Yes/No	5	Once	Copies of the revised curricula	Observation/Document review/Key informant interview	TBD		
institutions	reflects IPC strategies								
Objective 4: Promote Infectio Control Practices in Commun	n Prevent ion and ities	Desired Outcome: (1) Reduced in incidence of infections in the community							
Output 4.1 IEC/BCC tools on including schools and public j	IPC in communities, places disseminated.	Indicators: Proportion of sub counties with IEC materials in local language							
4.1.1 Undertake a survey on the knowledge/attitudes/ perceptions and practices in the community	Baseline IPC knowledge/attitudes/ perceptions and practices in the community and their needs	Yes/No	1	annually	Baseline report	Observation/Document review/Key informant interview	TBD		
4.1.2 Develop tools for information, education and	# of tools developed	Yes/No	5	one	Copies of the IEC tools	Observation/Document review/Key informant interview	TBD		

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline		
Communication/behavior change communication on IPC in communities, including schools and public places. behavioral change communication strategy									
4.1.3 Dissemination of information on infection control in the community	# and type of public awareness campaigns conducted	Yes/No	500	annually	Dissemination meeting report	Observation/Document review/Key informant interview	TBD		
4.2.3 Develop minimum standards for food hygiene, handling and preparation	Guideline for food hygiene, handling and preparation developed	Yes/No	1	annually	Copies of the guidelines	Observation/Document review/Key informant interview	TBD		
Output 4.2: Adherence to food by food handlers	d hygiene guidelines	Indicators: Pr	Indicators: Proportion of public places adhering to recommended food hygiene practices						
4.2.1 Train food vendors and supervisors for proper food handling practices	# of food vendors and supervisors trained	Yes/No	5000	annually	Training reports with list participants	Observation/Document review/Key informant interview	TBD		
4.2.2 Enforce regular checkups of food handlers for infectious diseases of public health importance related to food	# of food vendors and supervisors examined for infectious diseases and how often	Yes/No	5000	annually	Medical examination reports	Observation/Document review/Key informant interview	TBD		
4.2.4 Undertake food inspection of foods and food products for public consumption	# of facilities inspected and how often	Yes/No		annually	Inspection reports	Observation/Document review/Key informant interview	TBD		
Output 4.3: Communities with adequate access clean and safe water throughout the country.		Indicators: Proportion of communities with access to safe water within 1 km							

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline
4.3.1 Carry out a baseline to obtain information on safe water usage in relation infection control and prevention is concerned	Baseline on water safety	Yes/No	1	Once	Baseline report	Observation/Document review/Key informant interview	TBD
4.3.2 Increase safe water coverage in communities	# of new safe water sources put in place	Yes/No	each community	annually	Report	Observation/Document review/Key informant interview	TBD
4.3.3 Review standards and guidelines for assessing water safety in the context of AMR	Guidelines	Yes/No	1	Once	Copies of the guidelines	Observation/Document review/Key informant interview	TBD
4.3.4 Conduct periodic water safety analyses at consumption points	#of water consumption points assessed for safety	Yes/No	2000	annually	Analysis reports	Observation/Document review/Key informant interview	TBD
Output 4.4: Safe waste dispos Practices.	al and waste treatment	Indicators: Pi	coportion of c	communities prac	cticing safe waste di	isposal and waste treatmen	nt
4.4.1 Review and update IEC materials on safe waste disposal	Set of updated IEC waste disposal IEC materials	Yes/No	1	Once	Copies of IEC	Observation/Document review/Key informant interview	TBD
4.4.2 Procure and make available waste disposal materials for infectious wastes wherever generated	List of waste disposal materials by facility	Yes/No	assorted	annually	Delivery reports	Observation/Document review/Key informant interview	TBD
4.4.3 Conduct training of trainers (TOT) for waste handlers	# of trainee trainers trained in waste handling	Yes/No	500	annually	Training reports with list participants	Observation/Document review/Key informant interview	TBD
4.4.3 Conduct mentorships sessions for waste handlers	# of health facilities mentored in waste disposal	Yes/No	1740	annually	Mentorship reports	Observation/Document review/Key informant interview	TBD
4.4.4 Set up health care waste treatment facilities at each health facility	# of health care waste treatment facilities by facility	Yes/No	3854	annually	Reports	Observation/Document review/Key informant interview	TBD

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline			
Output 4.5: Reduced transmis household level.	sion of A MR at the	Indicators: Proportion of household transmissions of resistant infections								
4.5.1 Sensitization of the public on AMR	# and type of public awareness campaign conducted	Yes/No	1000	annually	Reports of the campaign	Observation/Document review/Key informant interview	TBD			
4.5.3 Contact tracing and management of patients with drug resistant Micro organisms	# of patients with MDR traced and managed	Yes/No	1000	annually	Reports	Observation/Document review/Key informant interview	TBD			
4.5.4 Support adherence to Antibiotic treatment at house hold level	# of individuals adhering to antibiotics	Yes/No		annually	Reports	Observation/Document review/Key informant interview	TBD			
Objective 5: Promote Farm Biosecurity Measures in										
Agriculture	losecurity Measures in	Desired Outc	ome: Reduce	ed incidence of in	fectious diseases in a	animals and Agriculture				
Agriculture Output 5.1 Biosecurity guidel slaughter facilities, abattoirs a facilities developed and disser	ines for animal farms, nd aquaculture minated	Indicators: Pr to the guideli	roportion of a	ed incidence of in	nfectious diseases in a	animals and Agriculture	ities with access			
Agriculture Output 5.1 Biosecurity guidel slaughter facilities, abattoirs a facilities developed and disser 5.1.1 Review and update biosecurity guidelines for different categories of animal farms, slaughter facilities, abattoirs and Aquaculture facilities.	ines for animal farms, nd aquaculture minated Updated Biosecurity guidelines	Desired Outc Indicators: Pr to the guideli Yes/No	ome: Reduce	animal farms, sla	ughter facilities, abat Copies of the guideline s	toirs and aquaculture facili Observation/Document review/Key informant interview	ities with access			
Agriculture Output 5.1 Biosecurity guidel slaughter facilities, abattoirs a facilities developed and disser 5.1.1 Review and update biosecurity guidelines for different categories of animal farms, slaughter facilities, abattoirs and Aquaculture facilities. 5.1.2 Print and distribute biosecurity guidelines to veterinarians and other stakeholders	ines for animal farms, and aquaculture minated Updated Biosecurity guidelines # of copies of the Guidelines printed and distributed	Desired Outc Indicators: Pr to the guideli Yes/No Yes/No	ome: Reduce roportion of a nes	ed incidence of in animal farms, sla Once once	ughter facilities, abat Copies of the guideline s Copies of the guideline s	toirs and aquaculture facili Observation/Document review/Key informant interview Observation/Document review/Key informant interview	ities with access TBD TBD			

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline	
5.1.4 Train district veterinary officers on biosecurity guidelines	# of DVOs trained	Yes/No	121	annually	Training reports with list participants	Observation/Document review/Key informant interview	TBD	
5.1.5 Promote biosecurity practices on farms and animal facilities (e.g. Abattoirs)	# of visits undertaken	Yes/No	500	annually	Reports of the visits	Observation/Document review/Key informant interview	TBD	
Output 5.2: Adherence to Hyg	giene, sanitation and	Indicators: Pr	roportion of	farms adhering to	hygiene, sanitation a	ind infection prevention st	andards	
infection prevention standards	5							
5.2.1 Train farmers in on- farm sanitation and good hygiene practices	# of farmers trained	Yes/No	5000	annually	with list participants	Observation/Document review/Key informant interview	TBD	
5.2.2 Undertake regular checks on sanitation and hygiene on animal facilities and farms	# of facilities and farms checked for proper hygiene and sanitation	Yes/No	100	annually	Inspection reports	Observation/Document review/Key informant interview	TBD	
5.2.3 Regular checks on animal feeds for contamination	# feed samples checks	Yes/No	100	annually	Analysis reports	Observation/Document review/Key informant interview	TBD	
Output 5.3: Food safety camp on farms implemented.	aigns and programs	Indicators: N	umber of foo	od safety campaig	gns targeting food saf	ety on farms by region		
5.3.1 Sensitize farmers and the general public on production of safe animals for human consumption	3 and type of public awareness campaigns conducted	Yes/No	50	annually	Sensitization meeting reports	Observation/Document review/Key informant interview	TBD	
Output 5.4: Adherence to bios the agricultural, livestock and industries	ecurity standards in in animal production	Indicators: Proportion of agricultural, livestock and animal production industries adhering to biosecurity standards						

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline
5.4.1 Train farmers in standard animal husbandry practices that reduce the need to use antimicrobial agents	# of farmers trained	Yes/No	5000	annually	Training reports with list participants	Observation/Document review/Key informant interview	TBD
5.4.2 Provide regular advisory extension services to farmers	# of extension visits undertaken	Yes/No	1000	annually	extension service reports	Observation/Document review/Key informant interview	TBD
Output 5.5: Biosecurity compliant infrastructure in animal and agricultural facilities		Indicators: Pr standards	coportion of a	animal and agricu	ltural facilities with	infrastructure compliant w	vith biosecurity
5.5.1 Develop/update tstandards for farm infrastructure that promote infection prevention in animal handling facilities and farms	Guidelines developed/updat ed	Yes/No	1	once	Copies of the guidelines	Observation/Document review/Key informant interview	TBD
5.5.2 Print and distribute animal facility and farm infrastructure standards	# of copies of the Guidelines printed and distributed	Yes/No	2000	annually	Copies of the guidelines	Observation/Document review/Key informant interview	TBD
5.5.3 Train district veterinary officers on facility and farm infrastructure Standards	Guidelines disseminat ed	Yes/No	121	annually	Training reports with list participants	Observation/Document review/Key informant interview	TBD
5.5.4 Conduct regular							
advisory/support supervision/inspection of abattoirs/slaughter houses and aquaculture facilities	# facilities and frequency of supervision	Yes/No	2000	annually	Supervision reports	Observation/Document review/Key informant interview	TBD

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline		
v5.5.5 Sensitize stakeholders on the need for ante-mortem and postmortem inspection	# of stakeholders sensitized	Yes/No	5 per year	annually	Sensitization meeting reports	Observation/Document review/Key informant interview	TBD		
Output 5.6: Proper use of infect materials and supplies in agricu facilities	Indicators: Pro and supplies	oportion of ag	gricultural and an	imal facilities using	g appropriate Infection pre	vention materials			
5.6.1 Develop/disseminate guidelines for infection prevention materials for animal facilities and farms	Guidelines developed	Yes/No	1	annually	Copies of the guidelines	Observation/Document review/Key informant interview	TBD		
5.6.2 Sensitize farmers and animal facility operators on the guidelines	# of public awareness campaigns conducted	Yes/No	1000	annually	Sensitization meeting reports	Observation/Document review/Key informant interview	TBD		
Output 5.7: Adherence to safe v Waste treatment practices in ag	waste disposal and ricultural and	Indicators: Proportion of agricultural and animal facilities adhering to safe waste disposal and waste treatment standards							
animal facilities.									
5.7.1 Conduct a baseline assessment of the current status of animal facility and farm waste disposal	Baseline on the waste disposal at animal facility and farms	Yes/No	1	annually	Baseline report	Observation/Document review/Key informant interview	TBD		
5.7.2 Develop/disseminate guidelines for safe waste disposal for animal facilities and farms	Guideline developed	Yes/No	1	annually	Copies of the guidelines	Observation/Document review/Key informant interview	TBD		
5.7.3 Sensitize farmers and animal facility operators on safe waste disposal and treatment practices	# of farmers and animal facility operators sensitized	Yes/No	1000	annually	Sensitization meeting reports	Observation/Document review/Key informant interview	TBD		

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline			
5.7.4 Sensitize stakeholders and farmers on animal facility and farm waste recycling	# of farmers and animal facility operators sensitized	Yes/No	1000	annually	Sensitization meeting reports	Observation/Document review/Key informant interview	TBD			
5.7.5 Procure incinerators for abattoirs and sick animals	# of incinerators procured by facility	Yes/No	20	annually	Delivery reports	Observation/Document review/Key informant interview	TBD			
Objective 6: Increase and Optimize Us e of Vaccines to Prevent Infectious Diseases		Desired Outc	Desired Outcome: Reduced incidence of vaccine preventable diseases in humans and animals							
Output 6.1 Vaccination programs in human and animal health strengthened.		Indicators: Pr	roportion of t	he human and an	imal population va	ccinated disaggregated by	disease			
6.1.1 Procure vaccine and supply vaccines for humans and animals	# and type of vaccines procured for humans and animals	Yes/No	???	annually	Delivery reports	Observation/Document review/Key informant interview	TBD			
6.1.2 Develop/review regulations for vaccinations for animals with vaccination schedules	Updated animal vaccination regulations	Yes/No	1	annually	Copies of the regulations	Observation/Document review/Key informant interview	TBD			
6.1.3 Conduct campaigns to provide information, awareness and schedules about vaccinations in Uganda	# and type of public awareness campaign conducted	Yes/No	100	annually	Reports of the campaign	Observation/Document review/Key informant interview	TBD			
6.1.3 Undertake vaccination of individuals against a broader range of diseases	# of individuals vaccine by disease	Yes/No	???	annually	Vaccination reports	Observation/Document review/Key informant interview	TBD			
6.1.3 Undertake vaccination of animals against a broader range of diseases	# of animals vaccinate by species and by disease	Yes/No	???	annually	Vaccination reports	Observation/Document review/Key informant interview	TBD			

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline			
Output 6.2: Countrywide coverage of vaccination Programs for vaccine preventable diseases in human s and livestock.		Indicators: Pr disease	Indicators: Proportion of the country covered by vaccination programs against vaccine preventable disease							
6.2.1 Conduct a baseline assessment for animal and human vaccines program and services coverage	Baseline on vaccination services	Yes/No	1	annually	Baseline report	Observation/Document review/Key informant interview	TBD			
6.2.2 Develop a vaccine stock management tool to monitor vaccine stocks to prevent stock outs	Tool developed	Yes/No	1	annually	Copy of the management tool	Observation/Document review/Key informant interview	TBD			
6.2.3 Review vaccine schedules to optimize uptake (combination vaccines to increase uptake and reduce cost)	Optimized vaccine schedule	Yes/No	1	annually	Copies of vaccination schedule s	Observation/Document review/Key informant interview	TBD			
6.2.5 Support routine maintenance of a functional cold chain	Functional cold chains deployed	Yes/No	4 per facility per year	annually	reports on cold chain management	Observation/Document review/Key informant interview	TBD			
Output 6.3: Broad range of availability across the country	f vaccines and their	Indicators: N country	umber of vac	cines available a	t various healthcare	e facilities and veterinary of	offices across the			
6.3.1 Review and recommend introduction of new vaccines for both human and animals	List of updated vaccines for the country	Yes/No	1	annually	Copies of the list of updated vaccines for the country	Observation/Document review/Key informant interview	TBD			
6.3.2 Undertake research to measure the impact/best methods of vaccinating animals	Best methods for vaccinating animals recommendations	Yes/No	1	annually	Copies of the report with recommendations	Observation/Document review/Key informant interview	TBD			

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline				
Strategic Objective 3: Antin and Optimal Use	nicrobial Stewardship	Desired Outc	Desired Outcome: Successful treatment of infectious disease								
Objective 7: Promote Optimal Prescribing and Use of antimicrobials		Desired Outc	Desired Outcome: Effectiveness and efficacy of antimicrobials preserved								
7.1 Strengthened coordination coordination and support of Stewardship and ensuring	n mechanisms for of Antimicrobial Optimal Use	Indicators: A	functional T	echnical working	g group (ASO TWC	c) in place					
7.1.1 Establish a Technical Working Group Antimicrobial Stewardship and Optimal Use (ASO TWC)	TWC formed with list of members and ToR	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	None				
Output 7.2: Up-to-date prophylactic, prescribing/treatment guidelines and protocols for infectious diseases in human health		Indicators: Pr prescribing/tr	roportion of h reatment guid	health care facilit lelines and proto	ies with up-to-date cols for infectious	Prophylactic,					
7.2.1 Review and update prescribing guidelines	Published review of prescription guidelines	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	2016 version available				
7.2.2 Print and distribute the prescribing guidelines to all health facilities	# guidelines printed and delivered to regional hubs	Proportion	5000	Annual	Reports	Observation/Document review/Key informant interview	200				
7.2.3 Upload updated prescribing/treatment guidelines to the MOH and NDA website	Guidelines available on websites	Yes/No	2	Annual	Reports	Observation/Document review/Key informant interview	??				
7.2.4 Training prescribers and dispensers on the guidelines	#prescribers and dispensers trainees	Proportion	3000	Annual	Reports	Observation/Document review/Key informant interview	TBD				
7.2.5 Activate Medicines and Therapeutic Committees (MTCs) at national and health facility levels with clear TORs	# of Drug and Therapeutic Committees formed	Proportion	348	Annual	Reports	Observation/Document review/Key informant interview	TBD				

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline		
7.2.6 Sensitize regulatory agencies and policymakers to improve adherence to prescribing guidelines	# of staff by regulatory body sensitized	Yes/No	2	Annual	Reports	Observation/Document review/Key informant interview	TBD		
Output 7.3: Responsible prescribing practices, Dispensing and administration principles for antimicrobials.		Indicators: Pr administratio	Indicators: Proportion of health care workers adhering to prescribing practices, dispensing and administration principles						
7.3.1 Organize ToT sessions for professionals in relevant Fields	# of professionals trained	Proportion	20	Annual	Reports	Observation/Document review/Key informant interview	TBD		
7.3.2 Conduct AMR-specific CMEs through the professional associations	# of CMEs and professionals attending	Proportion	25	Annual	Reports	Observation/Document review/Key informant interview	TBD		
7.3.1 Train MTCs in their functions	# of MTC members by facility trained	Proportion	1740	Annual	Reports	Observation/Document review/Key informant interview	TBD		
7.3.2 Regularly undertake performance monitoring and mentoring of the therapeutic Committees	# of MTC members by facility mentored	Proportion	348	Annual	Reports	Observation/Document review/Key informant interview	TBD		

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline
7.4 Incorporate courses on an and AMR	timicrobial stewardship	Indicators: Pa antimicrobial	roportion of h stewardship	nealth, agricultur	e, animal and enviro	onmental professionals pr	acticing
into the continuous profession curricula for all health, agricu environ mental professionals ensuring accountability.	nal development lture, animal and with a system of						
7.4.1 Develop the antimicrobial stewardship working manuals and Procedures	MOP developed and in place	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	TBD
7.4.2 Print and distribute antimicrobial stewardship working manuals	# of copies printed and distributed	Proportion	5000	Annual	Reports	Observation/Document review/Key informant interview	TBD
7.4.3 Tran healthcare workers on antimicrobial stewardships for both public and private workers	# of health workers trained	Proportion	1000	Annual	Reports	Observation/Document review/Key informant interview	TBD
7.5 Institute/strengthen and su functioning of Medicines and Therapeutics of care facilities	Indicators: P	roportion of l	nealth care facilit	ies with functional	MTCs		
7.5.1 Share susceptibility data regularly to inform prescription	# AST reports shared by facility	Proportion	Monthly (12)	Annual	Reports	Observation/Document review/Key informant interview	TBD

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline
7.5.2 Share regularly information on Antimicrobial use to all stakeholders	# of Antimicrobial use data reports shared by facility	Proportion	Monthly (12)	Annual	Reports	Observation/Document review/Key informant interview	TBD
7.5.3 Provide and share other update scientific and popular literature to improve prescribing practices	# of other information by type shared	Proportion	Monthly (12)	Annual	Reports	Observation/Document review/Key informant interview	TBD
7.6 Support the development and dissemination of antimicrobial stewardship working manuals and procedures.		Indicators: (1 with the man) Up-to-date uals	antimicrobial m	anuals and procedu	res (2) Proportion of healt	h care workers
7.6.1 Develop the antimicrobial stewardship working manuals and procedures	MOP developed and in place	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	TBD
7.6.2 Print and distribute antimicrobial stewardship working manuals	# of copies printed and distributed	Proportion	20	Annual	Reports	Observation/Document review/Key informant interview	TBD
7.6.3 Tran healthcare workers on antimicrobial	# of health workers trained	Proportion	1000	Annual	Reports	Observation/Document review/Key informant interview	TBD
public and private workers							

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline	
7.7 Provide up-to-date and unbiased medicine Information services to human and animal health providers.		Indicators: P	roportion of l	uman and anima	ll health providers a	accessing up-to-d ate medi	ical information	
7.7.1 Share susceptibility data regularly to inform prescription	# AST reports shared by facility	Yes/No	Monthly (12)	Annual	Reports	Observation/Document review/Key informant interview	TBD	
7.7.2 Share regularly information on Antimicrobial use to all stakeholders	# of Antimicrobial use data reports shared by facility		Monthly (12)	Annual	Reports	Observation/Document review/Key informant interview	TBD	
7.7.3 Provide and share other update scientific and popular literature to improve prescribing practices	# of other information by type shared	Yes/No	Monthly (12)	Annual	Reports	Observation/Document review/Key informant interview	TBD	
Output 7.8: Strengthened supe and dispensing outlets for hur antimicrobials	ervision of prescribing nan and animal	Indicators: Proportion of prescribing and dispensing outlets for human and animal antimicrobials adhering to guidelines and standards						
7.8.1 Develop a tool for more efficient supervision and monitoring of healthcare facilities and pharmacies/drug stores	Supervision tool developed	Yes/No	1	Once	Copy of the tool	Observation/Document review/Key informant interview	TBD	
7.8.2 Train professional councils and licensing organs on supervision and monitoring dispensing outlets	# of members by organ trained	Proportion	348	Annual	Training reports with list of participants	Observation/Document review/Key informant interview	TBD	

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline	
7.8.3 Conduct CMEs to improve prescription and good pharmacy practice for health and veterinary prescribers	# of CMEs and health and veterinary prescribers trained	Proportion	1	Annual	Training reports with list of participants	Observation/Document review/Key informant interview	TBD	
7.8.4 Review and update regulations on prescription of antimicrobials	Updated guideline	Yes/No	12 (monthly)	Once	Training reports with list of participants	Observation/Document review/Key informant interview	TBD	
7.8.6 Develop digital/manual tools for tracking and tracing prescriptions at dispensing facilities	Digital tool for tracking prescriptions	Yes/No	5 (one per annum	Once	Copy of the tool	Observation/Document review/Key informant interview	TBD	
7.8.7 Disseminate the tools for tracking and tracing prescriptions	# of persons knowledgeable about the tools	Proportion	1000	Annual	Dissemination reports	Observation/Document review/Key informant interview	TBD	
Output 7.9: Incentives and rev excellence in adherence to bes standards	Indicators: Proportion of healthcare rewards and sanctions committees that have included prescribing practices as a criteria							
7.9.1 Develop tools for the Licensing bodies and Professional Councils to track performance of adherence to best practices and standards	Performance monitoring tool	Yes/No	1	Once	Copy of the tool	Observation/Document review/Key informant interview	None	

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline		
7.9.2 Develop guidelines for award of incentives for excellence in prescription practices	Guideline	Yes/No	1	Once	Copy of the Guideline	Observation/Document review/Key informant interview	None		
Output 7.10: Functional stewardship committees at all health care facilities		Indicators: Proportion of health care facilities with functional stewardship committees							
7.10.1Developproceduresandprotocolsforantimicrobialprescriptions at bothpublicandprivatefacilities	МОР	Yes/No	1	Departments of Clinical services	Cope of the manual	Observation/Document review/Key informant interview	None		
				(MOH), UNHLS					
7.10.2 Establish stewardship committees at health care facilities	Stewardship committees	Proportion	348	Hospital Administration	List of members and minutes	Observation/Document review/Key informant interview	TBD		
7.10.3 Update National guidelines for handling resistant microorganism to prevent transmission	МОР	Yes/No	1	Departments of Clinical services (MOH), UNHLS	Copy of the MOP	Observation/Document review/Key informant interview	TBD		
7.10.4 Integrate data from different committees (IPC, MTC, QA etc.) to inform best practices for containment of resistant organisms at health facilities	Integrated data	Yes/No	12 (monthly)	Departments of Clinical services (MOH), UNHLS	Reports	Observation/Document review/Key informant interview	TBD		
Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline		
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7.10.5 Develop a tool for auditing antimicrobial prescriptions practices at health care facilities	Audit tool	Yes/No	1	Departments of Clinical services (MOH), UNHLS	Copy of the tool	Observation/Document review/Key informant interview	TBD		
7.10.7 Conduct audits of antimicrobial prescriptions practices at health care facilities	Facilities adhering to prescription guidelines	Proportion	5 (one per annum	Departments of Clinical services (MOH), UNHLS	Reports	Observation/Docum ent review/Key informant interview	TBD		
7.10.8 Training prescribers, pharmacists, nurses, and laboratory personnel about good antimicrobial prescribing practices and antimicrobial resistance	Prescribing professionals trained	Proportion	1000	Departments of Clinical services (MOH), UNHLS	Training reports with list of participants	Observation/Docum ent review/Key informant interview	TBD		
Objective 8: Optimize Antimicrobial Medicines and and Animal Health	Access to Effective Diagnostics in Human	Desired Outo	come: Effecti	ve and timely tre	atment of infectiou	s diseases			
Output 8.1: Affordable and ac available at all health facilitie	ccurate diagnostic tools	Indicators: P	roportion of 1	nealthcare facilit	ies with diagnostic	tools			
8.1.1 Procure adequate diagnostic tools (equipment, supplies, services) for infectious diseases at both public and private facilities and animal health facilities	Amount of supplies/equipment delivered by category by facility	Proportion	assorted	Annual	Reports	Observation/Document review/Key informant interview	TBD		

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline
8.1.2 Establish a subcommittee that evaluates/recommends appropriate/affordable and accurate diagnostic tools	# Committees with list of members established by facility	Proportion	348	Annual	Reports	Observation/Document review/Key informant interview	TBD
Output 8.2: Financing mechanisms for antimicrobial medicines or preventative AMR programmes enhanced		Indicators: Pi	roportion of t	he medicine bud	get allocated to fina	ncing antimicrobials med	icine
8.2.2 Lobby for financing for adequate antibiotics at all health care facilities	Amount of funds available for antibiotics	Proportion	TBD	Annual	Reports	Observation/Document review/Key informant interview	TBD
Output 8.3: Timely and efficient mechanisms for provision of a care providers	ent distribution antimicrobials to health	Indicators: Pi	roportion of c	leliveries of antii	nicrobials to health	care facilities do ne on tir	ne
8.3.1 Identify best practices for efficient medicines distribution system	Report of best practices available	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	TBD
8.3.2 Integrate antimicrobials into the commodities security group activities to ensure efficiency in supply chain management of antimicrobials	Updated commodity activity plan	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	TBD
8.3.3 Adopt digital automated system for timely ordering of drugs	# of health facilities with digital drug ordering system	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	TBD

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline	
8.3.4 Train distributors and health workers (from both public and private sector) on distribution mechanisms of antimicrobials	# trained	Proportion	1000	Annual	Reports	Observation/Document review/Key informant interview	TBD	
Output 8.4: Supply chain management for antimicrobials at the national, regional and local levels improved		Indicators: Pi	roportion of f	facilities having a	Il the required antii	nicrobials procured and a	vailable on time	
8.4.1 Train suppliers of antimicrobials at national levels in efficient supply chain management	# supplies managers trained at national level	Proportion	50	Annual	Reports	Observation/Document review/Key informant interview	TBD	
8.4.2 Train health facility procurement officers in procurement management of antimicrobials to ensure availability of appropriate antimicrobials and related supplies	# of procurement officers trained by facility	Proportion	348	Annual	Reports	Observation/Document review/Key informant interview	TBD	
8.4.5 Irain facility pharmacists in antimicrobial chain management and forecasting of need antimicrobials at their facilities								
Output 8.5: Capacity s/manufacturers of antimicrob	of local producer ials enhanced.	Indicators: Proportion of local antimicrobial manufacturers with increased capabilities						

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline
8.5.1 Provide incentives (e.g. tax holidays and BUBU) for local productions of antimicrobials and compliance with standards of current good manufacturing practices	# incentives by type provided	Yes/No	5	Annual	Reports	Observation/Document review/Key informant interview	TBD
8.5.2 Train local producers of antimicrobials in compliance with standards of current good manufacturing practices	3 of producers trained	Proportion	100	Annual	Reports	Observation/Document review/Key informant interview	TBD
8.5.3 Train regulators to enhance turnaround time for registration process for local Products	# of staff by organization trained	Proportion	50	Annual	Reports	Observation/Document review/Key informant interview	TBD
Objective 9: Promote Access Antimicrobials in Agriculture Medicine	to and Prudent Use of and Veterinary	Desired Outc	ome: Effecti	ve and timely tre	atment of infectious	diseases in animals and a	griculture
Output 9.1: Up-to-date prescri	Indicators: Pr	oportion of h	nealth care facilit	ies with up-to-date	prescription guidelines		
9.1.1 Develop Prescribing/treatment guidelines in animals	Prescribing/treatment guidelines in animals developed	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	TBD
9.1.2 Print and distribute the prescribing guidelines to all health facilities	# guidelines printed and delivered to regional hubs	Proportion	5000	Annual	Reports	Observation/Document review/Key informant interview	TBD

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline			
9.1.3 Train veterinarians on prescription guidelines	# of veterinarians trained	Proportion	500	Annual	Reports	Observation/Document review/Key informant interview	TBD			
9.1.4 Share digital animal prescribing guidelines to improve the usability	Digital guidelines available	Yes/No	5	Annual	Reports	Observation/Document review/Key informant interview	TBD			
Output 9.2: Up-to-date antimicrobial stewardship working manuals and procedures for the agriculture and veterinary sector		Indicators: I stewardship	Indicators: Proportion of agriculture and veterinary practitioners with up-to-date antimicrobial stewardship working manuals and procedures							
9.2.1 Develop antimicrobial stewardship programs for the agriculture and veterinary practice	MOP available	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	TBD			
9.2.2 Print and distribute antimicrobial stewardship working manuals	# MOPs printed and delivered	Proportion	5000	Annual	Reports	Observation/Document review/Key informant interview	TBD			
9.2.3 Train veterinary and agriculture practitioners on antimicrobial stewardships for both public and private practitioners	# of veterinarians and agricultural practitioners trained	Proportion	500	Annual	Reports	Observation/Document review/Key informant interview	TBD			
Output 9: Restricted broad or generalized use of antimicrobials as growth promoters or as feed additives		Indicators: pr	ro portion of	feed manufacture	ers not u sing antim	icrobials in feeds				
9.3.1 Conduct a risk assessment on the use of growth promoters and use of antimicrobial agents as feed additives	Risk Assessment Report with identified risks	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	TBD			

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline
9.3.2 Develop regulations/guidelines on the use of growth promoters and use of microbial agents as feed additives	Regulations and guidelines developed	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	TBD
9.3.4 Print and distribute the regulation/guidelines on growth promoters and feed additives	# guidelines printed and delivered	Proportion	5000	Annual	Reports	Observation/Document review/Key informant interview	TBD
9.3.5 Sensitize farmers /animal health professionals and feed producers on growth promoters	# of farmers and professionals sensitized	Proportion	1000	Annual	Reports	Observation/Document review/Key informant interview	TBD
Output 9.4: Supply chain and agriculture and veterinary me	use of antimicrobials in dicine strengthened.	Indicators: Pr	Indicators: Proportion of agriculture and veterinary practitioners adhering to the regulation				
9.4.1 Conduct a situational analysis of the existing regulations and their implementation / Enforcement	Baseline status of regulations	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	TBD

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline		
 9.4.2 Train drug supplier, pharmacists, veterinarians and agricultural suppliers to in supply chain management of the agricultural and veterinary antimicrobials 9.4.3 Train drug distributors and animal health workers on distribution mechanisms of antimicrobials 	# of drug dealers trained	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	t TBD		
Objective 10: Promote Use of Quality, Safe and Efficacious antimicrobial agents		Desired Outc	ome: Effectiv	ve treatment of in	nfectious diseases				
Output 10.1: Licensing, approversight over the antimicrob (pharmaceutical manufacturer importation, wholesalers and	oval, regulation and ial supply chain rs, distributors, retailers) strengthened	Indicators: Pr	Indicators: Proportion of players in the antimicrobial supply chain adhering to standards and guidelines						
10.1.1 Retrain NDA staff to improve efficiency in their oversight function for to undertake their regulatory functions	# of staff recruited	Proportion	100	Annual	Reports	Observation/Document review/Key informant interview	TBD		
10.1.2 Procure and install automated system for improving processes	# Automated system procured and installed	Yes/No	6	Annual	Reports	Observation/Document review/Key informant interview	TBD		
10.1.3 Sensitize the public on NDA regulations to increase compliance	# of people in the public aware of regulation related to antimicrobials	Proportion	5000	Annual	Reports	Observation/Document review/Key informant interview	TBD		
Output 10.2: Capacity for reg of antimicrobial agents in the laboratories strengthened.	ular quality assessment NDA quality	Indicators: Number of analyses under taken in a y ear and Rate of turnaround time for analyses							

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline
10.2.1 Procure supplies and equipment for testing quality of antimicrobials	Amount of supplies/equipment Procured and delivered by facility	Yes/No	assorted	Annual	Reports	Observation/Document review/Key informant interview	TBD
10.2.2 Collaboration with external laboratories for testing quality of antimicrobials	# of MOU	Yes/No	5	Annual	Reports	Observation/Document review/Key informant interview	TBD
10.2.3 Undertake routine QA/QC							
checks for sustained compliance to WHO prequalification in chemical analysis and relevant international standards	# of QA/QC checks conducted	Yes/No	4	Annual	Reports	Observation/Document review/Key informant interview	TBD
10.2.4 Undertake infrastructure improvements for NDA quality control lab	Renovated laboratory facilities	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	TBD
10.2.5 Procure and install a laboratory information management system (LIMS)	LIMS procured and installed	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	TBD
Output 10.3: Improved superv	vision of Pharmacies	Indicators: Pr	roportion of J	pharmacy outlets	adhering to GPP		
10.3.1 Conduct inspections on pharmacies against GPF and establish compliance to OTC and self-medication prescribing	# of Pharmacies complying with GPP	Yes/No	quarterly	Annual	Reports	Observation/Document review/Key informant interview	TBD
Output 10.4: Over-the-counte medication with antimicrobia to regulations improved	r availability and self- l medicines adherence	Indicators: Pr	roportion of o	lrug outlets adhe	ring to regulations	regarding OTC	
10.4.1 Enforce compliance to OTC dispensing guidelines	# of facilities adhering to OTC guidelines	Yes/No	quarterly	Annual	Reports	Observation/Document review/Key informant interview	TBD

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline				
Output 10.5 Strengthened reg	ulation of the										
pharmaceutical companies and	d adherence to Good	Indicators: Proportion of pharmaceutical companies adhering to GMPs									
Manufacturing Practices			1	Γ	I		Γ				
10.5.1 Establish Harmonization mechanisms with WHO and other NDA on the compliance assessments for pharmaceutical companies	# of MOUs	Yes/No	3	Annual	Reports	Observation/Document review/Key informant interview	TBD				
Output 10.6: Strengthened reg	gulation of the	Indicators: Pa	roportion of f	acilities adhering	g to guidelines for p	harmaceutical and antimi	crobial waste				
pharmaceutical and antimicro	bial waste	disposal	1	1	1						
10.6.1 Develop guidelines for disposal of pharmaceutical and antimicrobial waste by the health facilities and general public	Guidelines for waste disposal available	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	TBD				
10.6.2 Print and disseminate disposal guidelines	# of copies printed and distributed	Proportion	500	Annual	Reports	Observation/Document review/Key informant interview	TBD				
10.6.3 Sensitize pharmacies and drug dealers on pharmaceutical waste disposal	# of drug dealers knowledgeable about pharmaceutical waste disposal	Proportion	500	Annual	Reports	Observation/Document review/Key informant interview	TBD				
Strategic Objective 4: Surve	villance	Desired Outc	come: Early d	etection and resp	oonse to emerging N	MDR problems					
Objective 11: Support Surveil	lance of AMR	Desired Outc	ome: Eviden	ce-based decisio	n on AMR						
Output 11.1 A national AMR programme in place	Indicators: A	fully functio	nal surveillance	programme							
11.1.1 Establish a nationalTechnical Working Group(TWC)forAMRsurveillance(SURV TWC)	SURV TWC formed with list of members and ToR	Yes/No	1	Once	UNAMR C meeting minutes	Observation/Document review/Key informant interview	SURV TWC in place				

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline
11.1.2 Conduct a baseline survey and needs assessment on AMR surveillance system	Baseline data with list of the gaps and needs for AMR surveillance	Yes/No	1	Once	Baseline survey report	Observation/Document review/Key informant interview	30% conducted
11.1.3 Develop an integrated AMR surveillance plan	Approved integrated surveillance plan	Yes/No	1	Once	Copy of the plan	Observation/Document review/Key informant interview	50% completed
11.1.4 Print and distribute the AMR surveillance plan	# of copies printed and distributed	Proportion	1000	Once	Copies and delivery notes	Observation/Document review/Key informant interview	0
11.1.5 Select priority surveillance sites	List of prioritized list of surveillance site and harmonized methodologies	Proportion	14	Once	Reports	Observation/Document review/Key informant interview	TBD
Output 11.2 SOPs and method surveillance of AMR in place	dologies f or	Indicators: Pr	roportion of l	aboratories adhe	ring to standard pro	cedures to generate AST	data
11.2.1 Develop a manual of SOPs for AMR surveillance	Published MOP	Yes/No	1	Once	Copy of the MOP	Observation/Document review/Key informant interview	None
11.2.2 Identify priority organisms, samples and testing panels in coordination with international partners	List of priority organisms, samples and testing panels	Yes/No	1	Once	Reports	Observation/Document review/Key informant interview	TBD
Output 11.3: Laboratory infrastructure, human resources, supplies and equipment improved		Indicators: (1) Suitable in	frastructure (2) V	Vell trained human	resource (3) Suit able equ	ipment in place
11.3.1 Undertake improvements in Infrastructure and equipment for microbiological isolation and susceptibility testing	# of laboratories renovated	Proportion	20	Once	Renovation reports and delivery and Installation on reports of equipment	Observation/Document review/Key informant interview	10% of basic facilities available

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline	
11.3.2 Equip laboratories microbiological isolation and susceptibility testing	List of equipment for each laboratory procured and installed	Yes/No	20	Once	Workshop	Observation/Document review/Key informant interview	10 % available	
11.3.3 Train laboratory staff in logistics and supply management	# of staff trained in laboratory logistics	Yes/No	40	Once	Delivery Reports	Observation/Document review/Key informant interview	10 % have basic training	
11.3.4 Procure and install a laboratory information management system (LIMS)	# of LIMS copies procured and installed	Yes/No	20	Once	Reports	Observation/Document review/Key informant interview	None	
Output 11.4 Microbiological culture and sensitivity tests performed routinely		Indicators: P	roportion of l	aboratories unde	rtaking microbiolog	gical culture and AST		
11.4.1 Re-train clinicians and veterinarians on appropriate sample collection and submission	# of clinicians and veterinarians	Proportion	70	Once	Reports	Observation/Document review/Key informant interview	20% knowledge able	
11.4.2 Procure consumables for sample collection, microbiological materials and susceptibility testing panels and reagents	List of sample collection, microbiological materials and susceptibility testing panels and reagents procured	Proportion	assorted	Once	Procurement/deli very reports of sample collection, microbiological materials and susceptibility testing panels and reagents	Observation/Document review/Key informant interview	5% receive routine consumables	
Output 11.5: Quality assurance systems for microbiology laboratory testing in place		Indicators: Proportion of laboratories with QA/QC system in place						

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline		
11.5.1 Procure and make available control strains and reference materials	List of control strains	Proportion	assorted	Once	Procurement reports of the control strains and reference materials procured and delivered to sites	Observation/Document review/Key informant interview	10% available		
11.5.2 Train laboratory staff, veterinarians and clinicians on quality control and quality assurance	# of persons trained	Proportion	100	Once	Reports	Observation/Document review/Key informant interview	20% knowledge able		
Output 11.6: Laboratories enritional external quality a	olled in national and assurance programs	Indicators: Pr	roportion of l	aboratories enrol	led in external qual	ity assurance programs			
11.6.1 Accredit the participating laboratories	# of laboratories accredited	Proportion	20	Once	Reports	Observation/Document review/Key informant interview	10 % accredited by WHO SLMTA		
11.6.2 Conduct annual review of the manual of SOPs	Published revised MOP	Yes/No	1	Once	Copies	Observation/Document review/Key informant interview	None		
11.6.3 Undertake regular supervision and mentorship of the hospital surveillance sites	# sites supervised and mentored	Proportion	14	Annual	Meeting reports and SOP review logs	Observation/Document review/Key informant interview	TBD		
11.6.4 Designate national microbiology reference labs	List of reference laboratories with TOR	Proportion	4	Once	Reports	Observation/Document review/Key informant interview	TBD		
Output 11.7: Surveillance data disseminated to healthcare fac	a and information	Indicators: Proportion of health care and veterinary facilities utilizing AST data to inform their decision of choice of antimicrobials							

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/means of verification	Method of verification	Baseline
11.7.1 Procure and install computers for data management system for sharing and disseminating information to partners	# of computers procured and installed	Proportion	40	Once	Delivery Notes	Observation/Document review/Key informant interview	None
11.7.2 Train personnel on data management and reporting	# of personnel trained	Proportion	40	Once	Reports	Observation/Document review/Key informant interview	10% knowledge able
11.7.4 Share data locally, nationally and internally	# of reports shared	Yes/No	1	Once	Reports	Observation/Document review/Key informant interview	None
Output 11.8: One Health netw share data	orks created to widely	Indicators: N	umber of On	e Health function	hal networks created	1	
11.8.1 Undertake an assessment to identify data needs for the various stakeholders to inform actions for minimizing AMR	Data needs for the various stakeholders to inform actions for minimizing AMR	Yes/No	1	Once	Reports	Observation/Document review/Key informant interview	TBD
11.8.2 Develop a tool for sharing data at different levels and to different stakeholders	Developed tool	Yes/No	1	Once	Reports	Observation/Document review/Key informant interview	None
Output 11.9: An early warning trends off AMR established	g system to monitor	Indicators: Pr	roportion of f	acilities with an	early warning syste	m in place	
11.9.1 Adopt international standards for AMR early warning	Copy of the standards	Yes/No	1	Once	Reports	Observation/Document review/Key informant interview	10% available
11.9.2Sensitize laboratorystaff,clinicians,andveterinariansonidentification and evaluationof risks	# of staff sensitized	Proportion	100	Once	Reports	Observation/Document review/Key informant interview	10% aware

Planning Element	Indicat	or (n)	Performat Value (calculation of n/N))	nce on Target (N)	Frequen data col	cy of lection	Data Sou veri	a rce/means of fication	Method of verification	Baseline
11.9.3 Compile and provide information on identified risks	# risks routine	identified ly	Yes/No	4	Once		Rep	orts	Observation/Document review/Key informant interview	TBD
Output 11.10: Countrywide ut	ilization	of data	Indicators	: Proportion of	health care	e facilit	ies ut	ilizing AMR d	lata	
11.10.1 Disseminate AMR data throughout the country including remote and hard- to-reach areas	# of rep	ports shared	Yes/No	121	Once		Rep	oorts	Observation/Document review/Key informant interview	None
Number of MDA plans	s with A	MR as a priorit	y in the risk	register						
11.11.1 Train risk registrars to incorporate risk reporting into registers	their	# of risk educ trained in AM reporting	ators IR risk	Proportion	100	week	ly	Training Reports	Observation/Document review/Key informant interview	TBD
Objective 12: Support Surveill	lance of	Antimicrobial V	Use	Desired Outco	ome: Evide	ence bas	sed de	ecisions on ant	imicrobial use	
Output 12.1: A national antimplace	icrobial	use surveillance	e plan in	Indicators: A	functional	nationa	1 anti	microbial use	surveillance plan	
12.1.1 Undertake a baseline su and needs assessment and ide gaps for implementing antimicrobial use surveillance	nrvey entify an plan	Gaps for imp an antimicro surveillance p	olementing obial use Ian	Yes/No	1	Once		Reports	Observation/Document review/Key informant interview	TBD
12.1.2 Develop an int antimicrobial use surveillance	tegrated plan	Approved pub plan	olished	Yes/No	1	Once		Reports	Observation/Document review/Key informant interview	None
12.1.3 Print and distribute antimicrobial use plan		# of copies pr distributed	inted and	Proportion	1000	Once		Copies	Observation/Document review/Key informant interview	None
12.1.4 Disseminate the surveillance of antimicrobial u	national Ise plan	# of stakehold knowledgeabl plan	lers le of the	Proportion	200	Once		Distribution Lists	Observation/Document review/Key informant interview	None
Output 12.2: Procedures and methodologies for monitoring antimicrobials developed			oring	Indicators: Pro antimicrobial	oportion of use	faciliti	es wi	th and using st	andard procedures to mor	nitor

Planning Element	Indicat	or (n)	Performat Value (calculatio of n/N))	nce on	Target (N)	Frequence data coll	cy of ection	Data Sour	a rce/means of fication	Method of verification	Baseline
12.2.1 Develop and manual of procedures and methodologies routine monitoring antimicrob	f s for bial use	Published MC)P	Yes	s/No	1	Once		Reports	Observation/Document review/Key informant interview	None
12.2.3 Train hospital, pharmac veterinary staff to collect and antimicrobial use data routine	cy and share ly	# of health professionals	trained	# of eve	f risk ents shared	1000	Once		Reports	Observation/Document review/Key informant interview	5% knowledge able
12.2.2 Collect, collate and sha antimicrobial use data regular	ure ly	# antimicrobia data shared	al use	# of eve	f risk ents shared	1000	Once		Reports	Observation/Document review/Key informant interview	None
Output 12.3: Robust data on p practices, client/community us	orescribir se genera	ng practices, dis n ted	pensing	Ind: data	licators: Pro a	portion of	facilitie	es gei	nerating presc	ribing practices, dispensin	g practices
12.3.1 Identify antimicrobial upractice indicators	ise and	Antimicrobial practice indica	use and ators	Yes	s/No	1	Once		Reports	Observation/Document review/Key informant interview	None
12.3.2 Develop a many procedures for monitoring prescription and dispensing pr	ual of actices	Published MC)P	Yes	s/No	1	Once		Copies	Observation/Document review/Key informant interview	None
12.3.3 Regularly collect data of prescribing and dispensing pra	on actices	Data on presc and dispensing practices share	ribing g ed	Yes	s/No	12	Annu	al	Reports	Observation/Document review/Key informant interview	None
Output 12.4: Antimicrobial us	se data ge	enerated and sha	ared	Ind	icators: Pro	portion of	facilitie	es gei	nerating antim	icrobial use data	
12.4.1 Undertake regular data collection on antimicrobial ac and use	cess	# of Published	l Reports	Pro	oportion	1000	Annu	al	Reports	Observation/Document review/Key informant interview	None
12.4.2 Analyze and share data relevant stakeholders	with	# of Published	l report	Pro	oportion	4	Once		Reports	Observation/Document review/Key informant interview	None
Output 12.5: Data on impact of antimicrobial use generated	of pharm	aceutical promo	otion on	Ind	licators: A n	nount of da	ata aboi	ut imj	p act of pharm	aceutical promotion	
12.5.1 Develop tools for monitor the impact of pharmace promotion	toring eutical	Approved and disseminated	tools	Yes	s/No	1	Once		Tools and report	Observation/Document review/Key informant interview	None

Planning Element	Indicat	or (n)	Performan Value (calculatio of n/N))	nce on	Target (N)	Frequendata coll	cy of lection	Data Sour	a rce/means of fication	Method of verification	Ba	seline
12.5.2 Collect, evaluate, disseminate data on the impac pharmaceutical promotion on antimicrobial use	and et of	# of Published	l Report	Ye	es/No	4	Annua	al	Reports	Observation/Document review/Key informant interview		None
Objective 13: Support Surveil Residues in Foods	lance for	Antimicrobial	Drug	De	sired Outco	me: Reduc	ed leve	ls of	antimicrobial	drug residues in foods		
Output 13.1: A national surve antimicrobial residues in food	Output 13.1: A national surveillance plan for monitoring antimicrobial residues in foods and animal feeds in place 13.1.1 Undertake a baseline survey Needs for surveillanc			Ind	licators: A f	unctional j	plan for	mon	itoring antimi	crobial residues in foods in	n pla	ace
13.1.1 Undertake a baseline and needs assessment and gaps for surveillance of antim residues in foods and animal f	survey identify icrobial ceeds	Needs for sur of antin residues in foo animal identif	veillance nicrobial ods and ied	Ye	es/No	1	Once		Reports	Observation/Document review/Key informant interview		TBD
13.1.2 Develop a national plan monitoring of antimicrobial re- in foods and animal feeds	n for esidues	Published nati	onal plan	Ye	es/No	1	Once		Reports	Observation/Document review/Key informant interview		None
13.1.3 Print and distribute nat surveillance plan for monitor residues in foods and animal f	ional oring Feeds	# of copies pr distributed	inted and	Pro	oportion	5000	Once		Copies	Observation/Document review/Key informant interview		None
13.1.4 Disseminate the nation surveillance plan	al	# of stakehold knowledgeabl plan	ers e of the	Pro	oportion	500	Once		Reports	Observation/Document review/Key informant interview		None
Output 13.2: Standard procedures in foods in place	ures for 1	nonitoring antii	nicrobial	Ind ant	licators: Nu timicrobial r	mber of la esidues in	lborator foods	ries w	ith and using	standard procedures for m	onit	toring
13.2.1 Develop or adopt intern standards for antimicrobial re- in foods	national sidues	Published MC)P	Ye	es/No	1	Once		Copies of MOP	Observation/Document review/Key informant interview		None
13.2.2 Train veterinarians laboratory personnel on monit antimicrobial residues in food animal feeds	and toring and	# of personne	trained	Pro	oportion	50	Once		Reports	Observation/Document review/Key informant interview		5 % knowledge able

Planning Element	Indicat	or (n)	Performa Value (calculati of n/N))	ion	Target (N)	Freque data co	ency of ollection	Dat Sou veri	a irce/means of ification	Method of verification	Ba	aseline
13.2.3 Identify and prioritize s and antimicrobial residues for	samples • testing	Published list priority samp residues	of les and	Ye	es/No	1	Once	;	Reports	Observation/Document review/Key informant interview		None
13.2.4 Provide the appropriate infrastructure and renovations laboratories	e for the	# of laborator renovated	ies	Pro	portion	2	Once		Reports	Observation/Document review/Key informant interview		20% have basic infrastructur e
13.2.6 Equip national laborate monitoring antimicrobial resid	ories for lues	List of equipr for each laborato procured and installed	nent ry	Pro	portion	assorted	Once		Reports	Observation/Document review/Key informant interview		20% of equipment needs
12.2.5 Train personnel in laboration logistics and supply managements and supply managements and supply managements and supply managements are supply managements and supply managements are supply managements and supply managements are supply managements. The supplements are supply managements are supply managements are supply managements are supply managements are supply managements. The supplements are supply managements are supply managements are supply managements are supply managements are supply managements. The supplements are supply managements are supply managements. The supplements are supply managements are supply are supply managements are supply are supply are supply are supply managements are supply are	oratory ient	# of staff trair laboratory log	ned in gistics	Yes	s/No	50	Once		Reports	Observation/Document review/Key informant interview		10% knowledge able
13.2.6 Procure laboratory info management system	ormation	# of LIMS co procured and installed	pies	Yes	s/No	2	Once		Reports	Observation/Document review/Key informant interview		None
13.2.8 Procure and consumab supplies	les and	List of consur procured	nables	Pro	portion	assorted	Annu	al	Delivery Notes/Re ports	Observation/Document review/Key informant interview		10% of supplies available
13.2.9 Enroll the various labs national and international exte quality assurance programs	in ernal	# of labs enro labs in QA/Q programmes	lled C	Pro	portion	2	Once		Reports	Observation/Document review/Key informant interview		20% enrolled
Output 13.3: Collaborating with Alimentarius and other international other internation	ith WHO ational p	/ FAO Codex artner establish	ed	In	dicators: An	internati	onal pla	tform	for sharing da	ta		
13.3.1 Summarise and share of standardized formats regularly	lata in y	# of reports		Pr	oportion	12	Ann	ıal	Reports	Observation/Document review/Key informant interview		None
13.3.3 Hold regular dissemina meetings for sharing data sum with stakeholders	ation imaries	# of stakehold regularly rece reports	lers iving	Pr	oportion	100	Ann	ıal	Reports	Observation/Document review/Key informant interview		None

Planning Element	Indicat	or (n)	Performar Value (calculatio of n/N))	nce On Target (N)	Frequen data col	Icy of Section	Data Source/means of verification	Method of verification	Baseline
Objective 14: Foster Collabor AMR stakeholders	ation and	l Partnerships a	mong	Desired Outco	ome: Harm	onized an	nd coordinated Al	MR surveillance system	
Output 14.1: Harmonized surv and monitor antimicrobial use pathogens established	veillance and resi	and capacity to stance in priori	detect tized	Indicators: Ind	creased cap	pacity for	surveillance AM	R and use	
14.1.1 Organize a harmonizat workshop with international p and other stakeholders on the surveillance tools and method	ion artners ologies	Harmonized t	ools	Proportion	5	Once	Reports	Observation/Document review/Key informant interview	None
14.1.2 Participate in regional a global data sharing pl including GLASS	and atforms,	# inter platforms for data	national sharing	Proportion	5	Annual	Reports	Observation/Document review/Key informant interview	GLASS open
Output 14.2: Mechanisms for regional and international con established	participa nmunicat	ition internation	nal, events	Indicators: A	platform fo	or commu	nicating AMR cr	itical events	
14.2.1 Identify AMR critical e that are consistent with interna standards	events ational	# of events rej	ported	Proportion	5	Once	Reports	Observation/Document review/Key informant interview	None
14.2.2 Institute global remechanisms for critical events	eporting s	# of tools for reporting	global	Proportion	5	Annual	Reports	Observation/Document review/Key informant interview	None
Output 14.3: National, regiona assurance standards in place	al and int	ternational qual	ity	Indicators: Pro	oportion of	facilities	with QA/QC pro	ocedures in place	
14.3.1 Develop manual of pro for Quality assurance mecha for surveillance	ocedures anisms	Published MC)P	Yes/No	1	Once	Reports	Observation/Document review/Key informant interview	None
14.3.1 Train personnel in Qua assurance mechanisms surveillance	lity for	# of personne	l trained	Proportion	100	Annual	Reports	Observation/Document review/Key informant interview	10 % knowledge able
14.3.2 Enroll all laboratory surveillance partners in releva quality assurance mechanisms	int S	# of lal enrolled assurance pro	ooratories quality grammes	Proportion	22	Once	Reports	Observation/Document review/Key informant interview	10 enrolled

Planning Element	Indicat	or (n)	Performat Value (calculation of n/N))	nce on	Target (N)	Frequen data coll	cy of lection	Data Sou veri	a rce/means of fication	Method of verification	Baseline
Strategic Objective 5: Resea	irch and	Innovation		De	sired Outcon	me: Reduc	ed eme	rgen	ce and spread	of AMR	
Objective 15: Promote Innova Treatments and Drug Discove	ation in S ery	earch for Alter	native	De	sired Outcon	me: Effect	ive con	trol c	of resistant info	ections	
Output 15.1: Mechanisms innovation in place	for coor	dinated research	n and	Ind	licators: A p	latform (R	U TWC)for	coordinated re	search in AMR	
15.1.1 Establish a Technical Working Group (TWC) on Research and innovation (RI TWC) TWC formed with list of members and ToR			l with list nd ToR	Ye	s/No	1 Once Inaugur report		Inauguratio n meeting report	Observation/Document review/Key informant interview	NONE	
15.1.2 Train researchers on gr writing	rant	# of researche in grant writir	ers trained	Pro	oportion	500	Annua	al	Training Report	Observation/Document review/Key informant interview	20% knowledge able in grant writing
15.1.3 Advocate, lobby and sl information and RFPs for fun- AMR research	hare ding of	# proposals fu amount	inded by	Pro	oportion	continu ous	Annua	al	Reports	Observation/Document review/Key informant interview	10% funding
15.1.4 Sensitize researchers o intellectual property rights an patenting	n d	# of res knowledgeabl and patenting	searchers le in IPR	Pro	oportion	200	Annua	al	Reports	Observation/Document review/Key informant interview	10% researchers knowledge able in IPR and patenting
Output 15.2: Enhance product capacity of the Natural Chemo (NCL) and other partners	t develop otherape	oment and labor utics Laboratori	atory ies	Ind and	licators: Nur d approved	nber of ne	w antin	nicro	bial products o	developed by NCL and otl	ner partners
15.2.1 Conduct a baseline sur needs assessment on antimicro resources in the country, and opportunities and gaps to be f	vey and obial identify illed	Baseline on antimicrobial	resources	Ye	es/No	1	Annua	al	Reports	Observation/Document review/Key informant interview	TBD
15.2.2 Conduct a study to iden challenges and opportunities enhancing antimicrobial prod development	ntify for luct	Challenges an opportunities enhancing pro development	nd for oduct	Ye	es/No	1	Annua	al	Reports	Observation/Document review/Key informant interview	TBD
Output 15.3: International col screening of antimicrobial con	laboratic npounds	ons in high-thro established	ughput	Ind ant	licators: Nur timicrobial c	nber of in ompounds	ternatio s establi	nal c shed	ollaborations	in high-throughput screen	ng of

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/me ans of verificatio n	Method of verification	Baseline
15.3.1 Identify collaborators and partners in the development of antimicrobial compounds	List of collaborators	Proportion	3	Annual	Reports	Observation/Document review/Key informant interview	TBD
Output 15.4: Academia and other rese product development	archers supported in	Indicators: Nu researchers an	mber of ne d approve	w antimicro d	bial products	developed by academia and c	other
15.4.1 Provide seed funding for proposal development	# of proposals developed and submitted	Proportion	100	Annual	Reports and copies of proposals	Observation/Document review/Key informant interview	TBD
15.4.2 Post calls for funding opportunities onto institutional websites and mailing lists of stakeholders including print media	# of RFP posted	Proportion	1000	Annual	Copies of the RFPs	Observation/Document review/Key informant interview	20% of RFP routinely posted
15.4.3 Establish database of biological materials, including plants, fungi, and other compounds with suspected antimicrobial properties	# of biological materials with potential antimicrobial properties	Proportion	1000	Annual	Reports	Observation/Document review/Key informant interview	5 % of biological materials with potential antimicrob ial properties known
Output 15.5: Research in alternative tr supported	eatments for infections	Indicators: Nu	umber f alte	ernatives for	treatment of in	nfectious diseases developed	
15.5.1 Explore and share innovative treatments to infectious diseases	# and list of alternative treatments for infectious diseases	Proportion	100	Annual	Reports	Observation/Document review/Key informant interview	5% of possible alternative s known
Output 15.6: Linkages between indiger (ITK) groups to the product developm	nous technical knowledge e nt system established	Indicators: Nu	mber of IT	Ks develope	ed into antimi	crobial products	
15.6.1 Facilitate the establishment of MoUs between ITKs, the National Chemotherapeutic Laboratories and other stakeholders	# of MoUs signed	Proportion	5	Annual	Reports and copies of MOUs	Observation/Document review/Key informant interview	10%

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/me ans of verificatio n	Method of verification	Baseline	
15.6.2 Carry out country-wide survey of indigenous knowledge on antimicrobial solutions	# of ITKs on AMR solutions	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	TBD	
Objective 16: Promote Innovations in	Diagnostic Technology	Desired Outco	ome: Accur	ate and cost	effective diag	nosis of infections		
Output 16.1: Capacity for research, de innovative diagnostic technologies stre	velopment and testing of engthened	Indicators: Nu	mber of ne	w innovative	e diagnostics	developed		
16.1.1 Conduct a baseline survey and needs assessment to identify the opportunities and challenges in innovative diagnostics	Baseline on diagnostics for AMR	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	TBD	
16.1.2 Enhance the capacity of national regulatory bodies to assess and approve potentially innovative antimicrobial and diagnostic technologies	# of approved diagnostics	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	10% diagnostics in use	
Output 16.2: Point-of-care diagnostics diseases and detection of resistance va	for detection of infectious lidated	Indicators: Number of point-of-care diagnostics validated and approved						
16.2.1 Undertake an assessment of the point of care diagnostics in different stages of development	Baseline on the point of care diagnostics in different stages of development	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	TBD	
16.2.2 Sensitize stakeholders on regulatory systems and processes for approval of diagnostic technologies	# of stakeholders knowledgeable about regulatory systems and approvals for diagnostic technologies	Proportion	100	Annual	Reports	Observation/Document review/Key informant interview	10%	
16.2.3 Train regulatory agency staff in approval processes for diagnostics	# of staff knowledgeable in product approval processes	Proportion	20	Annual	Reports	Observation/Document review/Key informant interview	TBD	
Output 16.3: Ugandan science leaders i n international research on AMR		ch Indicators: Number of Uganda scientists with leadership position in international research partnerships						

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/me ans of verificatio n	Method of verification	Baseline			
16.3.1 Identify and disseminate opportunities for Ugandan scientists in international research partnerships and offer mentorship	# of scientists participating in international research related to AMR	Proportion	TBD	Annual	Reports	Observation/Document review/Key informant interview	TBD			
Objective 17: Collaborate with Interna Intervention Research	Desired Outco	ome: High o	quality basic	intervention r	esearch					
Output 17.1: High-risk and high-burde identified	n resistant strains	Indicators: Nu	mhor of hi	ah rick and l	high hurden re	sistent strains reported routin	alu			
17.1.1 Organize workshops to share knowledge on high-risk and high burden resistant strains	List of high burden and high risk resistant organisms	Proportion	4 (1 per year)	Annual	Reports	Observation/Document review/Key informant interview	TBD			
Output 17.2: Innovations for new development, vaccines, and other inno	anti-microbial drug vative therapies	Indicators: Number of innovative new antimicrobial drug development, vaccines, and other innovative the rapies developed								
17.2.1 Identify and disseminate opportunities for participation in the development of antimicrobials, vaccines, and other innovative therapies	# and list of potential opportunities	Proportion	100	Annual	Reports	Observation/Document review/Key informant interview	TBD			
17.2.2 Identify and twin local laboratories with foreign laboratories to support the local production of vaccines	# and list of potential twinning opportunities	Proportion	5	Annual	Reports	Observation/Document review/Key informant interview	TBD			
17.2.3 Establish and maintain microbial collections and other biological resources for research and development of AMR solutions	# and list Potential funders for microbial collections	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	TBD			
Output 17.3: Collaborations in high-th sequencing technologies established	Indicators: Number of high-through put genomics and sequencing technologies available									

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/me ans of verificatio n	Method of verification	Baseline
17.3.1 Undertake a baseline survey							
and needs assessment to identify current capabilities and gaps in high through put genomics and sequencing in the country	Baseline on gaps in high-through-put screening capabilities	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	TBD
17.3.2 Establish a National Genomics and Bioinformatics Centre (NGBC) to support AMR research	Functional NGBC	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	NONE
17.3.3 Identify and facilitate collaboration of the NGBC with other international Centre's of excellence	# of MOUs signed with partners	Proportion	3	Annual	Reports and copies of MOUs	Observation/Document review/Key informant interview	TBD
Output 17.4: The burden of AMR esta	blished	Indicators: Th	e proportio	n of burden	infectious dise	ases that is attributed to AM	R
17.4.1 Undertake research to examine the burden of AMR in the country	Knowledge on the burden of AMR	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	TBD
Output 17.5: A research innovation fu that slow down AMR established.	n d to support innovations	Indicators: Si	ze of fund				
17.5.1 Advocate and lobby for funding support for research innovations from government and pharmaceutical companies	Amount of funds available for AMR research	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	TBD
Objective 18: Enhance Operational an Research at the Local Level	d Health Systems	Desired Outco	me: Evider	nce-based he	alth systems o	perations	
Output 18.1: transmission pathways be humans, animals and food supply chai	etween the environment, n established	Indicators: Elu	icidation of	f resistance t	ransmission pa	athways	
18.1.1 Organize One Health workshops to identify priorities for research on resistance and transmission pathways	# and list of One Health AMR research priorities	Yes/No	1	Annual	Reports	Observation/Document review/Key informant interview	TBD

Planning Element	Indicator (n)	Performance Value (calculation of n/N))	Target (N)	Frequency of data collection	Data Source/me ans of verificatio n	Method of verification	Baseline
18.1.2 Identify and disseminate opportunities for One Health research funding	List of funding opportunities for One health research on AMR	Proportion	continu ous	Annual	Reports	Observation/Document review/Key informant interview	TBD
Output 18.2: Local Antimicrobial use	patterns established	Indicators: Pat	t terns and	t rends of and	timicrobial us	e locally	
18.2.1 Identify priorities for research to establish and improve antimicrobial prescription and use patterns	List of research priorities	Proportion	1	Annual	Reports	Observation/Document review/Key informant interview	TBD
18.2.2 Conduct research to assess							
behavioral, cultural and anthropological practices on antimicrobial use in society, prescription practices and motivators	Research reports	Yes/No	5	Annual	Reports	Observation/Document review/Key informant interview	TBD