

REPUBLIC OF RWANDA



**NATIONAL ACTION PLAN ON ANTI-
MICROBIAL RESISTANCE**

2020-2024

June 2021

FOREWORD

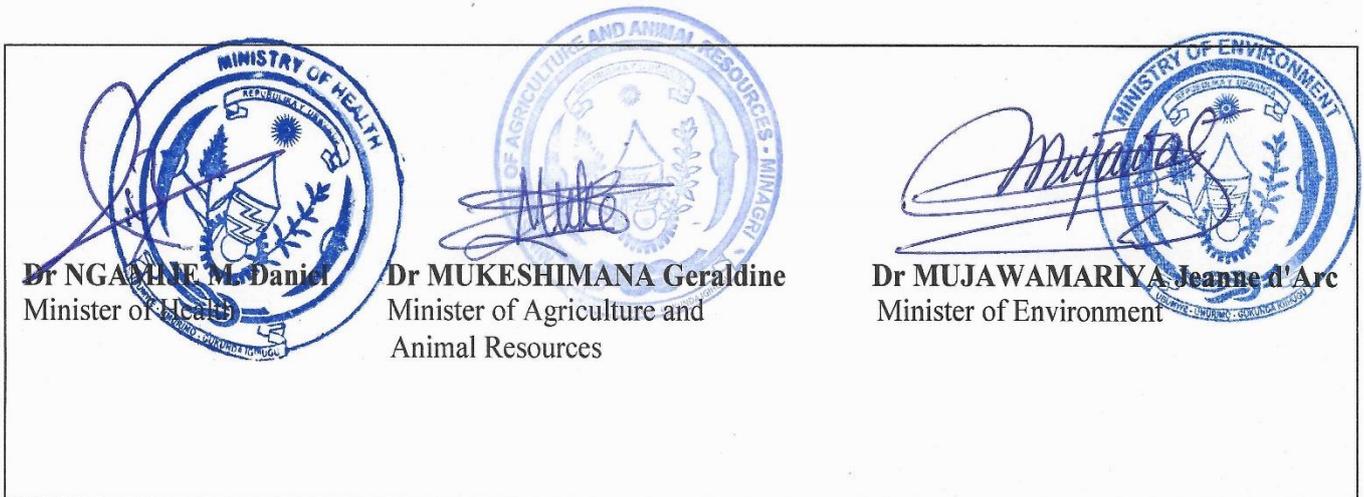
The National Action Plan on Antimicrobial Resistance is the guiding document outlining national strategic directions to ensure access to good quality and safe medicines toward continuity of effective treatment and prevention of infectious diseases in humans, animals and crops. It encompasses technical inputs from health, education, environment, agriculture and veterinary sector stakeholders. Several consultations that were organized with all these stakeholders allowed to design appropriate and evidence-based strategic interventions.

Antibiotics was one of the most important medicinal advances in the history of human and animal health, revolutionizing the treatment of infectious diseases. This has contributed to the reduction of microorganism-induced morbidity and mortality. Antimicrobial resistance undermines the successful prevention and treatment of an ever-increasing variety of bacterial, viral and fungal infections that have a significant impact on food security, public health, economy and livelihood of people, animals and environment.

This Action Plan needs multi-sectoral collaboration, coordination, communication and partnership between the human, animal, agricultural and environmental sectors in order to be effectively implemented. This One Health approach would lead to enhanced Anti-Microbial Resistance (AMR) knowledge and understanding, strengthened evidence-based policy and related AMR acts, optimization of the use of antimicrobials, thus reducing the rate of antimicrobial resistance.

On this note, we would like to acknowledge institutions, organizations and individuals who contributed technically to the development of this Action Plan. Special thanks go to Food and Agriculture Organizations of the United Nations Rwanda Country Office for the financial and technical support provided throughout the whole process of the development of this national action plan.

We call upon all stakeholders from both Government, development partners, the private sector and other non-government actors involved to align their interventions to this National Action Plan.



ABBREVIATIONS AND ACRONYMS

Acronyms	Abbreviations
AMR	Anti-Microbial Resistance
CPD	Continuing Professional Development
CSO	Civil Society Organizations
DTC	Drug and Therapeutics Committee
FAO	Food and Agriculture Organization
GHSA	Global Health Security Agenda
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome
HSSP IV	Fourth Health Sector Strategic Plan
IDSR	Integrated Diseases Surveillance and Response System
IHR	International Health Regulations
IPC	Infection Prevention and Control
JEE	Joint External Evaluation
TK	Technical Knowledge
NAPAMR	National Action Plan on Anti-Microbial Resistance
NAP	National Action Plans
NCL	Natural Chemotherapeutics Laboratories
NGO	Non-Governmental Organizations
NRL	National Reference Laboratory
NTS	Non-Typhoid Salmonella
OIE	World Health Organization for Animal Health
OTC	Over The Counter
Rwanda FDA	Rwanda Food and Drugs Authority
TB	Tuberculosis
TOT	Training of Trainers
WHO	World Health Organization

EXECUTIVE SUMMARY

Antimicrobial resistance (AMR) is the ability to survive the effects of antimicrobials through microorganisms such as bacteria, viruses, fungi and certain parasites, resulting in a situation where conventional therapies become ineffective and infections continue creating a risk of contamination and spread within humans and animals.

The implications of the above phenomenon on public health have led to a range of attempts at national, regional and global levels to combat and contain AMR. The idea of "One Health" was introduced to express the idea that human and animal health are interdependent and related to the health of ecosystems. Multifaceted, inclusive and coordinated solutions are urgently needed, as advocated by the Global Action Plan of the World Health Organization (WHO) and the United Nations Food and Agriculture Organization (FAO) Action.

Based on the model recommended in the Global Action Plan and Guidelines, this National Action Plan on Anti-Microbial Resistance (NAPAMR) has been developed. Technical informants in different areas of work gathered local data on current initiatives. Using the policy structure established by the One Health policy, these were analysed. Interventions have been designed to resolve the gaps in all five of the global Action Plan's strategic objectives. Further consultations were conducted to ensure that the proposed measures in the affected sectors were feasible, valid and applicable within the Rwandan context.

The resulting NAPAMR represents the consensus of stakeholders on evidence-based, context-specific recommendations for multi-faceted actions in Rwanda, including enhancing AMR awareness and information; providing evidence-based knowledge to reduce the burden of AMR; reducing the incidence of infections in public and private institutions; maximizing the use of antimicrobials in animal and human health;; creating an enabling environment for sustainable investment in AMR reduction. The NAPAMR is to be introduced through a multi-stakeholder platform of shared transparency over a five-year span of frequent reviews of implementation progress.

With the support from funding and implementing partners, it is hoped that the required resources will allow the full implementation of the NAPAMR in such a way that humans and animals live in an environment free from antimicrobial resistance.

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1. INTRODUCTION

1.1 Background

Antimicrobial resistance (AMR) is the natural phenomenon that is accelerated by selective pressure exerted by the widespread use and misuse of antimicrobials in humans and animals whereby microbes generate the ability to develop in the presence of an antimicrobial that would normally destroy them or restrict their growth. The spread of antimicrobial residues into marine and terrestrial ecosystems results in antimicrobial use in humans, livestock and agriculture.

Antimicrobial products play an essential role in combating infectious diseases in both humans and animals. As much as antimicrobial products have contributed to a reduction of illnesses and deaths related to infectious diseases in the past centuries, the same products are being eroded by the emergence of antimicrobial resistance.

Antimicrobial resistance (AMR) has been a growing challenge to the successful treatment of an ever-increasing variety of bacterial, parasite, viral and fungal infections for the past few decades. This has made it hard, expensive or even difficult to treat patients. The scope of the issue is global and impacts on livestock, human health, the climate and, ultimately, the global economy, food and health security. In response to this significant public health issue, at the 68th World Health Assembly in May 2015, a global action plan on antimicrobial resistance was adopted and the Member States agreed on the importance of implementing national action plans (NAPs) aligned with the global plan and integrating the same five strategic objectives¹.

The resolution also acknowledged the importance of the cooperation of the Member States to ensure synergies in the achievement of the five strategic objectives of the global action plan.

In May 2015, the World Assembly of Delegates of the World Health Organization for Animal Health (OIE) also adopted a resolution requiring the Member States to implement the recommendations of the Global Action Plan and to establish national action plans for the use of antimicrobial agents in animals and to work closely with officials of public health. The thirty-ninth conference of the United Nations Food and Agriculture Organization (FAO) adopted a resolution and status report on antimicrobial resistance in June 2015. The FAO resolution encourages members to establish or improve national action plans, policies and international cooperation on food, agriculture and environmental antimicrobial resistance surveillance, monitoring and containment, in close coordination with relevant human health plans. As a result, Rwanda is inspired to develop its own action plan and is now organising the related awareness activities.

In addressing this, countries including Rwanda have adopted the global agenda and committed to developing their national action plan on antimicrobial resistance through One Health Approach.

¹ 68th WHO assembly URGES Member States to have in place, by the Seventieth World Health Assembly, national action plans on antimicrobial resistance that are aligned with the global action plan on antimicrobial resistance and with standards and guidelines established by relevant intergovernmental bodies

1.2 Situational Analysis

The 2018 Global Health Security Agenda (GHSA) assessment report based on the International Health Regulations (IHR) and the Joint External Evaluation (JEE) tool concluded that antimicrobial resistance is a major public health problem in Rwanda and there are high levels of inappropriate use of antimicrobials in the human and animal sectors. We also noted that, although there are systems for monitoring antimalarial medicines, HIV and TB resistance², there is an inadequate system for fully collecting data on antimicrobial resistance (AMR) from both the public and private sectors that are playing an important role in veterinary and human health. Due to its high effect on human and animal health, food protection and the sustainable growth of the agricultural sector, AMR has become a global health priority. In one geographical location or species, resistance can easily spread to other geographical locations or spill over into other species.

A study examining a five-year antimicrobial susceptibility trends among bacterial isolates from a tertiary health-care facility in Kigali conducted from year 2009 to December 31, 2013 showed an increase of resistance to Imipenem and Colistin are rising among gram-negative bacteria in Rwanda.(3). Another study conducted in 2012 at a teaching hospital in the Southern province found that antibiotics commonly used for the treatment of Urinary Tract Infections in Rwanda are becoming less effective.

Statistics from developed economies worldwide indicate that antimicrobials are commonly used in agriculture and public health. This trend is likely to occur in low- and middle-income countries where rapid growth in infectious disease incidence populations, coupled with high demand for animal proteins derived from intensive farming systems, is leading to increased use of antimicrobials.

It is now generally accepted that the pace at which AMR produces and disseminates greatly exceeds the rate at which new antimicrobial drugs are being created.

In the livestock sector, *Escherichia coli* isolates from beef and poultry have been shown to be resistant to tetracycline, Co-Trimoxazole, streptomycin, ampicillin, quinolones and Cephalosporins of the third generation at varying frequencies. Two or three antimicrobials were found to be resistant to some of the isolates.

There are surveillance systems for tracking the effectiveness of antimicrobial agents used in TB, HIV and malaria, and these systems must be connected to the national surveillance system for AMR.

As foodborne diseases ranging from mild gastroenteritis to life-threatening systemic infections, such as those triggered by non-typhoid salmonella (NTS), it is noteworthy that main antimicrobial-resistant foodborne pathogens (*E. coli*, *Salmonella enterica* and *Campylobacter spp*) have occurred with increasing frequency. These diseases are known as internationally significant public health issues.

² In 2018, the case detection rate was 84% and the treatment success rate for all forms of TB was 87%

³ Five-Year Antimicrobial Susceptibility Trends among Bacterial Isolates from a Tertiary Health-Care Facility in Kigali, Rwanda; Am. J. Trop. Med. Hyg., 95(6), 2016, pp. 1277–1283

Strengths	Weaknesses
<ul style="list-style-type: none"> ● The University Teaching Hospitals have an internal plan for infection control and AMR ● Ten laboratories can conduct AMR detection: the National Reference Laboratory; CHUK laboratory, CHUB Laboratory; King Faisal Hospital Laboratory; Rwanda Military Hospital Laboratory; and five district hospital satellites laboratories in Byumba, Gihundwe, Gisenyi, Kibungo, and Ruhengeri. ● Rubilizi National Veterinary Laboratory is capable of detecting AMR pathogens in animals. ● Laboratory capacity exists to detect antibiotic residues in some animal products, such as dairy, honey and meat. ● Potential sentinel sites exist for surveillance of infections caused by AMR pathogens. ● A national epidemic surveillance system is in place in both human and animal sectors. ● Healthcare facilities have individual IPC committees and SOPs. ● WASH programmes are in place in health facilities. ● Isolation units are in place in district and referral hospitals, and there is an isolation centre at Rwanda Military Hospital. ● There is a draft AMR strategic plan awaiting validation from the Ministry of Health. ● Legislation is in place for inspection and use of medicines. ● SOPs are in place for prescribing antibiotics in teaching hospitals. ● A national pharmaceutical policy is in place. ● There is a ministerial order determining the organization of veterinary pharmacy practice. ● Antimicrobial resistance is considered in all strategic documents (health policy, One Health policy, One Health Strategic Plan, HSSP IV) ● Strong political commitment on the part of the government of Rwanda (Ministries of Agriculture, Health and environment) 	<ul style="list-style-type: none"> ● There is no national AMR action plan in place. ● There is no national plan for surveillance of infections caused by resistant pathogens. ● Priority AMR pathogens have not been chosen. ● There are no designated sentinel sites for surveillance of AMR pathogens. ● There is no national plan for HCAI prevention and control. ● There are no designated facilities conducting Hospital Acquired Infections programmes. ● There is no national plan for antimicrobial stewardship. ● There are no designated centres for antimicrobial stewardship. ● The draft AMR strategic plan needs to be finalized and validated. ● A minimal or small-scale awareness campaign on antimicrobial resistance targeting some but not all related sectors (animal, agriculture and human) stakeholders. Inadequate coordination in AMR awareness programs ● AMR not included in national Research agenda ● AMR not adequately included in training curricula ● Lack of AMR stewardship programme ● Inadequate regulation on the use of antimicrobial products in all sectors ● Insufficient data on the impact of AMR in the country (mortality, disability or morbidity, and economic) ● Inadequate IPC programs ● Insufficient funds and financing systems for sustainability in new medical products including, medicines diagnosis tools, vaccines and other intervention.

Strengths	Weaknesses
<ul style="list-style-type: none"> ● Existence of a network of laboratories under national reference laboratory ● National reference Laboratory is accredited ISO 15189:2012 ● Existence of a national veterinary laboratory and satellite labs ● Existence of epidemic surveillance systems sites including TB, HIV, and malaria ● Existence of a strong vaccination program for humans and animals ● Existence of the One Health Policy ● Existence of coordination mechanisms (One Health Multi-Sectoral Coordination Mechanism) ● Existence of WASH program in all health system including community, ● Existence of Rwanda Food and Drug Authority with clear legislation and regulatory framework in place ● Existence of health/veterinary professional regulatory bodies ● Existence of Drugs therapeutic committees in all health facilities 	<ul style="list-style-type: none"> ● <i>Veterinary lab satellites are not equipped enough and able to direct AMR.</i> ● <i>Lack of enough Veterinary lab satellite technicians trained on AMR detection.</i> ● <i>None veterinary professionals who treat their livestock.</i>
Opportunities	Threats
<ul style="list-style-type: none"> ● International organisation commitments ● AMR is a priority in the global health agenda ● Existence of mass media to facilitate awareness programs ● Existence of international health regulation committee ● Existence of Integrated diseases surveillance and response system (IDSR) ● Existence of public Private partnership initiatives ● Existence of social Cluster under the Prime Ministry ● Enhanced coordination across sectors ● Development of a coordinated surveillance system ● Increased interest and funding from national and international sources 	<ul style="list-style-type: none"> ● Limited resources for full implementation of the NAPAMR ● Accelerated emergence of resistant strains that are faster than response development ● Promotion of the use of antibiotics agent in for meat and milk production ● Multiple porous borders growing the risk of imported cases ● Inadequate monitoring and surveillance systems for counterfeits products

2 STRATEGIC FRAMEWORKS

2.1 Vision

To ensure access and use of quality, safe and effective antimicrobials in treatment and prevention of infectious diseases in humans, animals and the environment.

2.2 Mission

Embrace the One Health approach in the prevention, slow down and control of the spread of resistant microorganisms while ensuring the availability of safe, effective, and quality assured antimicrobials and their prudent/rational use.

2.3 Guiding Principles

The guiding principles define that antimicrobial resistance affects not only human health, but also other sectors such as animal health, agriculture, food security, water and sanitation, and economic development, based on the 68th WHA resolutions. The introduction of NAP management should include all industries and disciplines, including conservation and stewardship initiatives, which are uncertain of the efficacy of antimicrobial medicines by all means. And it requires engagement from the whole of society, including a One Health Approach

2.3.1 Prevention first

Each prevented infection is one that requires no care. Infection prevention can be cost-effective and enforced, even where resources are minimal, in all settings and industries. A "best buy" is good sanitation, hygiene and other infection control measures that can delay the production and restrict the spread of antibiotic-resistant infections that are difficult to treat.

2.3.2 Access

The goal of preserving the capacity to treat severe infections requires equal access to, and sufficient use of, existing and new antimicrobial medicinal products. The successful implementation of the NAP to tackle antimicrobial resistance also depends on access to, inter alia, health facilities, health practitioners, veterinarians, preventive technologies, diagnostic tools, including those at the 'point of care', as well as awareness, education and details.

The implementation of the NAP requires adequate investment in all strategies. This requires a good surveillance system, operational research, clear regulation, good laboratories, competent regulatory framework, professional education and training in both the human and animal health sectors well oriented, Political commitment, national and international collaboration as well as a sustainable financial system.

2.3.3 Incremental targets for implementation

That NAP constitutes an opportunity for the country to answer the priority issues to achieve each of the global and national strategic objectives.

2.4 GOAL AND OBJECTIVES

2.4.1 Goal

The overall goal of the action plan is to ensure the ability to treat and prevent infectious diseases with quality, effective and safe antimicrobials medicines.

2.4.2 Strategic Objectives

The global five strategic objectives will be operationalized in order to reach the desired targets of this plan. In each strategic objective, the priority actions, strategic objectives, interventions and key activities have been identified.

1. Increase national awareness and understanding of AMR through education and training
2. Strengthen the Knowledge and Evidence-Based through Surveillance and Research Surveillance of antimicrobial resistance for Infection Prevention and Control
3. Reduce the incidence of infection through effective sanitation, hygiene and infection prevention measures.
4. Optimize the Use of Antimicrobial Agents in Human and Animal Health
5. Ensure sustainable investment in AMR through Sustainable and equitable financing mechanism and research and development.

2.4.2.1 Strategic objective one: Increase national awareness and understanding of AMR through education and training

In order to raise awareness of antimicrobial resistance and encourage behavioural improvement, steps need to be taken immediately through public outreach campaigns that address various audiences in the fields of human, animal and plant health. The inclusion in school curricula of antimicrobial agents and resistance would encourage greater understanding and awareness from an early age.. The development of antimicrobial resistance as a core component of professional education, training, certification, continuing education and development in the health, veterinary and agricultural sectors will help to ensure proper understanding and awareness among professionals. AMR's national awareness and knowledge will be improved by setting up an evidence-based public communication health program targeting people, a plant including the food chain; advocating for AMR and conducting campaigns; establishing knowledge management and sharing mechanism at all levels; including AMR as a core component of professional education, training, certification and development. The priority action in this strategic objective is focusing on the follows areas:

- 1. Awareness-raising and risk communication**
- 2. Coordination framework**
- 3. Education and training**

Objective 1: Increase national awareness and understanding of AMR through education and training and good coordination:

Priority action areas	Strategic interventions	Activities
Awareness-raising and risk communication	Enhance Interventions aimed at improving public awareness	<ol style="list-style-type: none"> 1. Conduct baseline assessment of the level of knowledge and practices on AMR among social and professional groups concerning Human, animal and Environment 2. Develop and implement an evidence-based awareness programme/strategy 3. Establish a mechanism for the institutionalization and implementation of an awareness program in order to incorporate more public communication programme for AMR in human and animal health, food chain, plant production, and environment; 4. Undertake AMR awareness-raising activities in primary, secondary and tertiary schools and other learning institutions using specialized materials; 5. Enhance public awareness through dissemination and publication of research findings; 6. Identify and capacitate opinion leaders to champion the AMR agenda in key sectors. 7. Create public awareness on the effective use of antibiotics in the food value chain, human and animals
AMR Coordination Framework	Improve AMR governance mechanisms	<ol style="list-style-type: none"> 8. Establish AMR information sharing mechanism in human, animal and environment sectors
Education and training	Improve awareness and understanding of AMR through good governance, effective communication, education and training	<ol style="list-style-type: none"> 9. Develop accredited continuing professional development (CPD) and in-service training programmes on AMR including alternative learning method 10. Establish a trace-back system in livestock and food of animal origin 11. Establish the joint reporting mechanism on AMR
	Strengthen education and training of human, animal	<ol style="list-style-type: none"> 12. Include AMR and related topics as a core component of professional education, training, certification and development

	and environmental health professionals	
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2.4.2.2 Strategic Objective Two: Strengthen the Knowledge and Evidence-Based through Surveillance and Research

In order to provide data on the magnitude and patterns of the AMR epidemic, improving awareness and evidence-based on surveillance and analysis is essential. Within the framework of a single health strategy, there is currently no AMR monitoring system in Rwanda, which in turn restricts national efforts to resolve AMR concerns. The AMR surveillance framework will be developed through the multi-sector AMR National Action Plan. For national action to track AMR and its spread, a laboratory-based surveillance system is needed. Equipping laboratories with facilities, reagents and human resources is imperative for reliable microbiological and antimicrobial susceptibility research. Besides, in order to exchange information using a one health approach, a structured system for AMR reporting will be established. The World Health Organization (WHO) approach will be used to assess antimicrobial agent's consumption surveillance in human, livestock, plants and environment. Surveillance and study interventions include the following priority actions areas for action:

1. Surveillance system
2. Laboratory capacity
3. Research and development

Strategic Objective 2: Strengthen the Knowledge and Evidence-Based through Surveillance and Research Surveillance of antimicrobial resistance			
Priority areas	action	Strategic interventions	Activities
Surveillance system		Support laboratory Surveillance of AMR	<ol style="list-style-type: none"> 1. Establish an AMR surveillance system functioning at all laboratory levels in sectors (animal, Human, Plant, food and environment) and coordinated at national level. 2. Develop/review standards operating procedures (SOPs) for laboratory surveillance of AMR in humans and animals, food, agriculture and environment consistent and harmonized with international standards 3. Build laboratory capacities for AMR surveillance, standardize methods used in testing agencies for livestock, farm-raised aquatic animals and pets. 4. Build capacity of regulatory bodies to perform quality control of tests

		<ol style="list-style-type: none"> 5. Support the routine use of microbiological culture and sensitivity tests on prioritized microorganisms and antimicrobials in health facilities and on farms 6. Support capacity building for designated laboratories for AMR surveillance supervision to improve availability and reliability of routine microbiology laboratory testing. 7. Enrol the various participating laboratories in national and international external quality assurance programs 8. Analyse, disseminate and share surveillance data and information to facilitate decision making on diagnoses and treatment in clinical public health, veterinary practices, environment and wildlife laboratories and food technologies 9. Establish the joint reporting mechanism on AMR 10. Establish an early warning system and monitor trends to determine the risk factors, drivers of antimicrobial resistance, and its impacts on public and animal health and the economy
	Support Surveillance of Antimicrobial use	<ol style="list-style-type: none"> 11. Design and implement a national antimicrobial use surveillance plan that defines activities and rules consistent with international surveillance standards in animal and human 12. Develop and implement procedures and methodologies for monitoring antimicrobials imported, used and disposed of. 13. 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 14. Support collection and sharing of data to evaluate and monitor Strategic objectives

		<p>aimed to improve appropriate use and access to antimicrobials in humans and animals</p> <p>15. Monitor and evaluate the impact of pharmaceutical promotion on antimicrobial use</p>
	<p>Support Surveillance for Antimicrobial Drug Residues in Food</p>	<p>16. Design and implement a national surveillance plan for monitoring antimicrobial residues in foods and animal feeds,</p> <p>17. Support the use of standard procedures following international Standards including the WHO/FAO Codex Alimentarius for monitoring antimicrobial residues in food</p> <p>18. Establish collaboration mechanisms with the WHO/FAO Codex Alimentarius and other international efforts to generate and share actionable data</p>

2.4.2.3 Strategic Objective Three: Reduce the incidence of infection through effective sanitation, hygiene and infection prevention measures.

In order to limit the production and spread of antimicrobial-resistant and multi-drug - resistant pathogens, better hygiene and infection prevention measures are necessary. Drug-resistant is not only present in the environment of health care, but also at the level of the household.

Infection Prevention and Control (IPC) is needed to combat AMR with proper training of health personnel and community-level education. In order to promote infection prevention and control in health care, the national program for infection prevention and control needs to be improved at all levels. To respond to antimicrobial resistance, these efforts should go hand in hand with efforts to improve national linkages and partnerships.

The use of vaccines will reduce the incidence of infection and reliance on antimicrobial agents, as well as the risk of developing and transmitting antimicrobial-resistant pathogens across the food chain. Strengthening laboratory and diagnostic infrastructure services to respond to the AMR protocol will be a prerequisite for promoting laboratory and diagnostic infrastructure support, which should include capacity building for laboratory and diagnostic services for antimicrobial agents and timely identification of outbreaks caused by resistant pathogens.

Promoting AMR-based competency practices in human and animal health through professional development is also an important and crucial strategic initiative in the field of training and professional development. This can be accomplished by steps such as the setting up of certifiable formal hygiene and infection training programmes. Infection Prevention and Control (IPC) in teaching institutions and in the working environment, through certified competency-based curricula and AMR guidelines.

1. Overall, best IPC practices would lead to greater results in human and animal health outcomes, while reducing the overall treatment cost. Two priority actions have been identified to meet these challenges: Infection Prevention and Control (IPC)
2. Health Waste Management System

Priority action areas	Strategic interventions	Activities
Infection prevention and control(IPC)	Promote Infection Prevention and Control Practices in Communities	<ol style="list-style-type: none"> 1. Develop and disseminate tools for information, education and communication/behaviour change communication on IPC in communities, including schools and public places. 2. Promote food hygiene practices in all public places and communities. 3. Advocate for access to safe and clean water throughout the country.

Priority action areas	Strategic interventions	Activities
Infection prevention and control(IPC)	Support to improve the medical waste management system	<ol style="list-style-type: none"> 4. Promote safe waste disposal and waste treatment practices 5. Reduce transmission of AMR at the household level
Infection prevention and control(IPC)	Promote Biosecurity Measures in Agriculture	<ol style="list-style-type: none"> 6. Develop and disseminate farm biosecurity guidelines to different categories of animal farms, slaughter facilities, abattoirs and aquaculture facilities. 7. Promote hygiene, sanitation and infection prevention practices on farms. 8. Promote food safety campaigns and programmes good biosecurity practices in the agricultural, livestock and animal production industries. 9. Ensure compliance with minimum standards and promote adoption of advanced standards for infrastructure in animal and agricultural facilities in promoting biosecurity 10. Ensure availability and proper use of infection prevention materials and supplies in agricultural and animal facilities 11. Promote safe waste disposal and waste treatment practices from agricultural and animal facilities.
Infection prevention and control(IPC)	To adopt Collaboration and Partnerships	<ol style="list-style-type: none"> 12. Establish collaboration mechanism 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 13. Create mechanisms for national, regional and international communication of critical events that may alert new resistance trends with global One Health implications 14. Adopt national, regional and international quality assurance Standards for a generation of quality data on IPC

Priority action areas	Strategic interventions	Activities
Infection prevention and control(IPC)	Strengthen Infection Prevention and Control Programs in Human, animal and environment	<ul style="list-style-type: none"> 15. Maintain up-to-date infection prevention guidelines and ensure their availability in all health care facilities 16. Institute/strengthen and support minimum standards for infrastructure that promote Infection Prevention and Control. 17. Create and promote specific guidelines for limiting the spread of multidrug-resistant organisms. 18. Support availability and proper use of infection prevention materials and supplies. 19. Encourage timely diagnosis and treatment of drug-resistant microorganisms. 20. Promote hand hygiene and other hygienic practices and behaviours that prevent transmission of infectious diseases. 21. Promote campaigns for infection control in human, animal and environment. 22. Create and strengthen multi-sectoral coordinating entities at all levels. 23. Improve human resource systems, education, and commitment to professionalism. 24. Institute/strengthen and support proper functioning of Infection, Prevention and Control at all levels committees.
	Increase and Optimize Use of Vaccines to Prevent Infectious Diseases	<ul style="list-style-type: none"> 25. Strengthen vaccination programs in human and animal health. 26. Improve coverage of vaccination programs across the country for vaccine-preventable diseases in humans and animal.
	Review and strengthen health waste management systems in human and animal health sectors	<ul style="list-style-type: none"> 27. Promote personal hygiene and environmental sanitation in congregate settings 28. Enhance human, zoo-sanitary and phytosanitary inspection services in waste management 29. Empower human, animal health workers on hygiene and safety standards and waste management

Priority action areas	Strategic interventions	Activities
	Build capacity in medical waste management	30. Strengthen medical waste management system 31. Organize training of animal health workers on hygiene and safety standards and waste management

2.4.2.4 Strategic Objective Four: Optimize the Use of Antimicrobial Agents in Human, Animal and Plant Health

Antimicrobial resistance is closely related to antimicrobial use, and 50 per cent or more of antimicrobial use in hospitals is estimated to be inappropriate. The irrational use of antimicrobial agents has been well known in humans and now the issue has spread to animals where drug resistance is induced by non-compliance with the withdrawal period concept. Due to the irrational use of antimicrobials in animals through the food of animal origins such as meat, milk and eggs, the production of drug resistance to humans is growing. There is a need for antimicrobial stewardship programs to be implemented to address this problem. In addition to minimizing improper use, antimicrobial stewardship requires optimizing antimicrobial collection, dosing, route, and length of therapy to optimize clinical cure or infection prevention, while minimizing unintended consequences. By offering evidence-based prescribing and dispensing quality of treatment, it is important to improve stewardship for antimicrobial usage in health facilities. The administration will also track and assess at all levels the use and consumption of antibiotics. The enhancement of the regulatory system for the protection of antimicrobial agents and the revision of policies, regulations, guidelines and directives on the use of antimicrobials in the country are also priority areas for optimizing antimicrobial use. Other measures will include the strengthening of the regulatory framework for the quality control, distribution and usage of antimicrobial agents, including the illegal or uncontrolled use of antimicrobial agents in agriculture. The following priority actions have been established to maximize the responsible use of antimicrobials.

1. Regulatory Framework for Preservation of Antimicrobial Agents
2. Availability and accessibility of antimicrobial Agents in Human and Animal Health
3. Antimicrobial Stewardship Programs

Priority action areas	Strategic interventions	Activities
Regulatory Framework for Preservation of Antimicrobial Agents	Strengthen the pharmaceutical manufacturing and supply chain	1. Review and strengthen the existing quality management system for the supply of medicines, covering manufacturing, production, storage, transport 2. Strengthen the regulatory mechanisms for access to antimicrobials in human and animal, and plant health 3. Promote the use of standard treatment guidelines for infectious

Priority action areas	Strategic interventions	Activities
	<p>Promote Optimal Prescribing, Dispensing and Use in Humans</p>	<p>diseases both in human and animal health</p> <ol style="list-style-type: none"> 4. Create mechanisms for coordination and support of Antimicrobial Stewardship and ensuring optimal use 5. Regularly update and ensure availability of prophylactic and treatment guidelines and protocols for infectious diseases in human health. 6. Facilitate continued education and training to promote responsible prescribing practices, dispensing and administration principles for antimicrobials. 7. Institute/strengthen and support the proper functioning of drug and therapeutics committees in all health care facilities. 8. Support the development and dissemination of antimicrobial stewardship working manuals and procedures. 9. Provide up-to-date and unbiased medicine information services to health providers 10. Strengthen supervision of prescribing and dispensing outlets for human and animal-related antimicrobials. 11. Initiate incentives and reward systems for excellence in adherence to best practices and standards. 12. Institute/Strengthen stewardship committees
<p>Regulatory Framework for Preservation of Antimicrobial Agents</p>	<p>Prudent Use of Antimicrobials in Agriculture and Veterinary Medicine</p>	<ol style="list-style-type: none"> 13. Develop and disseminate prescription guidelines for improving appropriate use of antimicrobials in agriculture and veterinary medicine 14. Support the development and dissemination of antimicrobial stewardship working manuals and

Priority action areas	Strategic interventions	Activities
		<p>procedures for the agriculture and veterinary sector</p> <p>15. Restrict broad or generalized use of antimicrobials as growth promoters or as feed additives</p> <p>16. Strengthen regulation and oversight for the supply chain and use of antimicrobials in agriculture and veterinary medicine</p>
<p>Accessibility and availability of Antimicrobial Agents in Human and Animal Health</p>	<p>Optimize Access to Effective Antimicrobial Medicines, vaccines and Diagnostics in Human, Animal and Plant Health</p>	<p>17. Ensuring the availability of affordable and accurate diagnostic tools for all health facilities</p> <p>18. Enhance systems for financing access to antimicrobial medicines or preventative AMR programmes.</p> <p>19. Enhance and strengthen the supply chain for antimicrobials and distribution coordination for provision of appropriate antimicrobials at the national, regional and local levels to reduce the costs, wastage and inappropriate selection of antimicrobials to human health providers in a timely and efficient way.</p> <p>20. Enhance capacity and support for local producers/manufacturers of antimicrobials.</p>
	<p>Promote the quality, safety and efficacy of antimicrobial agents</p>	<p>21. Strengthen licensing, approval, regulation and oversight over the antimicrobial supply chain (pharmaceutical manufacturers, distributors, importation, wholesalers and retailers).</p> <p>22. Support capacity for regular quality assessment of antimicrobial agents in the Rwanda FDA quality laboratories.</p> <p>23. Support supervision of pharmacies and ensure adherence to good pharmacy practices in all pharmacy outlets and regulate over-the-counter</p>

Priority action areas	Strategic interventions	Activities
		<p>availability and self-medication with antimicrobial medicines.</p> <p>24. Strengthen the regulation of the pharmaceutical companies and adherence to Good Manufacturing Practices and pharmaceutical and antimicrobial waste</p>

2.4.2.5 STRATEGIC OBJECTIVE FIVE: Ensure sustainable investment in AMR through Sustainable and equitable financing mechanism and research and development.

To better manage the problematic antimicrobial resistance, we must build enough knowledge that will allow us to choose adequate measures to be undertaken to contain it to the best. To better manage the problematic antimicrobial resistance, we must build a knowledge base that will allow us to decide on the measures to be taken to contain it to the best. We also will need new good medical products to combat new resistant pathogens. Therefore, we will need to conduct surveys and studies to determine resource needs (Human, logistic and financial) as well as the investment required to ensure the effectiveness in the implementation of the Plan. The international cooperation to promote the study and testing of new advanced medical products and innovations in the respective fields is key for this purpose.

Priority action areas	Strategic interventions	Activities
Sustainability of Antimicrobial Resistance Interventions	Promote Innovation in the Search for Alternative Treatments and Drug Development	<ol style="list-style-type: none"> 1. Support mechanisms for coordinated research and innovation 2. Support academia and other researchers in product development 3. Support research in alternative treatments for infections and link the traditional technical knowledge (TK) groups to the product development system
Sustainability of Antimicrobial Resistance Interventions	Promote Innovations in Diagnostic Technology and antimicrobial resistance detection	<ol style="list-style-type: none"> 4. Support investments and collaborations and strengthen capacity for research, development and testing of innovative diagnostic technologies 5. Support validation of point-of-care diagnostics for the detection of infectious diseases and detection of resistance 6. Create linkages and support for Rwanda FDA scientists to take leadership roles in international research partnerships targeting AMR
Sustainability of Antimicrobial Resistance Interventions	Collaborate with International Partners in Basic Strategic objective Research	<ol style="list-style-type: none"> 7. Promote research to identify high-risk and high-burden resistant strains, their resistance mechanisms and their transmission 8. Promote innovations for new antimicrobial drug development, vaccines, and other innovative therapies. 9. Invest and support collaboration in high-throughput genomics and sequencing technologies that have the potential to enhance product Development

Priority action areas	Strategic interventions	Activities
		<p>10. Support research on the burden of AMR to inform policy for investment in the implementation of the strategic objectives.</p> <p>11. Establish a research innovation fund to support innovations that slow down AMR</p>
Sustainability of Antimicrobial Resistance Interventions	Enhance Operational and Health Systems Research at the Local Level	<p>12. Support local research on resistance and transmission pathways between the environment, humans, animals and food supply chain</p> <p>13. Promote local research on antimicrobial use patterns to produce more context-specific stewardship approaches.</p>

2.5 Governance

2.5.1 Antimicrobial Resistance Focal Point

The One Health approach was adopted by the National Multi-Sectoral Coordinating Committee (MCC) for the development and implementation of the AMR Action Plan. The development of a plan of activities (NAP) as coordinated by MOH/ clinical service Directorate through the Pharmaceutical Services Unit focal point. This will work in collaboration with the AMR secretariat.

2.5.2 The National Antimicrobial Resistance Secretariat

The National AMR Secretariat shall include AMR focal point within the ministry of agriculture and animal resources, the Ministry of Health, the ministry of environment/ and any other members nominated by multi-Sectoral Coordinating Committee (MCC).

The Roles and Responsibilities of the National Antimicrobial Resistance Secretariat shall include the following:

- Coordinate the implementation of a national action plan for containment of AMR;
- Coordinate the monitoring and evaluation of day to day activities
- Coordination of the development and implementation of the M&E plan;
- Preparation, storage and circulation of documents (e.g. background papers, reports and advisory notes to Multi-Sectoral Coordinating Committee (MCC).
- Build sustained partnerships and work on AMR containment nationally and internationally;
- Identify stakeholders and encourage the development of a multi-sectoral and multidisciplinary MCC;
- Ensure regular data collection and information sharing by instituting effective communication and coordination among all stakeholders, members of the Multi-Sectoral Coordinating Committee (MCC). and their constituencies, sectors and disciplines;
- Coordination of the global monitoring of prevalence and trends of AMR in accordance with the global AMR Surveillance tools

2.5.3 Antimicrobial Resistance multi-sectoral coordinating committee

A National Multi-Sectoral Coordinating Committee on AMR is the central National steering body and shall supervise and coordinate all AMR related activities in all sectors. The AMR Action plan operations shall be managed and implemented through the Multi-Sectoral Coordinating Committee. Under the chairmanship of the Medical Officer. Members of the Multi-Sectoral Coordinating Committee include representatives from different sectors and disciplines specifically from the sectors responsible for human, animal, plant, environment health, livestock and food production.

2.5.3.1 Members of Antimicrobial Resistance multi-sectoral coordinating committee

Membership to the National antimicrobial resistance multi-sectoral coordinating committee shall include National Medicines and Therapeutic Committee, Global Antimicrobial Resistance Partnership, Focal person from Rwanda Veterinary Services, Director of Crop Development (Plant Health Services), Focal person from Aquaculture, Association, professional Regulatory bodies

(medical Pharmacy, Veterinary and allied health professional councils) Rwanda Food and Drug Authority, Pesticides Research Institute, universities), One Health Coordination committee, Pharmaceutical Manufacturers and wholesalers. Other members from the Ministry of Health and environment should be MCC member. (IDSR; quality assurance Sections; Departments of Curative Services and Policy and Planning; and the National Health Laboratories. Membership also comprises Development Partners and International Organizations' including the World Health Organization (WHO), Food and Agriculture Organization (FAO), Centre for Disease Control and Prevention (CDC), Management of Science for Health (MSH) and World Organization for Animal Health (OIE). It also includes medical and agriculture universities and professional councils.

2.5.3.2 Roles and Responsibilities of the antimicrobial resistance multi-sectoral coordinating committee

The principal role of antimicrobial resistance multi-sectoral coordinating committee is to facilitate and coordinate all national responses to the menace of antimicrobial resistance including:

- ✓ Development of National antimicrobial resistance action plan and validate it;
- ✓ Formulation of national programs on antimicrobial resistance;
- ✓ Monitoring of the integrated implementation of AMR activities in all related sectors (Human, animal health);
- ✓ Enhancing partnership and networking of all internal and external stakeholders for implementation of antimicrobial resistance national programs/projects in order to ensure effective and efficient use of resources and sharing of information, expertise and resources for inter-sectoral antimicrobial resistance surveillance

2.5.4 Antimicrobial resistance multi-sectoral technical working group

The National antimicrobial resistance multi-sectoral coordinating committee has four sub-Technical Working Groups (TWG) which in accordance with the defined Rwanda One Health Policy document and strategic objectives of the Nation Action Plan (NAP) for antimicrobial resistance main objectives. The TWG has a mandate with specific tasks to providing technical input, including conducting situational analysis and in collaboration with MCC development of National AMR Action Plan. The four established sub technical working groups are:

- (i) Sub technical working group for Awareness, effective communication and Education
- (ii) Sub Technical working group for AMR Knowledge, Surveillance, Research and sustainable investments
- (iii) Sub Technical working group for sanitation, hygiene and infection prevention and control
- (iv) Sub technical Working Groups for Antimicrobial use stewardship

2.5.4.1 Membership to TWG

Membership TWG comprises experts from, infectious diseases, microbiology, infection prevention and control, social health, rational, use of medicines, crop and drug regulation, surveillance, environmental health and health promotion.

2.5.4.2 Roles and Responsibilities of TWG

The MCC has established Terms of References (TORs) for each TWG stipulating specific scope, roles and responsibilities. The Technical Working Groups (TWGs) which are national groups interact with country representatives of the required sectors, as determined by their scope of work and report regularly to the MCC.

Activities include to:

- ✓ Cooperate with MCC in Formulation of NAP and respective operational plans
- ✓ Develop National AMR Action plan implementation framework
- ✓ Monitoring and evaluation and report to MCC on the progress to the implementation of the respective strategic objective.
- ✓ Provide technical day to day update and advice to the MCC and AMR focal persons

2.5.5 Drugs Therapeutic Committee and Quality Improvement

There is Drugs Therapeutic Committees (DTC) in each health facility with a mandate to ensure the rational use of medicines including antimicrobial products. Their functions of DTCs may include

- ✓ Promotion of better use of medical products;
- ✓ Monitoring all prescribing practices including antimicrobial prescribing, dispensing to the Standard in cording to Clinical protocols in place;
- ✓ Investigation and prevent on antimicrobial resistance
- ✓ In-service training and education on medical products rational use;
- ✓ Lead all activities for infection prevention, control and management in health facilities including antimicrobial related matter
- ✓ Ensure availability of all basic medical products rational use material for information and education. Those are the Standard Treatment protocol, therapeutic formulary and Essential Medicines List (STG/NTF/ NEML)

3 IMPLEMENTATION PLAN

3.1 Introduction

This action plan includes a detailed, realistic and cost-effective implementation plan with the specific activities and the planned resources required to carry out the priority activities of the strategic plan. All stakeholders need to be open about their commitment to the fight against AMR in Rwanda, both within their institutions and concerning others, given the complexity of the AMR threat and the response... In order to achieve tangible results, ownership of the strategy by all stakeholders under the leadership of the government of Rwanda is critical. This plan is important in presenting what needs to be done to prevent the emergence and re-emergence of AMR, to enclose its dissemination, and to describe how the Government of Rwanda fits into regional and global efforts to fight resistance.

The Government of Rwanda via the One Health Platform will reconstitute the Antimicrobial Resistance committee (AMRC). According to the recommended composition and representation of the ministries concerned, other players in the public and private sectors will contribute to the success of the strategy's implementation. With the support of technical working groups in each region, the AMRC will be responsible for overseeing the implementation of the strategic plan. The Committee shall include, as appropriate, overall strategic guidance and intervention commissions for all stakeholders engaged in surveillance and management of AMR.

3.2 Objective

The objective of the implementation plan is to clarify concrete actions that need to be taken in conjunction with each of the strategies described above. Stakeholders will recognize and act to provide support where appropriate and where their resources help them to do so by providing feedback on the specific actions, proposed costs, and outputs. As a results, the implementation plan should be versatile enough to respond to contextual needs while retaining a solid one that ensures accountability and transparency.

3.3 Structural Framework

The structural framework of the Implementation Plan is based on the Rwanda FDA faction of evidence and data coming from the population upwards with the Rwanda FDA AMRC providing guidance back to implementing stakeholders. The Rwanda FDA, AMRC, with its multi-sectoral and multi-disciplinary composition, can provide comprehensive and thorough advice back to the Government of Rwanda FDA and other stakeholders on how to better improve the actions being undertaken to address AMR. The Rwanda FDA AMRC will be able to make comprehensive and thorough feedback through independent Technical Working Groups (TWGs), which will comprise multi-disciplinary local experts, who will gather evidence from local 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 TWGs 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. While the TWGs will continue to refine the required Strategic objective s, 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 on the lessons learned and evidence gathered.

In order to promote greater accountability and ownership of the NAP-AMR, Ministry experts and/or implementers may be called upon to serve on the TWGs to provide the evidence for deliberation and evaluation. Since these Government 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 contribution in the development of technical guidance, fruitful carrying out of these proposed Strategic objective s will be able to be more directly integrated into the broader strategy for improving both animal and human health. At the community level, social mobilization through Health workers and other relevant animal health institutions will be used as a means of promoting local contribution and achievement. Gender-specific strategies will be developed to ensure that both men and women are involved in the prevention and control of communicable diseases. At Rwanda Biomedical Centre (RBC) the Epidemic Surveillance and Response (ESR) and the Department of Animal Resources Development (RAB) in collaboration with other departments will be key focal points in providing data and information to the TWGs as well as key recipients of the AMRC's strategic guidance.

The RAMRC and concerned departments will provide technical inspection /supervision to District Directors of Health Services and District Veterinary and Environment Offices. Together with the Rwanda AMRC, the technical working groups and the government departments will coordinate with the private sector on the development and implementation of regulations affecting the program, and for following the plan the implementation. The district level, the information will be fed into the national information system through the national reporting structures. The details of the plan are presented in the implementation matrix table.

3.4 Implementation Plan Matrix

The matrix was made in accordance with the WHO AMR related tools for harmonization with the M&E matrix and to compare the plans for different countries. The table describes the activities and sub-activities to be carried out under each proposed strategic intervention in the strategic plan and sets out the unit of measure, the targeted quantities, the timeframe during which the activities are to be carried out, the location or place where the activities are to be conducted, the lead or responsible entity. The TWGs will periodically review the targets by formal data available in the HMIS and collect them through baseline surveys and what can be achieved within a delay.

	Indicator	Quantity	Timeline	Location	Responsible Entity	Cost (USD)	Source of Funding
Strategic objective 1: Increase national awareness and understanding of AMR through education and training							
Strategic intervention 1.1: Enhance interventions aimed at improving public awareness on antimicrobial resistance							
1.1.1 Conduct baseline assessment of the level of knowledge and practices on AMR among social and professional groups in relation to Human, animal, and Environment							
Sub-activity: 1.1.1.1 Develop the ToRs for the Sub Technical Working Group (STWG) on public awareness, training and education	ToRs for the Technical Working Group (TWG) developed	1	Year1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	458	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.1.2 Establish a Sub Technical Working Group (STWG) on public awareness, training, and Education	Technical Working Group established	1	Year1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	500	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.1.3 Prepare and Conduct field survey on the level of knowledge and practices on AMR among social and professional groups in relation to Human, animal and Environment	Report on field survey produced	1	Year1	Country wide	Rwanda One Health Multi-sectoral Coordinating Mechanism	50,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.1.4 Conduct a multi-sectoral meeting to disseminate the findings of the survey to stakeholders	Report on multi-sectoral meetings available	1	Year1	National	Rwanda One Health Multi-sectoral	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP,

					Coordinating Mechanism		USAID...)
1.1.2. Develop and implement an evidence-based awareness program/strategy							
1.1.2.1 Develop AMR communications strategy based on AMR National Action Plan	AMR Communication Strategy developed	1	Year1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	30,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.2.2 Print and distribute AMR communication strategy to stakeholders	Number of Copies of the AMR Strategy disseminated	5,000	Year1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	27,778	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.2.3 Publish and disseminate AMR communication strategy through various communication channels and media	Number of Copies of the AMR Strategy published	5,000	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	15,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.2.4 Develop core communication messages for different target groups	Communication messages developed	10	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,486	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1 .3 Establish a mechanism for institutionalisation and implementation of the AMR awareness campaign and mobilise the population for participation							

1.1.3.1 identify/ generate a list of institutions to participate in AMR awareness	List generated	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.3.2. Develop an annual action plan and tools for the AMR awareness campaign	AMR annual action plan developed	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.3.3 Conduct ToT for district public health, CHW, environmental specialists educators and veterinary officers on the AMR awareness tools	Number district public health, environmental specialists, educators and veterinary officers trained	242	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	40,525	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.3.4 Conduct communications training sessions for public health, environmental health and veterinary workers on AMR from the community to district level	Number of professionals trained	4000	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	54,210	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.3.5 Organise activities to raise public awareness during the World Antibiotic Awareness Week	Number of activities carried out	5	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	15,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

1.1.3.6 Set up billboards along major travel routes	Number of billboards set	50	Year 1	Country wide	Rwanda One Health Multi-sectoral Coordinating Mechanism	41,667	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.3.7 Air radio/TV segments with key messages	TV/Radio segments/quarter	14	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	19,444	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.3.8 Conduct public dramas (at major national events—Independence Day, Labour Day etc.)	Number of public Drama per year conducted	5	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	6,944	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.4 Undertake AMR awareness-raising activities in primary, secondary and tertiary schools and other special needs institutions							
1.1.4.1 Identify current primary, secondary and tertiary institutions and determine the integration of AMR courses into the curriculum.	Report on the assessment developed	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,486	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.4.2 Constitute a committee to review school curricula in line with AMR	Report on the assessment developed	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,486	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

1.1.4.3 Integrate AMR in the curricula,	Number of curricula revised	5	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	330,625	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.4.4 Support and train One Health students clubs/other forums at different levels and sectors of the education system	One Health students clubs/other forums supported on AMR	5,000	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	330,625	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.4.5 Train education partners on integration	Number of Education partners trained	1,000	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,071	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.4.6 Disseminate training materials and tools to partners	Number of AMR training materials disseminated	1,000	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,556	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.4.7 Train media on AMR effective reporting mechanism	Number of Journalist/communication experts trained	200	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	3,958	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.4.8 Distribute communication materials and tools to the media	Number of Package of training materials distributed	200	Year 2	National	Rwanda One Health Multi-sectoral	1,111	Government of Rwanda /Development Partners (FAO, WHO, WFP,

					Coordinating Mechanism		USAID...)
1.1.5 Enhance public awareness through dissemination and publication of research findings							
1.1.5.1 Identify stakeholders (national and global) conducting research on AMR	list/ number of stakeholders identified	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	2,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.5.2 Develop a multi-sectoral AMR research agenda	Multi-sectoral AMR research agenda developed	1	Year 1	National and international	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.5.3 Conduct interdisciplinary research on AMR	Number of studies on AMR available	5	Year 1-5	National and international	Rwanda One Health Multi-sectoral Coordinating Mechanism	500,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.5.4 Disseminate and publish AMR research findings	Number of publications available	5	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	50,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

1.1.5.5. Resource mobilisation. Apply for grants through RNCST, academic institutional partnerships	Number of grants	2	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	500,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.6. Identify and capacitate opinion leaders to champion the AMR agenda in key sectors.							
1.1.6.1 identify relevant opinion leaders	Number of opinion leaders identified	5	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.6.2. Training of Opinion leader on AMR	Number of training conducted	5	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	40,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.7. Establish awareness mechanism for effective use of antibiotics in the food value chain, human and animals							
1.1.7.1 Identify Human and animal food value chain handlers	Number of handlers identified	1	Year-2	National and international	One Health MCM	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.7.2 Prepare training documents for Human and animal food value chain handlers	Training tools developed	8	Year-2	National and international	One Health MCM	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.1.7.3 Training of Human and animal food value chain handlers	Number of participants trained	250	Year-1-5	National and international	One Health MCM	50,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

				nal				USAID...
Strategic intervention 1.2: Improve Antimicrobial Resistance governance mechanisms								
Activity: 1.2.1: Establish antimicrobial resistance information sharing mechanism in Human, Animal and Environment sectors								
Sub-activity: 1.2.1.1 Develop AMR governance policies	AMR governance policies developed	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000		Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
Sub-activity: 1.2.1.2 Disseminate AMR governance policies to stakeholders	Dissemination meetings	2	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000		Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
Strategic Intervention 1.3: Improve awareness and understanding of AMR through good governance, effective communication, education and training								
Activity 1.3.1: Develop accredited continuing professional development (CPD) and in-service training programmes on AMR, including alternative learning methods								
1.3.1.1 Identify professional bodies in various sectors	List of professional bodies	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000		Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.3.1.2: Develop AMR CPD training materials	Training materials completed and printed	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000		Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

1.3.1.3: Conduct CPD on AMR for in-service professionals	CPD implemented	5	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.3.1.4: Develop antimicrobial stewardship guidelines	Guidelines developed	1	Year 3	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
Activity 1.3.2: Establish a trace-back system in livestock and foods of animal origin							
1.3.2.1: Identify abattoirs, and markets dealing in livestock and agriculture	List generated	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.3.2.2: Conduct community sensitization and capacity building	Number of communities sensitised	10	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.3.3: Establish the joint reporting Mechanism on AMR							
1.3.3.1. Develop an effective reporting system on AMR (LIMS)	AMR reporting document developed	1	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

					Mechanism		
1.2.3.2 Train technicians on AMR reporting	number of trainees	20	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.3.4 Establish a national coordination structure for surveillance of AMR							
1.3.4.1 Write and approve terms of reference for a national coordinating centre for AMR surveillance with the mandate to oversee the AMR surveillance programme, including collecting, aggregating and sharing data	Developed ToR	20	Year1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	458	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.3.4.2. Develop One Health strategic plan for integrating NPA.	OH plan developed	1	Year1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	500	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.3.4.3Develop a roadmap for implementation of One Health strategic plan	Numbers	20	Year1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	458	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
Intervention 1.4: Strengthen Education and Training of Human, Animal and Environmental Health professionals							
1.4.1 Include AMR and related topics as a core component of professional education, training, certification and development							

1.4.1.1 Conduct a needs assessment of AMR- related gaps in the professional education system at different levels	Number of Needs assessment Report	1	Year 1	Country wide	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.4.1.2 Disseminate the report of the needs assessment findings to relevant educational and curriculum-approval bodies	Educational and curriculum review bodies	100	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	556	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.4.1.3 Review and update curricula based on gaps identified in needs assessment	New or updated curriculum	100	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
1.4.1.4 Revise AMR mandatory training course/programme at an undergraduate and postgraduate level	Educational and curriculum review bodies	Year 2	National	Universities, health and veterinary institutions and professionals councils	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

Strategic Objective 2: Strengthen the Knowledge and Evidence-Based through Surveillance and Research

Intervention 2.1: Support Laboratory Surveillance of AMR

2.1.1 Establish an AMR surveillance system functioning at all Laboratory level in sectors (animal, Human, Plant, food and environment) and coordinated at national level.							
2.1.1.1 Development of ToRs for AMR sub-Technical Working Group (TWG) for Laboratory AMR surveillance (SURV TWG)	ToRs developed	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.1.1.2 Establish a national sub-Technical Working Group (TWG) for Laboratory AMR surveillance (SURV TWG)	SURV TWG established	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.1.1.3 Conduct a baseline survey and needs assessment on Laboratory AMR surveillance system	Baseline survey report available	1	Year 1	Country wide	Rwanda One Health Multi-sectoral Coordinating Mechanism	15,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.1.1.4 Develop an integrated Laboratory AMR surveillance system and plan	Integrated AMR Surveillance plan developed	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,057	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.1.1.5 Dissemination of the Laboratory AMR surveillance plan	AMR surveillance plan developed and distributed	1,000	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,556	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

2.1.1.6 Select priority surveillance sites and agree on harmonized surveillance methodologies	List of Laboratory surveillance sites selected	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	1,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2 .1.2 Develop/review Standards Operating Procedures (SOPs) for Laboratory surveillance of AMR in humans and animals, animals, food, agriculture, and environment, consistent and harmonized with international Standards							
2 .1.2.1 Develop SOPs for Laboratory AMR surveillance	SOPs developed	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,057	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2 .1.2.2 Identify priority organisms, samples and testing panels that meet international standards	List	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	833	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2 .1.3 Build laboratory capacities for AMR surveillance, Standardize the methods used in testing agencies for livestock, farm-raised aquatic animals and pets.							
2 .1.3.1 Undertake improvements in infrastructure and equipment for microbiological isolation and susceptibility testing in the district, provincial, referral laboratories and animal laboratories	Renovations	20	Year 2-3	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	4,000,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2 .1.3.2 Equip laboratories microbiological isolation and susceptibility testing in the district, provincial, referral laboratories and	Equipment	20	Year 2	National	Rwanda One Health Multi-sectoral Coordinating	4,000,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

animal laboratories					Mechanism		
2 .1.3.3 Improve the supply chain of microbiology reagents and consumables for avoiding the stock out-train laboratory staff in logistics and supply management	A national system of the supply chain is implemented Training for Laboratory staff conducted	40	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,629	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2 .1.3.4 Procure and install a national laboratory information management system (LIMS)	LIMS software procured and installed	20	Year 2-3	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2 .1.4 Build capacity of regulatory bodies to perform quality control of tests							
2 .1.4.1 Conduct needs assessment on the capacity of the regulatory to quality control of tests	Needs assessment report	1	Year 1-2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	1500	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.1.4.2 Provide adequate Laboratory infrastructure and equipment for quality control of tests	Number of equipped laboratories	20	Year 2-3	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	2,000,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.1.4.3 Conduct training for regulators of quality control of tests	Training report availed	30	Year 2-3	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	1,000,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

2.1.5. Support the routine use of microbiological culture and sensitivity tests on prioritized microorganisms and antimicrobials in health facilities and on farms							
2.1.5.1 Re-train clinicians and veterinarians on appropriate sample collection and transportation	Training of sample collection conducted	70	Year 2-3	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	35,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.1.5.2 Procure consumables for sample collection, microbiological materials and susceptibility testing panels and reagents	Procurement of assorted consumables for sample collection		Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	4,000,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.1.6. Support Capacity building for designated laboratories for AMR surveillance supervision to improve availability and reliability of routine microbiology laboratory testing							
2.1.6.1 Procure and make available control strains and reference materials	Procurement of assorted Reference materials conducted		Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.1.6.2 Train laboratory staff, veterinarians and clinicians on quality control and quality assurance	Training on QC/QA conducted	100	Year 2-6	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.1.7. Enrol the various participating laboratories in national and international External Quality Assurance programs							
2.1.7.1 Accredite the participating laboratories	Accreditation of the participating Laboratories	20	Year 3	National	Rwanda One Health Multi-sectoral	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP,

					Coordinating Mechanism		USAID...)
2 .1.7.2 Conduct annual review of SOPs	SOPs reviewed	1	Year 3-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2 .1.7.3 Undertake regular supervision and mentorship of the hospital surveillance sites	Plan of Supervision of Surveillance sites available and implemented	14	Year 3	Facility	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2 .1.7.4 Designate national microbiology reference labs	National Microbiology Reference labs designated	4	Year 3	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	1,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2 .1.8. Analyse, 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							
2 .1.8.1 Procure and computers and software for data management system for sharing and disseminating information to partners	Computers and soft wares procured	40	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	40,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2 .1.8.2 Train Laboratory personnel on data management and reporting	Training on data management and reporting conducted	40	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	8,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

					Mechanism		
2.1.8.3 Share surveillance data locally, nationally and internally	Reports	1	Year 2- 5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	50,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.1.9: Establish the joint reporting Mechanism on AMR							
2.1.9.1 conduct a multispectral technical meeting to establish effective reporting system on AMR	Number	4	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.1.9.2 Establish a TWG with their TORs on the AMR joint reporting system	NA	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.1.9.3 Share data locally, nationally and internally	Reports	1	Year 2- 5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	50,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.1 .10. 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							
2.1 .10. 1 Adopt international Standards for AMR early warning	Adopted International Standards for early warning available	1	Year 2	National	Rwanda One Health Multi-sectoral Coordinating	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

					Mechanism		
2 .1 .10. 2. Sensitize laboratory staff, clinicians, and veterinarians on identification and evaluation of risks	Staff sensitized	100	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2 .1 .10. 3. Compile and provide information on identified risks: Establish a system to compile and provide information on identified risks	Risk events/ System compile and provide information on identified risks established	4	Year 2 -5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2 .1 .10. 4. Disseminate AMR data throughout the country including remote and hard-to-reach areas/ Establish a system for dissemination	Reports/ System for dissemination established	121	Year 2-5	Districts	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2 .1 .10. 5. Train risk registrars (epidemiologists) to incorporate risk reporting into their registers	Training for Risk registrars conducted	100	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	2,014	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
Intervention 2 .2: Support Surveillance of Antimicrobial Use							
2.2.1. Design and implement a national antimicrobial use surveillance plan that defines activities and roles consistent with international Surveillance Standards in animal and human							
2.2.1.1 Undertake a baseline survey and needs assessment and identify gaps for implementing an antimicrobial use	Baseline assessment report	1	Year 1	National	Rwanda One Health Multi-sectoral	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP,

surveillance plan					Coordinating Mechanism		USAID...)
2.2.1.2 Develop an integrated antimicrobial use surveillance plan	AMR use Plan	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.2.1.3 Print and distribute antimicrobial use plan	Copies	1,000	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,479	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.2.1.4 Disseminate the national surveillance of antimicrobial use plan	stakeholders	200	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,486	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.2.2. Develop and implement procedures and methodologies for monitoring antimicrobials imported, used and disposed of							
2.2.2.1 Develop and manual of procedures and methodologies for routine monitoring antimicrobial use	Manual of Procedures	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,486	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.2.2.2. Train hospital, pharmacy and veterinary staff to collect and share antimicrobial use data routinely	Health, Pharmacy and veterinary Staff	1,000	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	30,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

2.2.2.3 Collect, collate and share antimicrobial use data regularly	Reports	1,000	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	30,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.2.3. 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							
2.2.3.1. Identify antimicrobial use and practice indicators	List of indicators	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.2.3.2 Develop a manual of procedures for monitoring prescription and dispensing practices	Manual of Procedures	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	30,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.2.3.3 Conduct regular monitoring prescription and dispensing practices of antimicrobials	Monthly Reports	12	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.2.4. Support collection and sharing of data to evaluate and monitor Strategic objectives aimed to improve appropriate use and access to antimicrobials in humans and animals							
2.2.4.1 Undertake regular data collection on antimicrobial access and use	Reports	1,000	Year 2-5	Country wide	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

					Mechanism		
2.2.4.2 Analyze and share data with relevant stakeholders	Quarterly reports	4	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.2.5 Monitor and evaluate the impact of pharmaceutical promotion on antimicrobial use							
2.2.5.1 Develop tools for monitoring the impact of pharmaceutical promotion	Tools	1	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.2.5.2 Collect, evaluate, and disseminate data on the impact of pharmaceutical promotion on antimicrobial use	Quarterly reports	4	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
Intervention 2.3: Support Surveillance for Antimicrobial Drug Residues in Food							
2.3.1 Design and implement a national surveillance plan for monitoring antimicrobial residues in food and animal feeds							
2.3.1.1 Undertake a baseline survey and needs assessment and identify gaps for surveillance of antimicrobial residues in foods and animal feeds	Assessment Report	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

2.3.1.2 Develop a national plan for monitoring of antimicrobial residues in foods and animal feeds	Monitoring plan of antimicrobial residues in Foods	1	Year 1	National	Rwanda Health sectoral Coordinating Mechanism	One Multi-	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.3.1.3 Print and distribute national surveillance plan for monitoring residues in foods and animal feeds	Copies	5,000	Year 1	National	Rwanda Health sectoral Coordinating Mechanism	One Multi-	27,397	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.3.1.4 Disseminate the national surveillance plan	stakeholders	500	Year 2	National	Rwanda Health sectoral Coordinating Mechanism	One Multi-	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.3.2 Support the use of standard procedures in accordance with international Standards including the WHO/FAO Codex Alimentarius for monitoring antimicrobial residues in foods								
2.3.2.1 Develop or adopt international Standards for antimicrobial residues in food	Manual of Procedures	1	Year 1	National	Rwanda Health sectoral Coordinating Mechanism	One Multi-	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.3.2.2 Train veterinarians and laboratory personnel on monitoring antimicrobial residues in food and animal feeds	Veterinary and laboratory staff	50	Year 2	National	Rwanda Health sectoral Coordinating Mechanism	One Multi-	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

2.3.2.3 Identify and prioritize samples and antimicrobial residues for testing	List of priority Samples	1	Year 1	National	Rwanda Health sectoral Coordinating Mechanism	One Multi-	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.3.2.4 Provide the appropriate infrastructure and renovations for the laboratories	Renovations	2	Year 1	National	Rwanda Health sectoral Coordinating Mechanism	One Multi-	800,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.3.2.5 Equip national laboratories for monitoring antimicrobial residues	Equipment	1	Year 2	National	Rwanda Health sectoral Coordinating Mechanism	One Multi-		Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.3.2.6 Train personnel in laboratory logistics and supply management	Veterinary and laboratory staff	50	Year 1	National	Rwanda Health sectoral Coordinating Mechanism	One Multi-	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.3.2.7 Procure laboratory information management system	LIMS software	2	Year 2	National	Rwanda Health sectoral Coordinating Mechanism	One Multi-	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.3.2.8 Procure consumables and supplies	procurement	assorted	Year 2	National	Rwanda Health sectoral	One Multi-	400,000	Government of Rwanda /Development Partners (FAO, WHO, WFP,

					Coordinating Mechanism		USAID...)
2.3.2.9 Enrol the various labs in national and international external quality assurance programs	Labs	2	Year 2	National	Rwanda Health sectoral Coordinating Mechanism	One Multi-5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.3.3. Establish collaboration mechanisms with the WHO/FAO Codex Alimentarius and other international efforts to generate and share actionable data							
2.3.3.1 Summarise and share data in standardized formats regularly	Reports	12	Year 2	National/Regional	Rwanda Health sectoral Coordinating Mechanism	One Multi-20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.3.3.2. Hold regular dissemination meetings for sharing data summaries with stakeholders	Stakeholders	100	Year 2 -5	National	Rwanda Health sectoral Coordinating Mechanism	One Multi-10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

Strategic objective 3. Reduce the incidence of infection through effective sanitation, hygiene and infection prevention measures							
Intervention 3.1: Promote Infection Prevention and Control Practices in Communities							
3.1.1 Develop and disseminate tools for information, education and communication/behaviour change communication on IPC in communities, including schools and public places.							
3.1.1.1 Undertake a survey on the knowledge/attitudes/ perceptions and practices in the community	Report on survey available	1	Year 1	national	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.1.1.2. Develop tools for information, education and communication/behaviour change communication on IPC in communities, Including schools and public places. behavioural change communication strategy	Number of tools produced	40	Year 2	national	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,257	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.1.1.3 Dissemination of information on infection control in the community	Report on public awareness campaigns available	500	Year 2-5	community level	Rwanda One Health Multi-sectoral Coordinating Mechanism	277,778	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.1.2 Promote food hygiene practices in all public places and communities.							
3.1.2.1 Develop minimum Standards for food hygiene, handling and preparation	Guidelines developed	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,486	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.1.2.2 Train food vendors and supervisors for proper food handling practices	Number of food vendors and supervisors trained	5,000	Year 2-5	Countrywide	Rwanda One Health Multi-sectoral Coordinating Mechanism	27,778	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

Enforce regular check-ups of food handlers for infectious diseases of public health importance related to food	Food handlers examined	5,000	Year 2-5	community level	Rwanda One Health Multi-sectoral Coordinating Mechanism	72,806	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.1.2.4 Undertake food inspection of foods and food products for public consumption	Number of Facilities inspected	5,000	Year 2-5	Districts	Rwanda One Health Multi-sectoral Coordinating Mechanism	138,889	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.1.3 Advocate for access to safe and clean water throughout the country							
3.1.3.1 Carry out a baseline to obtain information on safe water usage in relation to infection control and prevention is concerned	Report on survey available	1	Year 1-5	national	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.1.3.2 Increase safe water coverage in communities	Number of new safe water sources established	each community	Year 1-5	Countrywide	Rwanda One Health Multi-sectoral Coordinating Mechanism	30,000,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.1.3.3 Review Standards and guidelines for assessing water safety in the context of AMR	Guidelines assessed	1	Year 1-5	community level	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,486	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.1.3.4 Conduct periodic water safety analyses at consumption points	Water Consumption points	2,000	Year 1-5	community level	Rwanda One Health Multi-sectoral Coordinating Mechanism	114,472	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

Intervention 3.2.Support to improve the medical waste management system							
3.2.1 Promote safe waste disposal and waste treatment practices.							
3.2.1.1 Promote safe waste disposal and waste treatment practices. Review and update IEC materials on safe waste disposal	Number of IEC materials set	1	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,486	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.2.1.2 Procure and make available waste disposal materials for infectious wastes wherever generated	Materials available	assorted	Year 1-5	Facility level	Rwanda One Health Multi-sectoral Coordinating Mechanism	2,000,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.2.1.3 Conduct training of trainers (TOT) for waste handlers	Number of ToTs trained	121	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	59,831	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.2.1.4 Conduct mentorships sessions for waste handlers	Number of sessions conducted	1,740	Year 1-5	Facility level	Rwanda One Health Multi-sectoral Coordinating Mechanism	48,333	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.2.1.5 Set up health care waste treatment facilities at each health facility	Number of health care facilities established	3,854	Year 1-5	regional	Rwanda One Health Multi-sectoral Coordinating Mechanism	19,270,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.2.2 Reduce transmission of AMR at the household level.							
3.2.2.1 Sensitization of the public on AMR	Report on public awareness Campaigns available	50	Year 1-5	national	Rwanda One Health Multi-sectoral Coordinating Mechanism	69,444	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

3.2.2.2 Contact tracing and management of patients with drug resistant microorganisms	Number of patients with drug resistant microorganisms traced	1,000	Year 1-5	household level	Rwanda One Health Multi-sectoral Coordinating Mechanism	138,889	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.2.2.3 Support adherence to antibiotic treatment at household level	Number of individuals supported	1,000	Year 1-5	household level	Rwanda One Health Multi-sectoral Coordinating Mechanism	138,889	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
Intervention 3.3.: Promote Biosecurity Measures in Agriculture							
3.3.1 Develop and disseminate farm biosecurity guidelines to different categories of animal farms, slaughter facilities, abattoirs and aquaculture Facilities.							
3.3.1.1 Review and update biosecurity guidelines for different categories of animal farms, slaughter facilities, abattoirs and aquaculture facilities.	Validated guidelines available	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,486	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.3.1.2 Print and distribute biosecurity guidelines to veterinarians and other stakeholders	Number of copies of the guidelines printed and distributed	5,000	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	27,778	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.3.1.3 Sensitize stakeholders on biosecurity guidelines	Stakeholders	5,000	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	97,292	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.3.1.4 Train district veterinary officers on biosecurity guidelines	DVOs	121	Year 1	National	Rwanda One Health Multi-sectoral Coordinating	23,827	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

					Mechanism		
3.3.1.5 Promote biosecurity practices on farms and animal facilities (e.g. abattoirs)	Radio/TV segments	50	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	69,444	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.3.2 Promote hygiene, sanitation and infection prevention practices on farms.							
3.3.2.1 Train farmers in on-farm sanitation and good hygiene practices	Farmers	5,000	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	97,292	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.3.2.2 Undertake regular checks on sanitation and hygiene on animal facilities and farms	Animal facilities and farms	500	Year 2-5	Farm level	Rwanda One Health Multi-sectoral Coordinating Mechanism	134,222	GoR, and development Partners (FAO, WHO, WFP, USAID...)
3.3.2.3 Regular checks on animal feeds for contamination	Report on feed checks available	2,000	Year 2-5	Farm level	Rwanda One Health Multi-sectoral Coordinating Mechanism	114,472	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.3.3 Promote food safety campaigns and programmes. Good biosecurity practices in the agricultural, livestock and animal production industries.							
3.3.3.1 Sensitize farmers and the general public on production of safe animals for human consumption	Public awareness campaigns	100	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	55,556	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.3.3.2 Train farmers in standards animal husbandry practices that reduce the need to use antimicrobial agents	Number of farmers trained	5,000	Year 2-5	districts	Rwanda One Health Multi-sectoral Coordinating Mechanism	97,292	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

3.3.3.3 Provide regular advisory extension services to farmers	Number of follow up Visits conducted	2,000			Rwanda One Health Multi-sectoral Coordinating Mechanism	55,611	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.3.4 Ensure compliance with minimum standards and promote adoption of advanced standards for infrastructure in animal and agricultural facilities in promoting biosecurity							
3.3.4 .1 Develop/update standards for farm infrastructure that promote infection prevention in animal handling facilities and farms	Number of standards guidelines developed	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,486	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.3.4 .2 Print and distribute animal facility and farm infrastructure Standards	Copies of the guidelines printed and distributed	2,000	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	11,111	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.3.4.3 Train district veterinary officers on facility and farm infrastructure Standards	Number of DVOs trained	121	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,369	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.3.4.4 Conduct regular advisory/support supervision/inspection of abattoirs/slaughter houses and aquaculture facilities	Report on facilities inspected	2,000	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	55,611	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.3.4 .5 Sensitize stakeholders on the need for ante-mortem and post-mortem inspection	Report on meetings conducted	1,000	Year 2-5	National/district	Rwanda One Health Multi-sectoral Coordinating Mechanism	19,514	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.3.5 Ensure availability and proper use of infection prevention materials and supplies in agricultural and animal facilities							

3.3.5.1 Develop/disseminate guidelines for infection prevention materials for animal facilities and farms	Number of Guidelines developed	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,486	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.3.5.2 Sensitize farmers and animal facility operators on the guidelines	Report on animal facility operators and farmers available	1,000	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	19,514	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.3.6 Promote safe waste disposal and waste treatment practices from agricultural and animal facilities.							
3.3.6.1 Conduct a baseline assessment of the current status of animal facility and farm waste Disposal	Baseline report available	1	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.3.6.2 Develop/disseminate guidelines for safe waste disposal for animal facilities and farms	Guidelines developed	1	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,486	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.3.6.3 Sensitize farmers and animal facility operators on safe waste disposal and treatment Practices	Number of farmers and animal facility Operators trained	1,000	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	19,514	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.3.6.4 Sensitize stakeholders and farmers on animal facility and farm waste recycling	Farmers and animal facility	1,000	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating	19,514	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

	operators				Mechanism		
3.3.6.5 Procure incinerators for abattoirs and sick animals	Incinerators	20	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	400,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
Intervention 3.4: To adopt Collaboration and Partnerships							
3.4.1 Establish collaboration mechanism 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							
3.4.1.1 Organize a harmonization workshop with international partners and other stakeholders on the surveillance tools and Methodologies	Report on workshop available	5	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.4.1.2 Participate in regional and global data-sharing platforms, including GLASS	Report available	5	Year 2-5	National/International	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.4.2 Create mechanisms for national, regional and international communication of critical events that may alert new resistance trends with global One Health implications							
3.4.2.1 Identify AMR critical events that are consistent with international Standards	Report available	5	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.4.2.2 Institute global reporting mechanisms for critical events	Report available	5	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

3.4.3 Adopt national, regional and international quality assurance Standards for the generation of quality data on IPC							
3.4.3.1 Develop a manual of procedures for Quality assurance mechanisms for surveillance	Manual of Procedures available	1	Year 2 -5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.4.3.2 Train personnel in Quality assurance mechanisms for surveillance	Number of laboratory staff trained	100	Year 2 -5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.4.3. 3 Enroll all laboratory surveillance partners in relevant quality assurance mechanisms	Report on enrollment available	22	Year 2 -5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	GoR and development Partners(FAO, WHO, WFP, USAID...)
Intervention 3.5. Strengthen Infection Prevention and Control Programs in Human, animal and environment							
3.5.1. Maintain up-to-date infection prevention guidelines and ensure their availability in all healthcare facilities.							
3.5.1.1. Review and Update the IPC policy	Report on IPC Policy available	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,486	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.5.1.2 Revise IPC manual for infection prevention control	Report on IPC guidelines available	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,486	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.5.1.3 Print and distribute IPC Guidelines	Number of copies printed	2,000	Year 2	National	Rwanda One Health Multi-sectoral Coordinating	10,486	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

					Mechanism		
3.5.1.4 Disseminate IPC guidelines at all health facilities and Vet clinics	Number of copies disseminated	2,000	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.5.2. Institute/strengthen and support minimum standards for infrastructure that promote Infection Prevention and Control.							
3.5.2.1 Conduct situation analysis of IPC in health facilities	Report available	2,000	Year 2	Facility Level	Rwanda One Health Multi-sectoral Coordinating Mechanism		GoR and development Partners (FAO, WHO, WFP, USAID...)
3.5.2.2 Update guidelines for health care facility infrastructure that support minimum IPC standards	IPC compliant Infrastructure Guideline developed	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,486	GoR and development Partners (FAO, WHO, WFP, USAID...)
3.5.2.3 Disseminate the guidelines	Report available	2,000	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,486	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.5.2.4 Undertake support supervision to support implementation of IPC at Human and Veterinary health facility level	Report available	2,000	Year 2,3	Health facility	Rwanda One Health Multi-sectoral Coordinating Mechanism	961,929	GoR and development Partners (FAO, WHO, WFP, USAID...)

3.5.3. Create and promote specific guidelines for limiting the spread of multidrug-resistant organisms.							
3.5.3.1 Setup functional IPC committees with TORs	Committees established	2,000	Year 2,3	Facility	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.5.3.2 Train IPC committee members on their functions	IPC members trained	2,000	Year 2,3	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	69,758	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.5.4. Support availability and proper use of infection prevention materials and supplies.							
3.5.4.1 Regularly undertake performance monitoring and mentoring of the IPC committee members	Report available	2,000	Year 2,3	Human Vet health facilities	Rwanda One Health Multi-sectoral Coordinating Mechanism	641,193	GoR and development Partners (FAO, WHO, WFP, USAID...)
3.5.5. Encourage timely diagnosis and treatment of drug-resistant microorganisms.							
3.5.5.1 Procure and timely distribute tools for rapid diagnosis of drug-resistant organisms	Report available		Year 1-3	Facility level	Rwanda One Health Multi-sectoral Coordinating Mechanism	2,000,000	GoR and development Partners (FAO, WHO, WFP, USAID...)
3.5.5.2 Train health care workers at the facility level on the treatment and management of patients with MDR infections	Number of Health Care Providers trained	2,000	Year 1-3	Facility level	Rwanda One Health Multi-sectoral Coordinating Mechanism	38,958	Government of Rwanda/ Development Partners (FAO, WHO, WFP, USAID...)
3.5.5.3 Procure and timely distribute drugs for the treatment of MDR	Report available		Year 1-3	Facility level	Rwanda One Health Multi-sectoral Coordinating Mechanism	3,000,000	Government of Rwanda/ Development Partners (FAO, WHO, WFP, USAID...)

3.5.6. Promote hand hygiene and other hygienic practices and behaviours that prevent transmission of infectious diseases.							
3.5.6.1 Train health care workers at facility level on hand hygiene and other hygienic practices and behaviours preventing the transmission of infectious diseases	Number of Health Care Providers trained	5,000	Year 1-3	Facility level	Rwanda One Health Multi-sectoral Coordinating Mechanism	139,447	Government of Rwanda/Development Partners (FAO, WHO, WFP, USAID...)
3.5.6.2 Undertake health talks to patients about IPC behaviours to protect themselves from acquisition and transmission of infectious diseases	Report available	10,000	Year 1-3	Facility level	Rwanda One Health Multi-sectoral Coordinating Mechanism	13,889	Government of Rwanda/Development Partners (FAO, WHO, WFP, USAID...)
3.5.6.3 Train personnel on the correct use of Personal Protective Equipment and materials for standard and transmission-based cautions	Number of health Care Providers trained	14,336	Year 1-3	Facility level	Rwanda One Health Multi-sectoral Coordinating Mechanism	79,644	Government of Rwanda/Development Partners (FAO, WHO, WFP, USAID...)
3.5.7. Promote campaigns for infection control in human, animal and environment							
3.5.7.1 Train health care workers on IPC	Number of health Care Providers trained	14,336	Year 1-3	Facility level	Rwanda One Health Multi-sectoral Coordinating Mechanism	79,644	Government of Rwanda/Development Partners (FAO, WHO, WFP, USAID...)
3.5.7.2 Undertake support supervision visits to reinforce infection control practices	Report available	3,854	Year 1-3	Facility Level	Rwanda One Health Multi-sectoral Coordinating Mechanism	79,644	Government of Rwanda/Development Partners (FAO, WHO, WFP, USAID...)
3.5.8. Create and strengthen multisectorial coordinating entities at all levels							
3.5.8.1 Establish a communication platform among IPC related committees e.g. medicines & therapeutics committee, AMR stewardship	Coordination committee established	3,854	Year 1-3	Facility Level	Rwanda One Health Multi-sectoral Coordinating	107,056	Government of Rwanda/Development Partners (FAO, WHO, WFP, USAID...)

					Mechanism		
3.5.9. Improve human resource systems, education, and commitment to professionalism.							
3.5.9.1 Conduct survey on training needs for health professionals regarding IPC	Report available	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	GoR and development Partners (FAO, WHO, WFP, USAID...)
3.5.9.2 Conduct regular continued professional development (CPD) training regarding IPC	Report available	2,000	Year 2-3	Facility level	Rwanda One Health Multi-sectoral Coordinating Mechanism	55,556	GoR and development Partners (FAO, WHO, WFP, USAID...)
3.5.9.3 Integrate IPC content in the curriculum/ education for all health training institutions	Report available	100	Year 2-3	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	16,871	GoR and development Partners (FAO, WHO, WFP, USAID...)
3.5.10. Institute/strengthen and support proper functioning of Infection, Prevention and Control at all levels							
3.5.10.1: Promote environmental sanitation and other hygienic practices and behaviours that prevent transmission of infectious diseases.	Report available				Rwanda One Health Multi-sectoral Coordinating Mechanism		GoR and development Partners (FAO, WHO, WFP, USAID...)
3.5.10.2: Create an integrated AMR courses in the existing undergraduate and postgraduate health professionals programs (human, animal and environment health).	Report available				Rwanda One Health Multi-sectoral Coordinating Mechanism		GoR and development Partners (FAO, WHO, WFP, USAID...)
3.5.10.3: Train in service Environmental Health Professionals on antimicrobial resistance.	Number of professionals trained				Rwanda One Health Multi-sectoral Coordinating		Government of Rwanda/ Development Partners (FAO, WHO, WFP, USAID...)

					Mechanism		
3.5.10.4: Promote knowledge and skills in human, animal and environmental health professionals on prudent antimicrobial use and resistance prevention.	Report available				Rwanda One Health Multi-sectoral Coordinating Mechanism		Government of Rwanda/ Development Partners (FAO, WHO, WFP, USAID...)
3.5.10.5: Incorporate courses on antimicrobial resistance into the continuous professional development curricula for all health, agriculture, animal and environmental health professionals with a system of ensuring accountability.	Report available				Rwanda One Health Multi-sectoral Coordinating Mechanism		Government of Rwanda/ Development Partners (FAO, WHO, WFP, USAID...)
3.6. Increase and optimize the use of Vaccines to prevent infectious diseases							
3.6.1. Strengthen vaccination programs in human and animal health							
3.6.1.1 Procure vaccine and supply vaccines for humans and animals	Report available		Year 2-3	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	25,000,000	Government of Rwanda/ Development Partners (FAO, WHO, WFP, USAID...)
3.6.1. 2 Develop/review regulations for vaccination s for animals with vaccination schedules	Regulations developed	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,486	Government of Rwanda/ Development Partners (FAO, WHO, WFP, USAID...)
3.6.1.3 Conduct campaigns to provide information, awareness and schedules about vaccination	Report available	50	Year 2-3		Rwanda One Health Multi-sectoral Coordinating Mechanism	69,444	GoR, and development Partners (FAO, WHO, WFP, USAID...)
3.6.1.4 Undertake vaccination of Human and	Report	8,000,	Year 2-3		Rwanda One Health	100,000,00	Government of Rwanda/

animal against a broader range of diseases	available	000			Multi-sectoral Coordinating Mechanism	0	Development Partners (FAO, WHO, WFP, USAID...)
3.6.1.5 Conduct a baseline assessment for animal and human vaccines program and services coverage	Report available	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda/ Development Partners (FAO, WHO, WFP, USAID...)
3.6.1.6 Support routine maintenance of a functional cold chain	Report available		Year 2-3	health facility level	Rwanda One Health Multi-sectoral Coordinating Mechanism	100,000	Government of Rwanda/ Development Partners (FAO, WHO, WFP, USAID...)
3.6.1.7 Procure vaccine and supply vaccines for humans and animals	Report available		Year 1-5	health facility level	Rwanda One Health Multi-sectoral Coordinating Mechanism		Government of Rwanda/ Development Partners (FAO, WHO, WFP, USAID...)
3.6.1.8 Develop/review regulations for vaccination s for animals with vaccination schedules	Regulations developed	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,486	Government of Rwanda/ Development Partners (FAO, WHO, WFP, USAID...)
3.6.1.9 Conduct campaigns to provide information, awareness and schedules about vaccination	Report available	50	Year 2-3	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	69,444	Government of Rwanda/ Development Partners (FAO, WHO, WFP, USAID...)
Activity:3.6.2. Improve coverage of vaccination programs across the country for vaccine-preventable diseases in humans and animal							
3.6.2.1 Review and recommend the introduction of new vaccines for both human and animals	Updated vaccine list	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,486	Government of Rwanda/ Development Partners (FAO, WHO, WFP, USAID...)

3.6.2.2 Undertake research to measure the impact/best methods of vaccinating animals	Report available	1	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	100,000	Government of Rwanda/Development Partners (FAO, WHO, WFP, USAID...)
Intervention 3.7. Review and strengthen health waste management systems in human and animal health sectors							
3.7.1 Promote personal hygiene and environmental sanitation in congregate settings							
3.7.1.1: Review the existing infectious outbreak guidelines to accommodate the concept of hygiene and sanitation.	Report available	8	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	50,000	Government of Rwanda/Development Partners (FAO, WHO, WFP, USAID...)
3.7.2. Enhance human, zoo sanitary and phyto-sanitary inspection services in waste management							
3.7.2.1 Equip zoo sanitary and phytosanitary points with necessary facilities	Report available	Lump-sum	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda/Development Partners (FAO, WHO, WFP, USAID...)
3.7.2.2. Conduct capacity building to respective inspectors	Report available	4	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	Government of Rwanda/Development Partners (FAO, WHO, WFP, USAID...)
3.7.3. Empower human, animal health workers on hygiene and safety standards and waste management							
3.7.3.1: Conduct supportive supervision	Report available	2	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	100,000	Government of Rwanda/Development Partners (FAO, WHO, WFP, USAID...)
Intervention 3.8: Build capacity in medical waste management							
3.8.1. Strengthen medical waste management system							

<i>Sub-activity 3.8.1.1: Identify needed waste management equipment</i>	Report done	1	Year 1		Rwanda One Health Multi-sectoral Coordinating Mechanism		Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
<i>3.8.1.1: Procure waste management equipment</i>	Number of equipment procured	1	Year 2		Rwanda One Health Multi-sectoral Coordinating Mechanism		Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
3.8.2 Organise training of Animal Health workers on hygiene and safety standards and waste management							
<i>3.8.2.1: Training of Animal Health workers</i>	Reports of training	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism		Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
Strategic objective 4: Optimize the Use of Antimicrobial Agents in Human and Animal Health							
Intervention 4.1.Strengthen the pharmaceutical manufacturing and supply chain							
4.1.1. Review and strengthen the existing quality management system for the supply of medicines, covering manufacturing, production, storage, transport, etc.							
<i>4.1.1.1 Develop the ToRs for the Sub Technical Working Group (STWG) on optimising the use of antimicrobial agents.</i>	ToRs for the Technical Working Group (TWG) developed	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	458	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
<i>4.1.1.2 Establish a Sub Technical Working Group (STWG) on optimising the use of antimicrobial agents</i>	Sub Technical Working Group established	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	500	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

4.1.1.3: Review and update the guidelines on procurement and supply chain for antimicrobials	Stakeholder meetings	1	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	30,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.1.1.4: Disseminate the revised guidelines to government and private health facilities for humans and animals	Copies of revised guidelines printed	1	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.1.1.5: Train human and animal health workers on the revised guidelines	Number of trainings	20	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	50,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.1.2. Strengthen the regulatory mechanisms for access to antimicrobials in human, animal, and plant health							
4.1.2.1: Review and update the current regulatory mechanisms	Consultative meeting	2	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	50,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.1.2.3: Disseminate the revised guidelines to government and private health facilities	Copies of revised guidelines printed	1	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.1.2.4: Train health workers on the revised guidelines	Number of trainings	20	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	50,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.1.2.5: Monitor the implementation/compliance on all the revised guidelines	Field impromptu Visits	5	Quarterly	National	Rwanda One Health Multi-sectoral Coordinating	50,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

					Mechanism		
4.1.3. Promote the use of standard treatment guidelines for infectious diseases both in human and animal health.							
4.1.3.1. Develop/review standard treatment guidelines for infectious diseases both in human and animal health	New/ updated document available	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	100000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.1.3.2. Disseminate the revised standard treatment guidelines on infectious diseases to government and private health facilities	Copies of updated guidelines printed and circulated	2000	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	100000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.1.3.2. Train health workers on the revised treatment guidelines for infectious diseases both in human and animal health	Number of trainings	20	Year 2	Health facilities	Rwanda One Health Multi-sectoral Coordinating Mechanism	100000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
Intervention 4.2: Promote Optimal Prescribing, dispensing and Use in human							
4.2.1 Create mechanisms for coordination and support of Antimicrobial Stewardship and ensuring optimal dose							
4.2.1.1 Develop the ToRs for the Sub Technical Working Group Antimicrobial Stewardship and Optimal Use.	ToRs for the ASO developed	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	458	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.1.2 Establish a Technical Working Group (TWG) on Antimicrobial Stewardship and Optimal Use (ASO TWG)	ASO TWG	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating	458	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

					Mechanism		
4.2.2 Regularly update and ensure availability of prophylactic, prescribing and treatment guidelines and protocols for infectious diseases in human Health							
4.2.2.1 Review and update prescribing guidelines/ regulations for formulation and essential Medicines	Prescribing guideline	1	Every 2 years	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	40,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.2.2 Disseminate the revised prescribing guidelines in both print and online to all health facilities	Copies of the guidelines	5,000	Year 1-5	National/District level	Rwanda One Health Multi-sectoral Coordinating Mechanism	3,778	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.2.3 Training prescribers and dispensers on the guidelines	Prescribers and dispensers	3,000	Year 2-5	National/Regional	Rwanda One Health Multi-sectoral Coordinating Mechanism	70,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
2.2.2.4 Sensitize regulatory agencies and policymakers to improve adherence to prescribing guidelines	Regulatory bodies	2	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,486	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.3 Facilitate continued education and training to promote responsible prescribing practices, dispensing and administration principles for Antimicrobials.							
4.2.3.1 Conduct a needs assessment to inform AMR-related CME trainings for relevant professions	Needs assessment report available	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.3.2 Organize ToT sessions for different professionals	ToT sessions	20	Year 1	National	Rwanda One Health Multi-sectoral	50,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

					Coordinating Mechanism		
4.2.4. Institute/strengthen and support the proper functioning of drug and Therapeutics committees in all health care facilities							
4.2.4.1 Develop the ToRs for the Drugs and Therapeutic Committees (DTCs) at national and health facility levels	ToRs developed	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	458	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.4.2 Activate Drugs and Therapeutic Committees (DTCs) at national and health facility levels with clear TORs	MTCs formulated	348	Year 1-5	Regional	Rwanda One Health Multi-sectoral Coordinating Mechanism	70,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.4.3 Train MTCs in their functions	MTC members	1,740	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.4.4 Regularly undertake performance monitoring and mentoring activities of the therapeutic Committees	Mentoring sessions for MTCs	348	Year 1-5	Facility	Rwanda One Health Multi-sectoral Coordinating Mechanism	50,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.5. Support the development and dissemination of antimicrobial stewardship working manuals and procedures.							
4.2.5.1 Develop the antimicrobial stewardship working manuals and procedures	MOP	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,486	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.5.2 Print and distribute antimicrobial stewardship working manuals to all health	Copies	5,000	Year 1	National	Rwanda One Health Multi-sectoral	2,857	Government of Rwanda /Development Partners (FAO,

workers					Coordinating Mechanism		WHO, WFP, USAID...)
4.2.5.3 Train healthcare workers on antimicrobial stewardships for both public and private health workers	Number of Healthcare workers trained on antimicrobial stewardship	1,000	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	200,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.6. Provide up-to-date evidence-based medicine information services to human and animal health providers.							
4.2.6.1 Ensure that the LIMS database is regularly updated	Updated data in the LIMS	Monthly (12)	Year 1-5	National and facility-based	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.6.2 Share disseminate susceptibility and antimicrobial use data regularly to stakeholders	AST and Antimicrobial usage data shared	Monthly (12)	Year 1-5	National and facility-based	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.6.3 Provide and share other updated scientific and popular literature to improve prescribing practices	Information shared	Monthly (12)	Year 1-5	National and facility-based	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.7. Strengthen supervision of prescribing and dispensing outlets for human and animal-related antimicrobials							
4.2.7.1 Develop a tool-system for more efficient supervision and monitoring of healthcare facilities and pharmacies/drug stores	Supervision tool	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,486	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.7.2 Train professional councils and licensing organs on supervision and monitoring	Professional councils and	20	Year 1	National	Rwanda One Health Multi-sectoral	20,000	Government of Rwanda /Development Partners (FAO,

dispensing outlets	licensing organs members trained				Coordinating Mechanism		WHO, WFP, USAID...)
4.2.7.3 Conduct CMEs to improve prescription and good pharmacy practice for health and veterinary prescribers	Health and veterinary prescribers	1,000	Year 2		Rwanda One Health Multi-sectoral Coordinating Mechanism	200,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.7.4 Develop digital/manual tools for tracking and tracing prescriptions at dispensing facilities	Prescription tracking tool	2	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	2,000,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.7.5 Disseminate the tools for tracking and tracing prescriptions	Shared tools	2	Year 1	Regionals	Rwanda One Health Multi-sectoral Coordinating Mechanism	140,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.7.6 Train supervisors on the use of the new tracking tools	Number of trainings	20	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	100000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.8. Initiate incentives and reward systems for excellence in adherence to best practices and Standards							
4.2.8.1 Develop tools for the Licensing bodies and Professional Councils to track the performance of adherence to best practices and Standards	Performance monitoring tool	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,486	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.8.2 Develop guidelines for the award of incentives for excellence in prescription practices	Guideline	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating	10,486	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

					Mechanism		
4.2.8.3 Establish a budget to incentivize/reward excellence in prescription practices	Budget developed	1	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	25,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.9. Institute/strengthen stewardship committees							
4.2.9.1 Establish stewardship committees at health care facilities	Stewardship committees	348	Year 1	Health facility level	Rwanda One Health Multi-sectoral Coordinating Mechanism	-	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.9.2 Update National guidelines for handling resistant microorganism to prevent transmission	MOH	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	50,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.9.3 Integrate data from different committees (IPC, MTC, QA etc.) to inform best practices for containment of resistant organisms at health facilities	Integrated data	12 (monthly)	Year 1	Health facility level	Rwanda One Health Multi-sectoral Coordinating Mechanism	50,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.9.4 Develop a tool for auditing antimicrobial prescriptions practices at health care facilities	Audit tool developed	1	Year 1	Health facility level	Rwanda One Health Multi-sectoral Coordinating Mechanism	2,500	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.2.9.5 Conduct audits of antimicrobial prescriptions practices at health care facilities	Facilities adhering to prescription guidelines	5 (one per annum)	Year 1-5	Health facility level	Rwanda One Health Multi-sectoral Coordinating Mechanism	2,500	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
Intervention 4.3: Prudent use of antimicrobials in agriculture and veterinary medicine							

4.3.1 Develop and disseminate prescription guidelines for improving appropriate use of antimicrobials in agriculture and veterinary medicine								
4.3.1.1	Develop or update Prescribing/treatment guidelines in animals and plants	Prescribing guidelines	4	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	100,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.3.1.2	Print and distribute the prescribing guidelines to all health and drug facilities	Copies of the guidelines	5,000	Year 1-5	National/District level	Rwanda One Health Multi-sectoral Coordinating Mechanism	12,778	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.3.1.3	Train veterinarians and agriculturalists on new/ updated prescription guidelines	veterinarians trained	500	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	50,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.3.2 Support the development and dissemination of antimicrobial stewardship working manuals and procedures for the agriculture and veterinary sector								
4.3.2.1	Develop antimicrobial stewardship programs for the agriculture and veterinary practice	MOPs	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.3.2.2	Print and distribute antimicrobial stewardship working manuals	Copies	5,000	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	12,857	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.3.2.3	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	Rwanda One Health Multi-sectoral Coordinating Mechanism	100,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.3.3 Restrict broad or generalized use of antimicrobials as growth promoters or as feed additives								

4.3.3.1 Conduct a risk assessment on the use of growth promoters and use of antimicrobial agents as feed additives	Survey Report available	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.3.3.2 Develop regulations/guidelines on the use of growth promoters and use of microbial agents as feed additives	Regulations finalised	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.3.3.3 Print and distribute the regulation/guidelines on growth promoters and feed additives	Copies of the guidelines	5,000	Year 1	National/District level	Rwanda One Health Multi-sectoral Coordinating Mechanism	12,778	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.3.3.4 Sensitize farmers/animal health professionals and feed producers on growth promoters	Farmers/animal health professionals and feed producers	1,000	Year 2-5	Regional	Rwanda One Health Multi-sectoral Coordinating Mechanism	55,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.3.4. Strengthen regulation and oversight for the supply chain and use of antimicrobials in agriculture and veterinary medicine.							
4.3.4.1 Conduct a situational analysis of the existing regulations and their implementation/enforcement	Baseline status	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	50,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.3.4.2 Train drug distributors and animal health workers on distribution mechanisms of antimicrobials	Trained animal health workers and drug distributors	500	Year 2-5	National/district	Rwanda One Health Multi-sectoral Coordinating Mechanism	50,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
Intervention 4.4: Optimize access to affective antimicrobial medicines , vaccines and diagnostics in human and animal health							

4.4.1 Ensuring availability of affordable and accurate diagnostic tools for all health facilities							
4.4.1.1 Procure adequate diagnostic resources (equipment, supplies, services, human resources) for infectious diseases at both public and private facilities for human and animal health including Point of Care diagnostics	Procured diagnostic supplies and equipment	assorted	Year 1-5	National and facility-based	Rwanda One Health Multi-sectoral Coordinating Mechanism	3,200,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.4.1.2 Establish a subcommittee that evaluates/recommends appropriate/affordable and accurate diagnostic tools	Committees at health facilities	348	Year 1	National and facility-based	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.4.1.3 Strengthen laboratory quality management systems	Enrolment onto accreditation schemes	10	Year 1-5	National and facility-based	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.4.2 Enhance systems for financing access to antimicrobial medicines or preventative AMR programmes.							
4.4.2.1 Identify optimal financing mechanisms for antimicrobial medicines or preventive AMR programs	budget funds secured	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	50,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.4.2.2 Lobby for financing for adequate antibiotics at all health care facilities	Lobbying activities	5	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	50,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.4.3 Enhance and strengthen the supply chain for antimicrobials and distribution coordination for provision of appropriate antimicrobials at the national, regional and local levels in order to reduce the costs, wastage and inappropriate selection of antimicrobials to human health providers in a timely and efficient way.							

4.4.3.1 Establish guidelines on the supply and distribution of antimicrobials.	Guidelines in place	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	75,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.4.3.2 Train suppliers of antimicrobials at national levels in efficient supply chain management	National supplies managers trained	50	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.4.3.3 Train health facility procurement officers in procurement management of antimicrobials to ensure the availability of appropriate antimicrobials and related supplies	Facility Procurement officers trained	348	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.4.3.4 Train facility pharmacists in antimicrobial chain management and forecasting of need antimicrobials at their facilities	Trained pharmacists	348	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.4.3.5 support the supervision of health facilities in the implementation of the guidelines on supply and distribution of antimicrobials	Field visits	348	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	100,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.4.4 Enhance capacity and support for local producers/manufacturers of antimicrobials.							
4.4.4.1 Establish guidelines on local production and distribution of antimicrobials.	Guidelines in place	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	75,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.4.4.2 Expand support to existing incentive structures for local production of	Funds provided	5	Year 1	National	Rwanda One Health Multi-sectoral	500,000	Government of Rwanda /Development Partners (FAO,

antimicrobials and compliance with Standards of current good manufacturing practices					Coordinating Mechanism		WHO, WFP, USAID...)
4.4.4.3 Train local producers of antimicrobials in compliance with Standards of current good manufacturing practices	Drug manufacturers trained	100	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	50,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.4.4.4 Train local producers of antimicrobials in compliance with Standards of current good manufacturing practices	Drug manufacturers trained	100	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	50,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.4.4.5 support the supervision of health facilities in the implementation of the guidelines on production and distribution of antimicrobials	Field visits	348	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	100,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
Intervention 4.5: Promote the Quality of, Safe and Efficacious antimicrobial agents							
4.5.1 Strengthen licensing, approval, regulation and oversight over the antimicrobial supply chain (pharmaceutical manufacturers, distributors, importation, wholesalers and retailers)							
4.5.1.1 Expand support to and recruitment of professionals in Rwanda FDA to improve efficiency in their oversight and regulatory function	Recruitment	100	Year 1-5	National and regional	Rwanda One Health Multi-sectoral Coordinating Mechanism	186,111	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.5.1.2 Expand support to an automated system for improving processes	Automated system effectiveness	6	Year 2-5	National and regional	Rwanda One Health Multi-sectoral Coordinating Mechanism	1,500,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.5.1.3 Sensitize private providers of antibiotics of Rwanda FDA regulations to increase compliance	Private Sector awareness on regulations	5,000	Year 2-5	National and regional	Rwanda One Health Multi-sectoral Coordinating	2,000,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

					Mechanism		
4.5.2 Support capacity for regular quality assessment of antimicrobial agents in the Rwanda FDA quality laboratories.							
4.5.2.1 Perform field visits to benchmark on the equipment necessary for testing quality of antimicrobials.	Visit report	2	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.5.2.2 Procure supplies and equipment for testing quality of antimicrobials	Supplies and equipment	assorted	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.5.2.3 Collaboration with external laboratories for quality assurance testing of antimicrobials	MOUs	5	Year 2-	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.5.2.4 Undertake/subscribe to routine QA/QC checks for sustained compliance to WHO prequalification in chemical analysis and relevant international Standards	QA/QC Renovated facilities	4	Year 2-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.5.2.5 Undertake infrastructure improvements for Rwanda FDA quality control lab	Renovated facilities	1	Year 2-3	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	200,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.5.2.6 Procure and install a laboratory information management system (LIMS)	Information management system	1	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.5.3 Support supervision of Pharmacies and ensure adherence to good pharmacy practices in all pharmacy outlets and regulate over-the-counter availability and							

self-medication with antimicrobial medicines							
4.5.3.1 Conduct inspections on pharmacies against GPP and establish compliance to over the counter (OTC) and self-medication prescribing	Reports on Pharmacies inspected	quarterly	Year 1-5	National and regional	Rwanda One Health Multi-sectoral Coordinating Mechanism	40,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.5.3.2 Enforce compliance to OTC dispensing guidelines	Reports on Facilities inspected	quarterly	Year 1-5	National and regional	Rwanda One Health Multi-sectoral Coordinating Mechanism	40,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.5.4 Strengthen regulation of the pharmaceutical companies and adherence to good manufacturing practices and pharmaceutical and antimicrobial waste							
4.5.4.1 Establish Harmonization mechanisms with WHO and Rwanda FDA on the compliance assessments for pharmaceutical companies	MOUs	3	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.5.4.2 Develop guidelines for disposal of pharmaceutical and antimicrobial waste by the health facilities and general public	Guidelines	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	9,999	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.5.4.3 Print and disseminate disposal guidelines	Copies of the guidelines	500	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
4.5.4.4 Sensitize pharmacies and drug dealers on pharmaceutical waste disposal	Pharmacies and Drug handlers	500	Year 2-5	national	Rwanda One Health Multi-sectoral Coordinating Mechanism		Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
Strategic objective 5: Ensure sustainable investment in AMR through Sustainable and equitable financing mechanism and research and development.							

Intervention 5.1: Promote innovation in the search for alternative treatments and drug development							
5.1.1 Support mechanisms for coordinated research and innovation							
5.1.1.1 Develop the ToRs for the Sub Technical Working Group (STWG) on research and innovation	ToRs of STWG developed	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	458	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.1.1.2 Establish a Sub-Technical Working Group (TWG) on Research and Innovation (STWG)	STWG	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	1000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.1.1.3 Provide hands-on training to researchers on grant writing	Number of Researchers	100	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.1.1.4 Advocate, lobby and share information and RFPs for funding of AMR research	Report	continuous	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.1.1.5 Sensitize researchers on intellectual property rights and patenting	number of researchers	100	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.1.1.6 Apply for grants on innovation and alternative drug discovery	Grant proposals	2	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	
5.1.2. Support academia and other researchers in drug development							

5.1.2.1 Provide seed funding for proposal development	Research groups	100	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	100,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.1.2.2 Post calls for funding opportunities onto institutional websites and mailing lists of stakeholders	Posts done	continuous	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	-	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.1.2.3 Establish a database of biological materials, including plants, fungi, and other compounds with suspected antimicrobial properties	Database created	1	Year 1-5	Countrywide	Rwanda One Health Multi-sectoral Coordinating Mechanism	200,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.1.2.4 Support the establishment of international collaborations in high-throughput screening of antimicrobial compounds	Number of MoUs	5	Year 1-5	International	Rwanda One Health Multi-sectoral Coordinating Mechanism	10000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.1.3 Support research in alternative treatments for infections and link the traditional technical knowledge (TK) groups to the product development system							
5.1.3.1 Explore and share innovative ideas about alternative treatments to infectious diseases	workshop	2	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.1.3.2 Carry out a country-wide survey of indigenous knowledge on antimicrobial solutions	survey	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
Intervention 5.2: Promote Innovations in Diagnostic Technology and antimicrobial resistance detection							
5.2.1 Support investments and collaborations and strengthen capacity for research, development and testing of innovative diagnostic technologies							
5.2.1.1 Conduct a baseline survey and needs	Survey done	1	Year 1	National	Rwanda One Health	150,000	Government of Rwanda

assessment to identify the opportunities and challenges in innovative diagnostics					Multi-sectoral Coordinating Mechanism		/Development Partners (FAO, WHO, WFP, USAID...)
5.2.1.2 Enhance the capacity of national regulatory bodies to assess and approve potentially innovative antimicrobial diagnostic technologies	Number of Trainings conducted	5	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	25,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.2.2 Support investments and collaborations and strengthen capacity for research, development and testing of innovative technologies for antimicrobial resistance detection technologies							
5.2.2.1 Conduct a baseline survey and needs assessment to identify the opportunities and challenges in antimicrobial resistance detection technologies	Survey conducted	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism (OH MCM	150,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.2.2.2 Enhance the capacity of national regulatory bodies to assess and approve antimicrobial resistance detection technologies	Number of training conducted	5	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism (OH MCM	25,000	Rwanda One Health Multi-sectoral Coordinating Mechanism (OH MCM
5.2.3 Support validation of point-of-care diagnostics for the detection of infectious diseases and the detection of resistance.							
5.2.3.1 Assess the point of care diagnostics in different stages of development	Assessment Report	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	20,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.2.3.2 Sensitize stakeholders on regulatory systems and processes for approval of diagnostic technologies	Number of stakeholders sensitized	100	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	10,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.2.3.3 Train regulatory agency staff in	Number/cate	20	Year 1-	National	Rwanda One Health	5,000	Government of Rwanda

approval processes for diagnostics	gory of training done Number of staff trained		5		Multi-sectoral Coordinating Mechanism		/Development Partners (FAO, WHO, WFP, USAID...)
5.2.4 Create linkages and support for Rwanda FDA scientists to take leadership roles in international research partnerships targeting AMR.							
5.2.4.1 Identify and disseminate opportunities for scientists in international research partnerships and offer mentorship	Opportunities / MOU signed	TBD	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.2.4.2 Provide seed funding to support Rwanda FDA n scientists in research leadership	Researchers in leadership	TBD	Year 2	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	TBD	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
Intervention 5.3: Collaborate with International Partners in Basic Strategic objective Research							
5.3.1 Promote research to identify high-risk and high-burden resistant strains, their resistance mechanisms and their transmission.							
5.3.1.1 Organize workshops to share knowledge on high-risk and high-burden resistant strains	Number of workshops conducted	4 (1 per year)	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.3.1.2 Expand seed funding provided for pilot studies of new antimicrobials	Pilot studies done	TBD	TBD	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	TBD	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.3.2 Promote innovations for new antimicrobial drug development, vaccines, and other innovative therapies.							
5.3.2.1 Identify and disseminate opportunities for participation in the development of antimicrobials, vaccines, and other innovative	Stakeholders	100	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)

therapies					Mechanism		
5.3.2.2 Identify and twin local laboratories with foreign laboratories to support the local production of vaccines	MOUs	5	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
15.3.2.3 Establish and maintain microbial collections and other biological resources for research and development of AMR solutions	Biological Resource Centres	1	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.3.3 Invest and support collaboration in high-throughput genomics and sequencing technologies that have the potential to enhance product development							
5.3.3.1 Undertake a baseline survey and needs assessment to identify current capabilities and gaps in high-throughput genomics and sequencing in the country	Assessment Report	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.3.3.2 Establish a National Genomics and Bioinformatics Centre to support AMR research	Genomics Centre	1	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	3,000,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.3.3.3 Identify and facilitate collaboration with international Centres of excellence	MOUs signed	1	Year 1-5	National		500	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.3.4 Support research on the burden of AMR to inform policy for investment in the implementation the strategic objectives.							
5.3.4.1 Undertake research to examine the burden of AMR in the country	Report done	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	150,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.3.5 Establish a research innovation fund to support innovations that slow down AMR.							

5.3.5.1 Advocate and lobby for funding support for research innovations from government and pharmaceutical companies	Research and innovation fund	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
Intervention 5.4: Enhance Operational and Health Systems Research at the Local Level							
5.4.1 Support local research on resistance and transmission pathways between the environment, humans, animals and food supply chain							
5.4.1.1 Organize One Health workshops to identify priorities for research on resistance and transmission pathways	Report(s) done	1	Year 1	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.4.1.2 Identify and disseminate opportunities for One Health research funding	Report(s) done	continuous	Year 1-5	National	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.4.2 Promote local research on antimicrobial use patterns to produce more context-specific stewardship approaches.							
5.4.2.1 Identify priorities for research to establish and improve antimicrobial prescription and use patterns	workshops	1	Year 1	national	Rwanda One Health Multi-sectoral Coordinating Mechanism	5,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
5.4.2.2 Conduct research to assess behavioural, cultural and anthropological practices on antimicrobial use in society, prescription practices and motivators	research	5	Year 1-5	national	Rwanda One Health Multi-sectoral Coordinating Mechanism	200,000	Government of Rwanda /Development Partners (FAO, WHO, WFP, USAID...)
Total						17,915,999	