TAJIKISTAN

NATIONAL ROAD MAP AND IMPLEMENTATION PLAN FOR ANTIMICROBIAL RESISTANCE (AMR)

FOR 2026–2030

HEALTHY PEOPLE | HEALTHY ANIMALS | HEALTHY ENVIRONMENT

ONE HEALTH APPROACH

TAJIKISTAN NATIONAL ROAD MAP AND IMPLEMENTATION PLAN FOR ANTIMICROBIAL RESISTANCE (AMR) FOR 2026–2030

FOREWORD

Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 has been developed in accordance with the national legislative and regulatory framework of the Republic of Tajikistan. Its primary legal foundation is rooted in the Health Code of the Republic of Tajikistan, adopted on 18 May 2017, No. 374. In particular, Chapter 17, Article 110, Paragraph 2 mandates the development and implementation of national, state and regional programmes aimed at ensuring sanitary-epidemiological safety, strengthening population health, preventing diseases, and improving living and working conditions. This mandate provides the legal basis for formulating and implementing national strategies and programmes, including this Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030.

Furthermore, the development of the Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 is grounded in additional sector-specific legislation that reinforces the One Health approach. The Law of the Republic of Tajikistan "On Veterinary" (adopted on 29 December 2010, No. 674) outlines the principles of veterinary protection, disease prevention and control, regulation of veterinary medicinal products, and biosecurity measures—core elements for addressing antimicrobial resistance in the animal health sector.

The Law of the Republic of Tajikistan "On Environmental Protection" (adopted on 2 August 2011, No. 760) provides the legal basis for environmental monitoring, safe management of waste and chemicals, and prevention of environmental pollution. These provisions directly support national efforts to reduce the environmental dimensions of antimicrobial resistance, including the control of antimicrobial residues and surveillance of resistant microorganisms in the environment.

The Law of the Republic of Tajikistan "On Food Safety" (adopted on 1 August 2012, No. 890) establishes the legal framework for ensuring the safety of food products throughout the production chain. It sets standards and control measures for the use of veterinary medicinal products in food-producing animals, monitoring and prevention of antimicrobial residues in food, and oversight by the authorized executive body—addressing a major pathway of antimicrobial resistance transmission to humans.

Aligned with these laws, the Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 also reflects the mandates and regulatory acts of government authorities central to the One Health framework, including:

- **Ministry of Agriculture of the Republic of Tajikistan**, responsible for shaping and implementing state agricultural policy, including livestock policy;
- **Ministry of Health and Social Protection of the Population of the Republic of Tajikistan**, responsible for shaping and implementing national health policy, coordinating public health programs, regulating the use of antimicrobial medicines in human healthcare, overseeing infection prevention and control, and leading surveillance of antimicrobial resistance in the human health sector;

- **Committee for Environmental Protection under the Government of the Republic of Tajikistan**, responsible for environmental monitoring, waste management, and mitigation of environmental risks associated with antimicrobial resistance;
- **Committee for Food Security under the Government of the Republic of Tajikistan,** the authorized executive body for food safety and veterinary oversight, including veterinary sanitary supervision, registration and control of veterinary medicinal products, border veterinary inspection, prevention of antimicrobial residues in food products, and providing sectoral coordination of veterinary services at the policy level.

Together, these legislative and regulatory instruments form a comprehensive national framework for the development, implementation and monitoring of antimicrobial resistance-related activities in Tajikistan, consistent with the One Health approach.

This Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 was developed by national experts from the Ministry of Health and Social Protection of the Population Republic of Tajikistan, the Ministry of Agriculture of the Republic of Tajikistan, the Committee for Food Security under the Government of the Republic of Tajikistan, and the Committee for Environmental Protection under the Government of the Republic of Tajikistan, under the technical leadership of Dr. Arash Alaei, Director of the Center for Global Health at California State University–Long Beach, and under the guidance of the National Multisectoral Working Group on AMR.

The National Multisectoral Working Group expresses its sincere appreciation to the World Bank, Asian Development Bank and the World Health Organization for their review and valuable technical feedback. Acknowledgement is extended to WHO for leading the development of the budgeting section of this document.

Ministerial Statement

Statement from the Minister of Health and Social Protection of the Population Republic of Tajikistan

Access to safe, effective, and high-quality healthcare is a core priority of the Government of the Republic of Tajikistan. Under the leadership of the Founder of Peace and National Unity – Leader of the Nation, His Excellency the President of the Republic of Tajikistan, the country continues to strengthen its health system, safeguard the well-being of the population, and align national policies with global commitments to public health and development.

Antimicrobial resistance threatens these achievements. It undermines our ability to treat infections, increases the burden on health facilities, poses risks to food safety and animal health, and impacts environmental sustainability. Addressing antimicrobial resistance requires coordinated, evidence-based, and multisectoral action across human health, animal health, agriculture, food safety, and environmental protection.

The Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 represents a major step forward in our national efforts to ensure the rational use of

antimicrobials, strengthen infection prevention and control, improve surveillance and laboratory capacities, and foster responsible antimicrobial practices across all sectors. Developed within a strong legislative and regulatory framework, the Roadmap reflects the One Health approach and reaffirms the Government's commitment to safeguarding the health of present and future generations.

I extend my sincere appreciation to all governmental institutions, including the Ministry of Health and Social Protection of the Population, the Committee for Food Security, the Committee for Environmental Protection, and the Ministry of Agriculture—as well as to the National Intersectoral Working Group on AMR and the experts who contributed to the development of this document. I also thank our international partners, including the World Bank, Asian Development Bank and the World Health Organization, for their valuable technical support and collaboration.

The Government is fully committed to the implementation of this Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030. I call upon all sectors, partners, health professionals, veterinarians, environmental experts, academic institutions, and civil society organizations to work together in strengthening the country's resilience against antimicrobial resistance.

Prof. Jamoliddin Abdullozoda
Minister of Health and Social Protection of the Population
of the Republic of Tajikistan

Endorsement Page

Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 has been reviewed and endorsed by the following governmental authorities and partner organizations. Their endorsement reflects collective commitment to the One Health approach and to coordinated, multisectoral action to combat antimicrobial resistance in the Republic of Tajikistan.

Endorsed by:

Ministry of Agriculture of the Republic of Tajikistan
Ministry of Health and Social Protection of the Population of the Republic of Tajikistan
Committee for Food Security under the Government of the Republic of Tajikistan
Committee for Environmental Protection under the Government of the Republic of Tajikistan

Technical Review and Support:

World Health Organization (WHO)
World Bank
Food and Agriculture Organization

This Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 serves as the official guiding document for national AMR prevention, control, and response activities for the period 2026–2030.

Official Approval and Signatures

We, the undersigned, hereby approve the Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030, and affirm our commitment to its implementation in accordance with national legislation and the One Health approach.

Ministry of Agriculture of the Republic of Tajikistan

Minister: _____
Signature: _____
Date: _____

Ministry of Health and Social Protection of the Population of the Republic of Tajikistan

Minister: _____
Signature: _____
Date: _____

Committee for Food Security under the Government of the Republic of Tajikistan

Chairperson: _____
Signature: _____
Date: _____

Committee for Environmental Protection under the Government of the Republic of Tajikistan

Chairperson: _____
Signature: _____
Date: _____

Министерство здравоохранения и социальной защиты населения Республики Таджикистан

Министр: Абдуллозода Ҷ. А.
Подпись: _____
Дата: _____

Министерство сельского хозяйства Республики Таджикистан

Министр: Ҳакимзода К.
Подпись: _____
Дата: _____

Комитет продовольственной безопасности при Правительстве Республики Таджикистан

Руководитель: Файзуллозода М.
Подпись: _____
Дата: _____

Комитет охраны окружающей среды при Правительстве Республики Таджикистан

Начальник: Шерализода Б.
Подпись: _____
Дата: _____

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Abbreviations and acronyms

AMR/AMU Antimicrobial Resistance/Antimicrobial Use
AMC/AMS Antimicrobial Consumption/Antimicrobial Stewardship
AST Antimicrobial Susceptibility Testing
AWaRe WHO antibiotic classification Access, Watch, Reserve
ATC/DDD Anatomical Therapeutic Chemical / Defined Daily Dose Classification System
CAESAR Central Asian and Eastern European Surveillance of Antimicrobial Resistance
CEP Committee for Environmental Protection
CFS Committee for Food Security
CLABSI Central Line–Associated Bloodstream Infection
CQI Continuous Quality Improvement
DTC Drug and Therapeutics Committee
EUCAST European Committee on Antimicrobial Susceptibility Testing
FAO Food and Agriculture Organization of the United Nations
GLASS Global Antimicrobial Resistance and Use Surveillance System
GLASS-AMR/AMC GLASS module for Antimicrobial Resistance/Consumption
HAI/ HACCP Healthcare-Associated Infection/ Hazard Analysis and Critical Control Points
IPC Infection Prevention and Control
JEE Joint External Evaluation
KAP Knowledge, Attitudes, and Practices
LIMS Laboratory Information Management System
LMIS Logistics Management Information System, stock monitoring
MOA Ministry of Agriculture
MDRO Multidrug-Resistant Organism
MES Ministry of Education and Science
MOH&SPP Ministry of Health and Social Protection of the Population
M&E Monitoring and Evaluation
MPFT Multi-Partner Trust Fund
NIWG/TWG National Intersectoral Working Group on AMR/Technical Working Group
PPS Point Prevalence Survey
PHC Primary Health Care
PICU/NICU Pediatric / Neonatal Intensive Care Unit
QI Committee Quality Improvement Committee
RCCE Risk Communication and Community Engagement
SSSH&SPP Service of State Supervision of Health and Social Protection of the Population
SSSES Service of State Sanitary and Epidemiological Supervision
SOP Standard Operating Procedure
TrACSS Tracking AMR Country Self-Assessment Survey
UNEP United Nations Environment Programme
URTI Upper Respiratory Tract Infection
WASH Water, Sanitation and Hygiene

WHO	World Health Organization
WOAH	World Organization for Animal Health
WHONET	WHO Laboratory Data Management System for AMR Surveillance
ANIMUSE	WOAH Antimicrobial Use System for Veterinary Data

1. INTRODUCTION

Antimicrobial resistance (AMR) poses a major threat to global public health, food security, sustainable development, and economic stability. Recognized by WHO, FAO, WOAH and UNEP as one of the most pressing global health challenges, AMR requires coordinated, multisectoral action under the One Health framework.

In the Republic of Tajikistan, AMR has been identified as a strategic public health priority. National efforts have progressively expanded over the past decade, aligned with the WHO Global Action Plan (2015) and key international and regional commitments. Tajikistan has strengthened its capacities in AMR surveillance, antimicrobial consumption monitoring, laboratory diagnostics, IPC, and sectoral coordination.

The Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 builds on achievements of the National Action Plan on Antimicrobial Resistance in the Republic of Tajikistan for 2018–2022 and the interim National Action Plan on Antimicrobial Resistance in the Republic of Tajikistan for 2023–2025, which expires in December 2025. To guide the development and implementation of the new Roadmap, the Ministry of Health and Social Protection of the Population issued an official order on 9 July 2025 establishing a National Intersectoral Working Group. The NIWG includes nine governmental sectors and functions through a high-level coordination tier and a technical tier. The first NIWG meeting in August 2025 formally launched the development of the new strategic document.

Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 draws on recent national evidence, including annual GLASS-AMC submissions, the 2024–2025 multi-phase assessment of antimicrobial consumption in hospitals, the 2025 WHO PPS, the first CAESAR AMR data collection for 2024, and the AMR-MedMon study - access and availability of diagnostic materials in bacteriological laboratories. It also integrates lessons learned from the Multi-Partner Trust Fund (MPFT) Project, the national application to International Center for Antimicrobial Resistance Solutions for implementation research, and ongoing multisectoral initiatives.

The Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 outlines a comprehensive vision for strengthening AMR governance, surveillance, laboratory capacity, antimicrobial stewardship, veterinary and food safety systems, environmental protection, and WASH under the One Health approach. It aims to establish a sustainable, evidence-based national AMR response by 2030.

2. SITUATIONAL ANALYSIS

Tajikistan has demonstrated sustained national commitment to combating antimicrobial resistance through successive national action plans and growing multi-sectoral coordination. The country adopted its first National Action Plan on Antimicrobial Resistance in the Republic of Tajikistan for 2018–2022, followed by the Second National Action Plan on Antimicrobial Resistance in the Republic of Tajikistan for 2023–2025, both aligned with the WHO Global Action Plan and the European Strategic Action Plan (2011 – 2020) on AMR, and the One Health approach. While

these road maps have established an essential policy and institutional foundation, further work is needed to ensure full implementation, resource allocation, and integration across sectors.

2.1 Global and Regional Context

Antimicrobial resistance is a growing global challenge threatening human health, livestock production, food supply chains, and ecosystems. Low and middle-income countries face heightened risks due to limited laboratory capacity, high empirical prescribing rates, and easy access to antimicrobials without prescription.

In the Central Asian region, AMR patterns reflect global trends, with increasing resistance among Gram-negative pathogens and extensive use of broad-spectrum antimicrobials.

2.2 National Governance and Coordination

The National Action Plan on Antimicrobial Resistance in the Republic of Tajikistan for 2023–2025, officially endorsed by seven government institutions and launched in April 2024, reaffirmed the Government of Tajikistan's strong commitment to the One Health approach.

- A National Intersectoral Working Group (NIWG), reconstituted by Ministry of Health and Social Protection of the Population of the Republic of Tajikistan's decree, now includes nine key ministries and agencies, ensuring coordination across human health, veterinary, environmental, food safety, education and science, economic development and trade, energy and water resource, standardization, metrology and certification and finance sectors. The NMWG endorsed by ministerial order on 9 July 2025, №421.
- A functional Intersectoral and Technical Working Group on AMR was established, conducting regular coordination meetings and aligning sectoral activities with international frameworks such as the WHO Global Antimicrobial Resistance and Use Surveillance System (GLASS), Central Asian and European Surveillance of Antimicrobial Resistance (CAESAR) and the FAO/WOAH standards.
- Tajikistan annually has actively participated in the WHO TrACSS self-assessment process, confirming the country's transparency and ongoing engagement in global AMR monitoring mechanisms.

The National Intersectoral Working Group members are:

- Ministry of Agriculture of Republic of Tajikistan
- Ministry of Education and Science of Republic of Tajikistan
- Ministry of Economic Development and Trade of Republic of Tajikistan
- Ministry of Energy and Water Resources of Republic of Tajikistan
- Ministry of Finance of Republic of Tajikistan
- Ministry of Health and Social Protection of the Population of Republic of Tajikistan
- Committee for Environmental Protection under the Government of the Republic of Tajikistan
- Committee for Food Security under the Government of the Republic of Tajikistan
- Agency for Standardization, Metrology, Certification and Trade Inspection under the Government of the Republic of Tajikistan

The NIWG operates through two tiers: Coordination tier (deputy heads of ministries/agencies) and Technical tier (designated specialists from each sector). It is chaired by the Deputy Minister of Health and Social Protection of the Population, who also serves as the Chief Sanitary Doctor of Tajikistan.

National AMR and AMU coordinators have been appointed within the Ministry of Health and Social Protection of the Population and the Service of State Supervision of Health and Social Protection of the Population respectively. In August 2025, the NMWG convened its first meeting, officially initiating the development of the Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 and launching an updated national situational analysis across all One Health domains.

2.3 Surveillance and Laboratory Capacity

Significant progress was achieved in strengthening antimicrobial resistance and antimicrobial use surveillance systems during 2023–2025:

- Baseline AMR and AMU assessments were conducted across human and animal health sectors.
- The Standardized Protocol for AMR Surveillance was implemented in six pilot hospitals, confirming the feasibility of harmonized laboratory diagnostics.
- PCR diagnostics training was organized for national bacteriologists enhancing molecular testing capacity in Amsterdam, including a one-week hands-on training in Türkiye for routine diagnostics of AST.
- National antimicrobial consumption (AMC) data annually reported to WHO GLASS-AMC, using import statistics and local production.
- Conducted analysis of the first phase of the AMC-Hospital Study in two multidisciplinary health care facilities based on procurement data, the second phase of AMC-Hospital Study was initiated using the WHO Point Prevalence Survey (PPS) methodology.
- Integration of the AWaRe classification into the National Essential Medicines List represented a policy-level milestone to guide rational antibiotic use.
- Partners including FAO, WHO, UNEP, and WOAH continued to strengthen veterinary laboratories, food safety systems, and surveillance networks, establishing a foundation for expansion under the upcoming 2026–2030 plan.

2.3.1 AMR Surveillance in the Human Health Sector

In Tajikistan significant steps have been taken to strengthen epidemiological surveillance of food safety, zoonotic diseases, and antimicrobial resistance through the introduction of EUCAST standards at several sentinel surveillance sites supported by WHO and FAO, as well as through targeted support to national reference laboratories in both the human and animal health sectors. Six bacteriological laboratories including the National Reference Laboratory and major hospitals in Dushanbe and one regional in Kulyab have been introduced to EUCAST standards and implemented Protocol of proof-principal the importance of standard diagnostics in the epidemiological surveillance of antimicrobial resistance (PoP Protocol) in two phase, however, a unified national AST guideline has not yet been adopted.

In 2024, AMR data were collected for the first time in Tajikistan from five hospitals using the EUCAST methodology, based on the implementation of the Protocol confirming the importance of standard diagnostics in the epidemiological surveillance of antimicrobial resistance within the framework of the CAESAR network.

The conducted AMR-MedMon study in 2023 identified critical gaps, including shortages of essential laboratory materials, limited availability of diagnostic media, insufficient standardization of AST methods, and weaknesses in procurement processes.

Key constraints persist, such as variability in AST methodologies, limited implementation of quality control procedures, shortages of essential laboratory supplies, and incomplete surveillance coverage across regions and facilities.

2.3.2 Antimicrobial Use (AMU) and Antimicrobial Consumption (AMC)

2.3.2.1 National AMU/AMC Profile based on GLASS-AMC Validation Report

Tajikistan has been collecting national AMC data since 2014 and continues to submit validated datasets annually to the WHO GLASS-AMC platform. The 2025 GLASS-AMU Validation Report provides an important overview of antimicrobial consumption trends and data quality improvements.

AMC levels fluctuated between 2016 and 2024, with values ranging approximately from 16 to 29 DDD/1000 inhabitants/day, reflecting changes in prescribing patterns, procurement, and service utilization. A marked increase in consumption was observed in 2020, associated with the COVID-19 pandemic and the widespread use of antibiotics such as azithromycin and fluoroquinolones.

Post-pandemic data show a gradual return to pre-COVID levels, although consumption remains higher than in 2016–2017. National data include human-sector consumption of J01 antibiotics, with additional reporting on: antifungals (J02), antivirals (J05), antituberculosis medicines (J04A), antimalarials (P01B).

Data are compiled following WHO ATC/DDD methodology and analyzed using DDDs and tones. Validation confirms improved consistency, full population coverage, and correct application of ATC coding.

Consumption of Watch group antibiotics remains high, with notable utilization of ciprofloxacin, levofloxacin, and cefixime. Implementation of the AWaRe framework in clinical practice remains limited despite integration of AWaRe into the Essential Medicines List (2024 revision).

The COVID-19 pandemic significantly increased empirical prescribing, particularly macrolides and fluoroquinolones. Data indicate a temporary surge in antimicrobial use in 2020, followed by partial stabilization. High consumption of Watch-group agents raises the risk of accelerating AMR trends.

Lack of national clinical guidelines on rational antibiotic use contributes to inconsistent prescribing.
Combined AMU/AMC and AMR data point to the need for stewardship interventions in both inpatient and outpatient settings.

2.3.2.2 Hospital-Level AMC and PPS

Developing a standardized methodology for hospital-level data collection and analysis is essential to generate reliable evidence on antimicrobial consumption patterns. These evidence enables identification of prescribing practices, documentation gaps, and priority areas for antimicrobial stewardship. This methodology ensures comparability across facilities and alignment with global surveillance initiatives, thereby strengthening national capacity to monitor and optimize antimicrobial use.

In this end, in 2024–2025, a three-phase WHO-supported AMC-Hospital Study of antimicrobial consumption was conducted in two major hospitals. The 2025 PPS showed high empirical prescribing rates, extensive use of parenteral antibiotics, and gaps in clinical documentation. Detailed analysis is ongoing and will inform stewardship priorities.

2.4 Clinical Guidelines and Stewardship

No national guideline on rational antibiotic prescribing has been developed. Clinical protocols exist but lack AMR-sensitive updates. WHO AWaRe categorization is integrated into the Essential Medicines List, but application in hospitals remains limited.

2.5 Infection Prevention, Control, and Awareness

The second National Action Plan on Antimicrobial Resistance in the Republic of Tajikistan for 2023–2025 reinforced efforts to reduce infection risk and irrational antibiotic use through:

- Strengthened infection prevention and control (IPC) and WASH programs in healthcare and livestock facilities.
- Training, advocacy, and awareness activities targeting human health, veterinary, and pharmaceutical professionals.
- National and international awareness campaigns supporting behavior change and public engagement on antimicrobial misuse.

These achievements reflect incremental but tangible improvements in Tajikistan’s AMR governance, surveillance, and capacity-building landscape.

Joint External Evaluation (JEE),

During the 2025 the Republic of Tajikistan underwent the WHO Joint External Evaluation (JEE), which aimed to assess the country's readiness to prevent, detect, and rapidly respond to public

health threats. The following scores were obtained for Technical Area P4, "Antimicrobial Resistance (AMR)":
P4.1 Multisectoral coordination on AMR: 3
P4.2 Surveillance of AMR: 2
P4.3 Prevention of MDRO: 2
P4.4 Optimal use of antimicrobial medicines in human health: 2
P4.5 Optimal use of antimicrobial medicines in animal health and agriculture: 2

The scores for most AMR areas (P4.2–P4.5) are at **Level 2**, indicating the need for significant strengthening of national capacity and the implementation of concrete measures.

Key JEE Recommendations for Strengthening the AMR System
JEE experts identified a number of critical areas for improvement that will form the foundation for planning the new Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 and require immediate attention:

1. Coordination, Financing, and Resources (P4.1)
Develop and approve a budget plan for the Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 implementation. Allocate adequate resources in all sectors, including integrating AMR into the broader development agenda to secure long-term resource support.
2. Surveillance, Laboratories, and Protocols (P4.2 and P4.3)
Expand AMR surveillance coverage in all regions and strengthen laboratory capacity in the human health and veterinary sectors for antimicrobial susceptibility testing (AST), especially for priority bacterial pathogens. Develop, approve, and implement a national standard protocol for the detection, notification, and management of priority multidrug resistant organism (MDRO) pathogens.
3. Antimicrobial Stewardship (P4.4 and P4.5)
Human Health Sector: Establish a national monitoring system to strengthen control over the prescription and dispensing of antimicrobials, especially for antimicrobials in the "Reserve" and "Watch" categories. Animal Health/Agriculture Sector: Develop, approve, and implement national regulations and guidelines on prudent use of antimicrobial agents, and ensure the dispensing of medically important antimicrobial agents only through the prescription of a veterinarian or other suitably trained person authorized by legislation.
4. Prevention and Biosecurity
Expand the implementation of WHO Infection Prevention and Control (IPC) core components at hospitals throughout the country. Invest in animal health systems, biosecurity, and vaccination to reduce the need for antimicrobials in livestock production. Thus, the JEE assessment confirms that despite progress in multisectoral coordination (Score 3), significant gaps remain that require immediate investment and the development of national protocols, which directly aligns with the

goals of the new Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030.

Outstanding Challenges and Gaps

Despite measurable progress, several systemic barriers continue to limit the effectiveness and sustainability of AMR control measures:

- Limited laboratory infrastructure, reagent supply and poor data collection, restricting the consistency of bacteriological and antimicrobial susceptibility testing (AST) and quality data collection.
- Absence of standardized AST methodologies and external quality assurance systems, hindering data comparability and reliability.
- Fragmented AMR and AMU data systems across human, animal, and environmental sectors, with no integrated national database.
- Lack of established antimicrobial use monitoring in primary healthcare, hospital settings, and the livestock sector.
- Unregulated over-the-counter sales of antimicrobials for both human and veterinary use, contributing to misuse and self-medication.
- Insufficient domestic financing for AMR activities, resulting in dependence on short-term donor-funded projects rather than sustainable, institutionalized funding mechanisms.
- Insufficient data from veterinary and environmental sectors
- Limited inclusion of the environmental sector, despite growing evidence of environmental pathways in AMR transmission.

Furthermore, persistent gaps in safe WASH services and infection prevention and control (IPC) across Tajikistan's health-care facilities pose a major challenge to effective AMR containment and implementation of the National AMR Road Map. A recent nationally representative assessment shows that nearly half of primary health-care facilities (49.8%) do not meet the basic level for any WASH service, while only 0.4% meet all five basic WASH dimensions. Most facilities meet only one (31.0%) or two (12.1%) dimensions, indicating systemic deficits in clean water availability, environmental hygiene, waste management, sanitation, and functional hand-hygiene infrastructure. These structural weaknesses significantly increase the risk of health-care-associated infections, irrational antibiotic prescribing, and contamination pathways between humans, animals, and the environment.

These gaps highlight the need for sustained political commitment, increased resource mobilization, and a shift from project-based interventions to system-wide, institutionalized AMR governance.

3. IMPLICATIONS FOR 2026–2030

Building on the progress of 2018–2025, Tajikistan is now positioned for a "second-generation" Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 that:

- Updates and strengthens governance and accountability frameworks;
- Expands integrated surveillance across human, animal, food, and environmental sectors;
- Mainstreams antimicrobial stewardship (AMS) and infection prevention and control (IPC) at all health system levels;
- Strengthens regulation of antimicrobial use (AMU) and pharmaceutical sales from pharmacy
- Establishes sustainable national financing mechanisms for AMR containment.

Vision, Goal, and Guiding Frameworks

Vision. By 2030, Tajikistan protects the health of people, animals, plants, and the environment from AMR through an integrated One Health system that prevents infections, preserves antimicrobial effectiveness, and safeguards food safety, trade, and livelihoods.

Goal (2026–2030). Reduce the health and economic burden of AMR by: (I) cutting inappropriate antimicrobial use (AMU) in human and animal health, (II) expanding high-quality surveillance and laboratories, (III) institutionalizing infection prevention and control (IPC) and WASH, and (IV) embedding stewardship, regulation, and behavior change across sectors.

Governance & Coordination in One Health approach

1. National Intersectoral Working Group. Chaired by Ministry of Health and Social Protection of the Population of the Republic of Tajikistan, co-chaired by the Ministry of Agriculture of the Republic of Tajikistan, Committee for Food Security under the Government of the Republic of Tajikistan, Committee for Environmental Protection under the Government of the Republic of Tajikistan, other governmental agencies and Development Partners.

2. Technical Working Groups (TWGs):

- Surveillance & Laboratories (GLASS/CAESAR, veterinary AMR/AMU, food, environment)
- Antimicrobial Stewardship (human health, veterinary)
- IPC & WASH (health facilities, communities, food chain)
- Regulation/Procurement (marketing authorization, OTC bans, substandard/falsified products)
- Communications, Education & Behavior Change

3. Secretariat: Housed in MoHSPP, responsible for TrACSS reporting, M&E, costing, and partner coordination. (Aligned to WHO GAP implementation steps)

4. Coordination Mechanisms

Regular intersectoral meetings of the NIWG and TWGs are held at least twice per year to review progress, discuss challenges, and align sectoral workplans. The NIWG Secretariat prepares consolidated progress reports and annual review summaries for submission to the TrACSS. In addition, regular meetings with other relevant coordination mechanisms operating at the level of

government agencies on WASH—bringing together national public authorities and development partners working in the areas of water supply, sanitation, hygiene, and facility-level improvements—are essential to ensure coherence of actions, avoid duplication, and strengthen the alignment of priorities on AMR, IPC, and WASH across the health system.

5. Key Challenges and Next Steps

While the coordination structure is functional, several challenges persist, including:

- Lack of a dedicated budget line for AMR activities within national programs;
- Limited institutional capacity for M&E and costing;
- Need for:

    - **Step 1:** Improve cross-sectoral data sharing and deploy digital tools for AMR monitoring to enable timely, interoperable, and standardized information exchange across human, veterinary, and environmental sectors.
    - **Step 2:** Establish and operationalize a strengthened national AMR coordination mechanism with sustainable financing to guide implementation, oversee progress, and ensure accountability.
    - **Step 3:** Enhance national reporting and surveillance systems, including laboratory, clinical, and environmental data streams, to generate reliable evidence for decision-making.
    - **Step 4:** Consolidate collaboration between human health, animal health, food safety, and environmental authorities to support a fully integrated One Health approach aligned with the National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030.

4. STRATEGIC PILLARS, OBJECTIVES, PRIORITY ACTIONS AND OUTPUTS (2026–2030)

Pillar I — Surveillance & Laboratories (Human, Animal, Food, Environment)

Objective 1. Establish nationally representative AMR/AMU surveillance across sectors, integrated with GLASS/CAESAR and WOAH systems.

Key actions:

1. Human Health Surveillance

a) Upgrade and sustain bacteriology capacity at all designated sentinel facilities: governmental facilities National public health laboratory, State Sanitary and Epidemiological Supervision Service laboratories, National Reference Laboratory, Tajikistan Research Institute of Preventive Medicine, National Medical Center of Tajikistan "Shifobakhsh", Medical Complex "Istiqlol", Dushanbe City Clinical Hospital for Infectious Diseases, Dushanbe City Clinical Hospital for Children’s Infectious Diseases, Karim Akhmedov City Medical Center No. 1, Kulyab Regional Clinical Hospital named after Khaknazarov.

Upgrades will include:

- standardized bacteriology and AST capacity based on EUCAST standards;
- installation of MALDI-TOF mass spectrometers in the national reference laboratory and selected regional labs to reduce diagnostic turnaround time;
- improve capacity, infrastructure, QA, and training for molecular-based AMR testing in human sector at sentinel surveillance sites under the National AMR Surveillance Network (joint activity)
- establishment of reagent buffer stocks, dual-supplier agreements, and preventive maintenance contracts;
- sustained staffing through specialist training, retention incentives, and mentorship;
- implement capacity for disk diffusion testing for Service of State Sanitary Epidemiology Supervision district level, supported by a structured sample collection, training, development of SOPs, QA, equipment, and reagents;
- update national clinical guidelines for antibiotic use in PHC and hospitals that align with international standards.

b) Expand participation of oblast, city-level, and private diagnostic laboratories in national AMR surveillance through accreditation pathways, standardized SOPs, and integration of their AST data into the national database and CAESAR/GLASS.

c) Data interoperability and digital integration:

- Adopt common data standards for WHONET/LIMS across all laboratories, including peripheral facilities;
- Ensure automated data exchange through API or ETL scripts into a unified National AMR/AMU Integrated Database, enabling real-time dashboards;
- Implement a cross-sectoral AMR surveillance network (joint activity). Implement digital AMR dashboards for policymakers, clinicians, veterinarians, and—where appropriate—the public, supporting transparency and evidence-informed interventions.

d) Surveillance of high-risk populations:
Expand pathogen and resistance pattern monitoring in vulnerable groups including NICUs, PICUs, neonatal sepsis wards, obstetric units, and pregnant women, given their historically distinct AMR profiles. Sentinel hospitals will maintain separate antibiograms for these demographics and report annually to CAESAR/GLASS.

2. Human Antimicrobial Use (AMU) Surveillance

- Establish digital pharmacy and health insurance data capture to estimate DDD/1,000 inhabitants/day and inpatient consumption patterns.
- Implement e-prescribing in selected hospitals to automate AMU analytics by AWaRe category.
- Conduct Point Prevalence Surveys (PPS) every two years to monitor antibiotic prescribing practices, identify high-use departments (e.g., surgery, ICUs, pediatrics), and establish baseline hospital-acquired infection (HAI) burdens.

- Use PPS results to update stewardship priorities and guideline-revision cycles.

3. Animal Health and Food Chain Surveillance

- Improve capacity, infrastructure, QA, and training for AMR testing in animals under the National AMR Surveillance Network (joint activity).
- Upgrade veterinary laboratories using FAO ATLASS guidance, ensuring standardized bacteriology, AST, and EQA participation.
- Adopt WOAH ANIMUSE methodology for veterinary AMU measurement.
- Strengthen surveillance of antimicrobial residues in meat, milk, eggs, and aquaculture products.
- Prioritize monitoring of critically important antimicrobials in poultry and dairy sectors.
- Establish basic AMR active surveillance from a statistically relevant sample of small-holder farms.

4. Environmental AMR Surveillance

- Implement phased expansion of wastewater and surface water AMR surveillance, starting with 3 urban and 3 rural sites, and scaling to additional sites by 2030.
- Include monitoring of:
    - hospital effluent and drainage systems;
    - pharmaceutical manufacturing discharge;
    - agricultural runoff from poultry, dairy, and horticulture sectors;
    - landfill leachate and municipal waste sites.
- Integrate environmental AMR and AMU residue data into national dashboards and One Health risk assessments.
- Develop accountability and oversight mechanisms for chemical substances, including antimicrobials and pesticides, that contribute to the emergence and spread of antimicrobial resistance in the environment.
- Strengthen the laboratory capacity of the environmental sector to ensure timely monitoring of antimicrobial residues, resistant microorganisms, and resistance genes in wastewater and soil.
- Strengthen the workforce capacity of environmental authorities and institutions in antimicrobial resistance monitoring, including the development and integration of training modules for environmental inspectors on wastewater and soil sampling, assessment of resistance-driving risk factors, and interpretation of monitoring results.
- Develop Standard Operating Procedures (SOPs) and methodological guidelines for the detection of antimicrobial residues, resistant microorganisms, and resistance genes in environmental samples, incorporating a stepwise approach to strengthening workforce and laboratory capacity.

5. Community and Informal-Use Surveillance

- Pilot community-based surveillance in selected districts to capture informal antibiotic use, including OTC purchases, leftover antibiotics use, and self-medication behaviors.

- Engage PHC workers, community health volunteers, and pharmacies in reporting trends in antibiotic requests and episode-level usage.
- Link findings to RCCE strategies and community-targeted AMS interventions.

6. Data Governance, Interoperability, and National Database Rollout

- Develop a National AMR/AMU Integrated Database based on the Service of State Sanitary Epidemiological Surveillance and Service of State Supervision of Health and Social Protection of the Population in cooperation with Republican center for medical statistics of MOHSPP, with rollout as follows:
    - **2027:** system design, interoperability standards, WHONET/LIMS connection;
    - **2028:** onboarding of all sentinel hospitals and veterinary labs;
    - **2029:** onboarding of private labs, food safety labs, and environmental monitoring sites;
    - **2030:** full integration across human, veterinary, food, and environment sectors;
    - **2030:** national public-facing AMR dashboard operational.
- Ensure quarterly NIWG dashboards and an annual National AMR/AMC Report drawing from integrated data streams.

7. Integration of antimicrobial resistance and antimicrobial residue monitoring into the national environmental monitoring system

- Piloting wastewater monitoring in priority facilities (medical organizations, livestock complexes, pharmaceutical enterprises) to assess the presence of antimicrobial residues, resistant microorganisms and resistance genes).
- Develop criteria and methodological approaches to the inclusion of AMR indicators in the existing system of monitoring surface waters and soils, especially in areas of intensive agricultural production.
- Assess the feasibility of integrating environmental monitoring components of antimicrobial resistance, including landfill leachate analysis, into a national AMR surveillance system within the One Health approach.
- Create a national list of environmental hot spots for AMR based on a cross-sectoral analysis of data from health, veterinary and environmental monitoring systems.

Output / Targets

- 80% of designated hospitals, veterinary labs, food safety labs, and environmental surveillance sites submit AST and AMR data to the national platform and CAESAR/GLASS, meeting WHO quality standards by 2028.
- 70% of oblast and city hospitals (outside Dushanbe), including private labs meeting minimum quality criteria, contribute AST/AMR data to the national database by 2030.
- Baseline human AMU established by 2027, with 10% reduction by 2030 (DDD/1,000 inhabitants/day), monitored by digital prescribing and PPS results.
- Baseline veterinary AMU mg/kg biomass reported via WOAH ANIMUSE by 2027, with 15% reduction by 2030.

- 6 sentinel environmental surveillance wastewater/surface water sites reporting by 2027, expanded coverage by 2030, including monitoring of agricultural runoff and pharmaceutical waste.
- Annual antibiograms produced for NICUs, PICUs, neonatal wards, and obstetric units with tailored IPC and AMS recommendations.
- Fully interoperable National AMR/AMU Database functional by 2029, generating quarterly NIWG dashboards and annual national reports.

Lead: MoHSPP (Service of State Sanitary Epidemiological surveillance/Service of State Supervision of Health and Social Protection of the Population), MOA, CFS

Pillar II — Infection Prevention & Control (IPC), WASH, Vaccination

Objective 2. Reduce infections and transmission in health care, households, farms, and food chains.

Key actions:

1. Strengthen IPC in Health Care Facilities

a) Implement national IPC and WASH standards and WHO core IPC components across all tertiary, regional, and district hospitals, including regular supervision, annual IPC assessments, and introduction of multimodal IPC strategies.

b) Enhance HAI surveillance systems by scaling surveillance of CLABSI, SSI, neonatal sepsis, ventilator-associated pneumonia (VAP), and other priority HAIs in 6 sentinel hospitals by 2028, expanding to additional facilities by 2030.

c) Introduce early IPC screening and detection protocols, including:

- structured questionnaires on hand hygiene, HAI knowledge, and adherence to IPC protocols;
- standardized screening of high-risk patients (e.g., rectal swabs for carbapenem-resistant Enterobacterales such as NDM-1–producing strains, MRSA nasal screening, etc.);
- periodic audit of medical device reprocessing, including protective sheaths for endoscopic equipment, sterilization practices, and compliance with microbiology diagnostic protocols.

d) **Strengthen IPC governance within hospitals** by enhancing collaboration between:

- Infection Prevention Committees
- Drug & Therapeutics Committees (DTCs)
- Quality Improvement (QI) teams
- AMS committees
  Each hospital will designate an IPC Coordinator responsible for oversight, reporting, M&E, and liaison with IPC Councils at national and oblast levels.

e) Develop monitoring and evaluation capacity within health facilities by integrating IPC indicators into the IPC Training Curriculum, including data collection, audit cycles, supervision checklists, HAI reporting, and budgeting/financial tracking for IPC supplies.

2. Strengthen IPC, WASH, and Immunization in Primary Health Care & Community Settings

a) Scale WASH improvements in PHC facilities and village health centers, focusing on hand hygiene stations, functional sanitation, safe waste management, reliable water supply, and environmental cleaning.

b) Implement National Guidelines for Hand Hygiene in Community Settings (2025) in households, schools, markets, and transport hubs.

c) Integrate immunization with IPC and WASH programming, focusing on catch-up vaccines (e.g., pneumococcal, Hib, pertussis, measles), to reduce antibiotic-preventable infections.

d) Early behavioral risk detection through community questionnaires that assess antimicrobial misuse, hygiene gaps, and infection risk behaviors.

e) School-based IPC and WASH programs including implementation of new school WASH standards, hygiene clubs, and waste management improvements.

3. Veterinary IPC and Livestock Production Biosecurity

a) Introduce veterinary IPC indicators for livestock farms and veterinary clinics, including:

- biosecurity measures;
- animal waste management;
- isolation of sick animals;
- cleaning and disinfection protocols;
- vaccination programs.

b) Scale farm-level IPC training and bio-containment packages through Farmer Field Schools.

c) Strengthen hygiene and waste management in slaughterhouses, cold chains, and live animal markets, aligned with national food safety regulations.

4. Food Safety and Antimicrobial-Free Certification

a) Reinforce HACCP standards in food processors and high-risk markets and require alignment with NRA certification systems.

b) Pilot an antimicrobial-free certification scheme for selected food producers (e.g., poultry, dairy) to incentivize compliance, strengthen competitiveness, and reduce AMR risk along the food chain.

c) Expand surveillance of antimicrobial residues in food products, linking results to certification, regulatory enforcement, and sanctions where necessary.

5. Strengthen Governance, Collaboration, and Knowledge Sharing

a) Establish formal collaboration pathways between Hospital Infection Prevention Councils, DTCs, QI Committees, and national IPC responsible bodies.

b) Improve reporting lines between hospital IPC units, the National IPC Coordination Group, and the national One Health AMR NIWG.

c) Develop IPC case studies and learning platforms, enabling hospitals and PHC centers to share lessons on multimodal IPC interventions, HAI reduction strategies, and WASH best practices.

d) In 2–3 tertiary and PHC centers, document and standardize the IPC governance structure, featuring IPC coordinators, committee roles, supervision mechanisms, and pathway diagrams to guide national scale-up.

6. Alignment with National IPC and Clinical Guidelines

a) Ensure Pillar II implementation is fully aligned with:

- the National IPC Action Plan;
- the National WASH in Health Care Facilities Road Map;
- national immunization program;
- national clinical guidelines and standard treatment protocols;
- AMR surveillance priorities from Pillar I.

b) Integrate IPC and HAI data with AMR data flows, enabling targeted interventions for departments with high AMR or high infection burdens.

Output/Targets:

- 90% of hospitals and PHC facilities have functional IPC committees and protocols by 2029.
- 20% reduction in HAI rates at sentinel hospitals by 2030, based on expanded surveillance of CLABSI, SSI, VAP, neonatal sepsis, and obstetric infections.
- WASH improvements in PHC facilities:
    - ≥70% of PHC facilities with 0 basic WASH dimensions reach basic level in ≥1 dimension by 2027.
    - 50% of PHC facilities with 1–2 dimensions reach basic level in ≥3 dimensions by 2028.
    - 80% of PHC facilities with 0–2 dimensions reach basic level in ≥3 dimensions by 2030.
    - ≥80% of all PHC facilities achieve basic level across all 5 WASH dimensions by 2030.

- Schools: ≥80% have functional hygiene, sanitation, and waste management protocols by 2029.
- Food processors: ≥50 food processors HACCP-certified by **2030**, with selected producers piloting antimicrobial-free certification.
- Veterinary IPC:
    - ≥60% of large-scale livestock farms and ≥50% of veterinary clinics meet national IPC indicators by 2029.
    - ≥75% achieve compliance by 2030.
- Early detection: Annual implementation of screening protocols for high-risk patients (e.g., NDM-1, MRSA), with standardized practices embedded into national IPC/CQI guidelines.
- Governance/knowledge-sharing:
  Functional collaboration mechanisms between IPC Councils, DTCs, and QI Committees in ≥80% of tertiary hospitals by 2029.

Lead: MoHSPP, PHC Department, MES (schools), CFS, FAO (food safety)

Pillar III — Antimicrobial Stewardship (AMS) & Access

Objective 3. Institutionalize AMS across human and animal health systems while ensuring equitable access to quality-assured antimicrobials and essential diagnostics.

Key actions:

1. Human Health AMS (Hospital Sector)

a) Establish AMS committees in all national/republican hospitals by 2027, and in 50% of regional/district hospitals by 2029, expanding to 70% by 2030.

b) Train 80% of clinicians, pharmacists, nurses, and microbiologists in republican, oblast, and district hospitals on AMS principles, rational antibiotic use, and interpretation of AST/antibiogram data.

c) Update national and facility-level standard treatment guidelines (STGs) using:

- WHO AWaRe Categorization
- WHO Antibiotics Book
- ESCMID clinical guidelines
- CDC Antibiotic Prescribing and Use guidance
- local antibiograms (including NICU/PICU and obstetric profiles)

d) Align national and hospital formularies with AWaRe classifications and introduce restrictive policies for Watch/Reserve antibiotics.

e) Expand e-prescribing pilots (2026–2028) to all republican hospitals, linked to decision-support tools, formulary restrictions, patient allergy alerts, and real-time AMS dashboards.

f) Integrate AMS with IPC and laboratory systems, ensuring feedback loops between clinicians and microbiologists to support evidence-based prescribing.

2. AMS in Primary Care and Rural PHC Settings

a) Strengthen primary care prescribing practices by developing and deploying:

- clinical decision-support tools for URTI, diarrheal disease, and childhood febrile illness;
- delayed antibiotic prescribing protocols;
- symptom-based triage algorithms that incorporate vaccination history and nutritional status (particularly for children under 5);
- rapid diagnostic tools (RDTs) where feasible (e.g., CRP, rapid strep testing).

b) Expand AMS interventions in rural PHC through:

- pharmacist-led antimicrobial counseling;
- enforcement of prescription-only sales in rural pharmacies;
- integration of AMS materials into community health education and maternal-child health programs.

c) Strengthen preventive strategies in PHC to reduce demand for antibiotics:

- nutrition programs for infants and pregnant women;
- catch-up vaccination campaigns;
- WASH improvements linked with hygiene promotion.

d) Establish targets for primary care:

- by 2029, at least 60% of PHC policlinics implement decision-support tools;
- by 2030, 40% reduction in unnecessary URTI antibiotic prescriptions in pilot districts.

3. Veterinary Stewardship & One Health Integration

a) Introduce prescription-only rules for critically important antimicrobials (CIA) in veterinary settings and enforce phased restrictions on antimicrobial growth promoters.

b) Deploy digital veterinary AMU reporting systems that capture:

- prescriptions by type, species, and indication;
- use of CIAs;
- compliance with withdrawal periods;
- reductions in growth-promoter use.

These indicators will link to the national AMR/AMU database and WOAH ANIMUSE reporting.
c) Strengthen farm-level stewardship by scaling FAO-supported biosecurity/bio-containment packages and producer training in poultry, dairy, and aquaculture sectors.

d) Create incentives for compliance, including eligibility for antimicrobial-free certification (see Pillar II) and market access advantages for compliant producers.

4. Quality Assurance and Substandard/Falsified (SF) Products

a) Strengthen market surveillance, including batch-level testing, retail outlet audits, and periodic targeted sweeps for substandard or falsified antimicrobials.

b) Expand post-marketing quality testing for both human and veterinary antimicrobials, ensuring alignment with WHO guidance on medical product quality surveillance.

c) Enhance cross-border cooperation with Customs to block illegal/OTC antimicrobial imports and enable rapid alerts for SF products.

Outputs timeline:

1. Establish National AMS Governance and Standards (2026)

- Finalize national AMS guidelines, SOPs, and minimum standards for hospitals and PHC.
- Issue a ministerial order mandating AMS across republican and regional hospitals.
- Develop standardized AMS readiness and monitoring tools.

2. Conduct Baseline AMS Assessments (2026)

- Assess AMS structures, lab capacity, prescribing patterns, AMU data systems in all republican and regional hospitals.
- Categorize facilities into readiness tiers for phased rollout.

3. Build Institutional AMS Teams and Capacities (2026–2027)

- Establish AMS committees in all target hospitals with multidisciplinary membership.
- Deliver national AMS training modules for hospital and PHC providers.
- Implement mentorship models linking high-capacity hospitals with lower-resourced facilities.

4. Strengthen Diagnostics and Reporting (2026–2029)

- Upgrade microbiology labs for improved culture/AST capacity.
- Expand MALDI-TOF coverage in regional hubs where feasible.
- Roll out digital AMR/AMS reporting tools integrated with WHONET and national AMR database.
- Ensure regular antibiotic use analyses (by AWaRe category) at hospital and PHC levels.

5. Implement AMS Interventions in Phases (2026–2029)

- **Phase 1 (2026–2027):** All republican hospitals adopt core AMS interventions.

- **Phase 2 (2027–2028):** 50% of regional hospitals implement core AMS interventions.
- **Phase 3 (2028–2029):** Expansion to remaining regional hospitals with compliance monitoring.

6. Monitor, Evaluate, and Certify AMS Performance (2027–2030)

- Annual AMS audits using national scorecards (hospitals + PHC).
- Certification of functional AMS programs.
- Support and remediation plans for low-performing facilities.
- Evaluate impact of e-prescribing on antibiotic use trends.

7. Sustain AMS through Financing & Integration (2028–2030)

- Integrate AMS into hospital and PHC budgets and performance-based financing.
- Embed AMS indicators into accreditation, licensing, and routine clinical governance.
- Link AMS compliance to facility-level incentives and inspection outcomes.

Targets:

- 100% of republican hospitals and 50% of regional/oblast hospitals have functional AMS programs by 2029, expanding to 70% by 2030.
- 60% of total antibiotic use in pilot districts comes from AWaRe Access antibiotics by 2029.
- Rapid diagnostic tests available in at least 50% of PHC facilities in pilot districts by 2030.
- 40% reduction in inappropriate URTI antibiotic prescribing in PHC pilot districts by 2030.
- Veterinary: 50% reduction in use of antimicrobial growth promoters by 2030; 100% reporting compliance for CIAs in digital veterinary AMU systems.
- All e-prescribing data linked to national AMR/AMU database by 2029, with quarterly prescribing quality dashboards.

Lead: MoHSPP, SSSHaSPP, SSSES, CFS

Pillar IV — Legislation, Regulation & Procurement

Objective 4. Modernize, enforce, and monitor antimicrobial regulations to curb misuse, safeguard quality, and protect public health, animal health, and food safety.

Key Actions

1. Strengthen Human and Veterinary Medicines Legislation

- Review the outcome of Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 and develop National AMR strategy for the next National Health Strategic Plan 2030-2040 and develop multi-sector National AMR Road Map for the period of 2030-2033 (joint activity).

- Conduct a comprehensive review of existing antibiotic prescription, distribution, and use regulations that will contribute to improved national regulations on antimicrobial use in humans and animals (joint activity).
- Undertake a baseline review of current veterinary antibiotic use and prescription regulations, to identify gaps and inform future policy improvements on antimicrobial use in animals.
- Update human and veterinary antimicrobial laws to mandate prescription-only access, regulate online and OTC sales, and require mandatory AMU record-keeping for veterinary farms.
- Define clear legal consequences for non-compliance, including progressive penalties such as fines, license suspensions, and revocation of operating permits for persistent violators.
- Establish joint regulatory responsibilities across Ministry of Health and Social Protection of the Population of the Republic of Tajikistan, Committee for Food Security under the Government of the Republic of Tajikistan, Ministry of Agriculture of the Republic of Tajikistan, veterinary inspectorates, and law enforcement authorities.
- Develop enforcement guidelines in consultation with pharmacists, veterinarians, private sector retailers, and producer associations to ensure practical implementation.

2. Enforcement of OTC Bans, Internet Sales, and Unregulated Markets

- Introduce structured regulatory enforcement mechanisms, including:
    - regular inspections of pharmacies, veterinary retailers, and feed stores;
    - undercover compliance checks;
    - random audits of online platforms and social media marketplaces;
    - validation of veterinary prescriptions during farm inspections.
- Pilot targeted enforcement campaigns in high-risk districts (e.g., border regions, high livestock-density areas, and urban centers with OTC sale patterns), followed by national scale-up.
- Launch a national campaign to inform pharmacists, veterinarians, and the general public about the updated legal requirements and consequences of non-compliance.

3. Strengthen Procurement, Quality Assurance, and Border Controls

- Modernize public-sector procurement systems for human and veterinary antimicrobials by enforcing mandatory supplier prequalification, GMP/GDP compliance, and batch-level quality verification.
- Enhance border control procedures and cross-border collaboration to detect illegal imports, mis-labelled veterinary antimicrobials, and substandard/falsified (SF) products.
- Develop rapid alert and recall mechanisms with Service of State Supervision of Health and Social Protection of the Population, Customs Service, and regional inspectorates.
- Introduce annual quality audits for wholesalers, importers, and veterinary drug distributors.

4. Digital Traceability and Product Verification

- Pilot a digital traceability system in high-risk districts (e.g., Dushanbe, Sughd, Khatlon), incorporating:

    - QR-based product verification,
    - electronic batch tracking from import to point-of-sale,
    - monitoring of sales volumes of Watch/Reserve antibiotics.
- Integrate traceability data with the national AMR/AMU database and AMS dashboards.
- Scale up to national implementation by 2030, covering all antimicrobials for human and veterinary use.

5. Alignment with International Trade, Food Safety, and Veterinary Standards

- Harmonize national veterinary and food-safety regulations with WOAH, Codex Alimentarius, SPS (Sanitary & Phytosanitary Measures), and FAO/WHO guidelines.
- Implement regular assessments of compliance among poultry, dairy, and aquaculture producers, with certification pathways for compliant operations.
- Strengthen coordination between Service of State Supervision of Health and Social Protection of the Population, food safety authorities, and veterinary inspectorates to unify surveillance and enforcement.

Outputs / Targets

Legal and Regulatory Frameworks

- Revised and enacted national antimicrobial legislation for human and veterinary sectors by 2027, integrating prescription-only use, import/sales controls, and mandatory AMU recording for farms.
- Enforcement guidelines and penalty structures finalized and disseminated by 2027.

Enforcement of OTC and Online Sales

- OTC and internet sales enforcement piloted in at least 6 high-risk districts by 2028, with structured inspection cycles.
- By 2030, prescription-only rules enforced nationwide, with annual compliance reports and published inspection results.

Procurement and Quality Assurance

- 70% of public health and veterinary procurement conducted under updated quality-assurance standards, with supplier prequalification, by 2028.
- National inspectorate trained and resourced to detect/remove SF products by 2027.
- Annual national reports on SF detection published starting 2028.

Digital Traceability

- Digital traceability pilot launched in high-risk districts by 2027.
- National roll-out of electronic traceability and product verification for all imported and locally distributed antimicrobials by 2030.

Veterinary AMU Regulation

- All licensed farms, veterinary pharmacies, and feed stores maintain standardized antimicrobial-use records accessible to regulators by 2028.
- Full alignment of veterinary and food safety regulations with WOAH/SPS standards by 2030.

Lead: MoJ, MoHSPP, CC, CFS

Pillar V — Awareness, Education & Behavior Change

Objective 5. Shift public, professional, and community norms toward responsible antimicrobial use through sustained, evidence-based communication, education, and training.

Key Actions

1. National Awareness and Communication Campaigns

- Conduct annual World Antimicrobial Awareness Week (WAAW) campaigns with unified messaging across human health, veterinary services, agriculture, food safety, and environmental sectors.
- Develop targeted communication packages for high-risk groups, including:
    - health workers (clinicians, pharmacists, veterinarians, lab professionals)
    - farmers and livestock producers
    - informal drug sellers and rural pharmacies
    - youth, students, and teachers
    - pregnant women and mothers of young children
- Use local languages and culturally resonant formats, with defined channels for urban and rural populations.

2. Evidence-Based Behavior Change: KAP Surveys and Feedback Loops

- Conduct baseline and annual pre/post Knowledge, Attitudes, and Practices (KAP) surveys in communities, PHC settings, schools, and among professional groups.
- Describe AMU patterns, behaviors, and quantify overall consumption of antibiotics in large-scale poultry and dairy farms to inform development of national framework AMU monitoring and reporting in livestock.
- Use KAP findings to:
    - adjust national AMR communication strategies;
    - tailor WAAW messaging;
    - refine training curricula for health and veterinary professionals;
    - guide resource allocation and community interventions.
- Organize annual feedback workshops with MoHSPP, veterinary authorities, CSOs, and community leaders to translate KAP findings into policy and program improvements.

3. Pre-Service and In-Service Education & Cadre of Trainers

- Integrate standardized AMR/AMS, IPC, hygiene, and waste management modules into all medical, nursing, pharmacy, public health, veterinary, and laboratory schools.
- Establish a national cadre of AMR/IPC master trainers, ensuring:
    - competency-based progression (basic → intermediate → advanced levels),
    - routine refresher courses every 2 years,
    - certification linked with accreditation processes for hospitals, pharmacies, and veterinary clinics.
- Train PHC workers, village health volunteers, women HCW networks, teachers, and community leaders to deliver behavior-change messaging at the local level.

4. Community Engagement and Primary Care Behavior Change

- Utilize PHC centers, village health facilities, community volunteers, women's councils, religious leaders, and youth networks to disseminate tailored messages on:
    - prudent antimicrobial use;
    - dangers of OTC/self-medication;
    - hygiene and WASH behaviors;
    - vaccination and nutrition as AMR-prevention tools;
    - antimicrobial-free livestock production.
- Engage farmer field schools to deliver hands-on training in biosecurity, farm hygiene, vaccination, alternatives to antibiotics, and safe manure management.

5. Digital Platforms for AMR Communication

- Develop a national AMR digital communication strategy using:
    - SMS-based alerts for rural populations;
    - mobile health apps for PHC workers (decision-support, AMR "fast facts");
    - social media platforms (Facebook, Instagram, Telegram, WhatsApp) for youth and urban outreach;
    - national websites and portals hosting AMR learning materials, guidelines, and interactive modules.
- Partner with telecom operators to send free public SMS messages during outbreak seasons and WAAW.

Outputs and Targets

Public Awareness & Behavior Change

- ≥70% of the population reached annually with AMR messages by 2028 and ≥85% by 2030.
- Baseline and annual KAP surveys conducted, with results integrated into national AMR communication strategies.
- Demonstrated improvement in knowledge and reduction in self-medication behaviors by 2030, based on KAP trends.

Education & Training

- 70% of medical, nursing, pharmacy, veterinary, and laboratory schools include AMR/AMS/IPC competencies by 2029.
- National cadre of trainers established by 2027, with at least 300 certified AMR/IPC trainers across regions by 2030.
- 70% hospitals and ≥60% of PHC facilities regularly conduct refresher training for staff by 2029.

Digital Communication

- National AMR digital platform fully operational by 2029, with SMS and app-based outreach covering ≥70% of rural districts by 2030.
- At least 1 million digital engagements (views/clicks) annually across digital channels by 2030.

Community and Agricultural Engagement

- Farmer field schools on biosecurity and antimicrobial-free production operational in all regions by 2028.
- ≥50% of trained farmers demonstrate improved AMU practices (based on farm-level KAP surveys) by 2030.

Lead: MoHSPP, MES, CFS, CEP, MoA

Pillar VI — Financing, Research & Innovation

Objective 6. Sustain AMR capacity, secure long-term financing, and generate context-specific evidence and innovations for effective AMR prevention and control.

Key Actions

1. Establish and Govern a National AMR Basket Fund

- Create a National AMR Basket Fund to pool contributions from government (Ministry of Health and Social Protection of the Population of the Republic of Tajikistan, Ministry of Agriculture of the Republic of Tajikistan, Ministry of Finance of the Republic of Tajikistan, Committee of Food Security under the Government of the Republic of Tajikistan, Committee of Environment Protection under the Government of the Republic of Tajikistan), donors, multilateral organizations, and private-sector partners.
- Define a clear governance structure, potentially housed within the MOHSPP or the National Intersectoral Working Group Secretariat, with:
    - a steering committee (MoHSPP, MoA, CFS, CEP, MoF, academia, and donor representatives),
    - a Fund Manager responsible for financial oversight,
    - transparent criteria for disbursement to surveillance, IPC, AMS, and laboratory initiatives.

- Define a narrow initial scope for the Basket Fund during 2026–2028 (e.g., surveillance and laboratory strengthening), expanding gradually based on performance and capacity.
- Publish annual financial reports to ensure full transparency and accountability.

2. Domestic Resource Mobilization and Dedicated Budget Lines

- Introduce dedicated AMR budget lines in the annual budgets of MoHSPP, MoA, CEP, CFS and MoF.
- Allocate protected funding for:
    - IPC interventions (with earmarked resources for high-burden departments such as surgery, intensive care, maternity, and NICU/PICU);
    - AMR surveillance (human, veterinary, food, environment);
    - Laboratory equipment, reagents, EQA, and maintenance;
    - AMS rollout in hospitals and PHC;
    - veterinary AMU reporting systems and farm biosecurity improvements.
- Develop a phased costing plan (2026–2030) for major interventions, integrated into National Health Strategy and annual public expenditure reviews.

3. Operational and Applied Research for AMR Control

- Support priority operational research, including:
    - point prevalence surveys (PPS) for hospital antibiotic use and HAIs;
    - antimicrobial residue studies in food and the environment;
    - cost-effectiveness analyses for AMS and IPC packages;
    - studies on AMR transmission dynamics in NICU/PICU and maternal health;
    - behavioral research on antimicrobial misuse in the community;
    - economic modeling of AMR burden and productivity loss.
- Integrate research findings into annual AMR policy reviews and resource allocation decisions.

4. Define National AMR Research Priorities

Develop a National AMR Research Agenda, including priority areas such as:

1. Diagnostics: low-cost rapid AST, point-of-care tests, molecular detection.
2. Resistance Mechanisms: surveillance of ESBL, carbapenemase (NDM, OXA-48) and colistin resistance.
3. One Health epidemiology: cross-sectoral AMR pathways (farms–food–environment–humans).
4. Economic/financial studies: cost of inaction, investment case for AMR.
5. IPC innovations: protective equipment, environmental disinfection technologies, digital IPC compliance tools.
6. AMS efficacy: local guideline effectiveness, AWaRe consumption monitoring, digital prescribing tools.
7. Climate and environmental drivers of AMR.

5. Innovation Incentives and Private Sector Engagement

- Launch targeted innovation grants or challenge funds to support:
    - local startups developing diagnostics, waste-water AMR detection tools, biosensors, animal-health alternatives (probiotics, vaccines), and mobile health tools;
    - academia–industry partnerships for novel AMR solutions.
- Introduce market incentives for pharmacies, veterinary clinics, and producers that comply with AMR regulations (e.g., reduced licensing fees, recognition schemes, preferential procurement for antimicrobial-free producers).
- Explore fiscal incentives for local manufacturers to adopt GMP/GDP standards and invest in high-quality antimicrobial production.

6. Strengthen and Laboratory Innovation Capacity

- Equip and accredit AMR Reference laboratories with advanced AMR detection methods such as:
    - mass spectrometry (MALDI-TOF),
    - molecular diagnostics (PCR-based resistance testing),
    - residue analysis for antimicrobials in food and water.
- Support development of validated analytical methods for detection of SF products and AMR-related quality indicators.
- Strengthen laboratory biostatistics and data management capacity through mentorship and collaboration with international reference labs.

7. Build the National AMR Research & Innovation Network

- Establish a multi-sector National AMR Research and Innovation Network linking universities, research institutes, public health laboratories, veterinary services, environmental agencies, and private innovators.
- Facilitate annual AMR Research Symposia to share results, co-develop studies, and promote cross-sector collaboration.
- Promote regional cooperation, cooperation with Central Asian countries and neighboring countries to exchange experiences, conduct joint research and establish regional benchmarks.

Outputs and Targets

Financing & Resource Mobilization

- AMR Basket Fund established by 2027, operational with clear governance, fund management system, and accountability framework.
- ≥20% annual increase in domestic funding for AMR priority areas (surveillance, IPC, AMS, laboratory strengthening) starting in 2027.
- Dedicated AMR budget lines included in Ministry of Health and Social Protection of the Population of the Republic of Tajikistan, Ministry of Agriculture of the Republic of

Tajikistan, Committee for Food Security under the Government of the Republic of Tajikistan, Committee for Environment Protection under the Government of the Republic of Tajikistan budgets by 2028.

Research & Innovation

- Five or more operational research studies on AMR/AMU completed by 2030.
- National AMR Research Agenda finalized by 2027 and reviewed annually.
- National AMR Research & Innovation Network operational by 2028.
- At least three innovation pilots (diagnostics, digital tools, wastewater surveillance, animal-health alternatives) implemented by 2030.

Laboratory Quality and Method Development

- AMR Reference Laboratory fully equipped and accredited to perform advanced AMR-related quality assurance by 2029.
- At least two validated analytical methods developed for AMR detection and substandard/falsified product monitoring by 2030.

Private Sector Engagement

- Incentive mechanisms introduced by 2028 for pharmacies, veterinary clinics, and compliant producers.
- Demonstrated reduction in substandard/falsified product circulation and improved AMU compliance in the private sector by 2030.

Policy Integration

- Evidence generated through research and innovation incorporated into annual AMR reviews, informing funding allocations and priority setting.

Lead: MoF, MoHSPP, Academia (TSMU named after Avicenna, Postgraduate Institute for Medical Workers, Research Institute of Preventive Medicine), MOA, Development Partners

5. Monitoring & Evaluation (M&E)

Reporting:

- Quarterly TWG dashboards (human, animal, food, environment).
- Annual AMR Report published and shared with partners.
- Mid-term review (2028) to adjust targets.
- End-term evaluation (2030) with independent assessment.
- TrACSS reporting to WHO/Quadripartite annually.

Core indicators (annual):

- Surveillance: % of reporting hospitals with functional AMS programs; % isolates with AST; completeness/timeliness; WHONET data shared to CAESAR/GLASS.
- Human AMU: DDD/1,000 inhabitants/day (total and AWaRe categories).
- Veterinary AMU: mg/kg biomass (WOAH ANIMUSE methodology).
- IPC/WASH: % hospitals with IPC programs; HAI incidence; % PHC facilities meeting WASH minimums (WHO/UNICEF indicators for basic level services).
- Stewardship: % hospitals with AMS; % guideline-concordant prescriptions; outpatient antibiotic prescribing rate.
- Food safety/residues: % samples compliant (meat, milk); # HACCP-certified processors.
- Environment: % wastewater/surface water sites monitored; resistance/residue trends.
- Awareness/Training: population reach; # pre-/in-service trainees (human/vet/lab/pharmacy).

5. Monitoring, Evaluation & Learning (M&E)

5.1 M&E Framework and Governance

M&E of the Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 will be coordinated by the NIWG Secretariat, working closely with Technical Working Groups (TWGs) on Surveillance & Laboratories, AMS, IPC/WASH, Regulation, and RCCE.

- Each TWG will be responsible for compiling sector-specific data, validating indicators, and submitting quarterly dashboards.
- The NIWG Secretariat will synthesize data into annual AMR Reports, feed lessons into national strategies (health, agriculture, food safety, environment), and coordinate TrACSS reporting.

A 2026 baseline assessment will establish starting values for all core indicators across human, animal, food, and environmental sectors.

5.2 Reporting and Review Cycle

- Quarterly: TWG dashboards (human, animal, food, environment, IPC, AMS, RCCE).
- Annually:
    - National AMR/AMU Report (human, veterinary, food, environment).
    - Training/awareness summary (coverage, key messages, behavior-change evidence).
    - TrACSS reporting to WHO/Quadripartite.
- 2028: Mid-term review to adjust targets, interventions, and financing.
- 2030: End-term independent evaluation to inform the next AMR strategy cycle.

5.3 Core Indicators, Baselines, and Data Sources

For each indicator group, the following will be defined in a detailed M&E matrix:

- Definition & unit,

- 2026 baseline,
- Annual target trajectory,
- Data source & collection method,
- Frequency,
- Responsible institution.

1. Surveillance & Laboratory Capacity

- Indicators (annual):
    - % of hospitals reporting AST data to national database/CAESAR/GLASS.
    - % of isolates tested with AST.
    - Data completeness and timeliness of AST reporting.
- Baseline: Established via 2025-2026 national lab assessment.
- Data sources: WHONET/LIMS exports, Service of State Supervision of Health and SSP, Service of State SES surveillance reports, AMR Reference Laboratory.
- Frequency: Quarterly (lab/TWG dashboards), annual aggregation.
- Methods: Routine electronic extraction, validation workshops, periodic data quality audits.

2. Human AMU

- Indicators (annual):
    - DDD/1,000 inhabitants/day (total antibiotics and by AWaRe category).
    - Hospital antibiotic consumption by ward/service.
- Baseline: 2025/2026 GLASS-AMC and hospital PPS/consumption studies.
- Data sources: Pharmacy/insurance data, e-prescribing systems, PPS surveys.
- Frequency:
    - Routine data (pharmacy/e-prescribing): quarterly.
    - PPS: every 2 years.
- Methods: Standard GLASS-AMC methodology, PPS protocols, automated calculations from digital systems.

3. Veterinary AMU

- Indicators (annual):
    - mg/kg biomass (WOAH ANIMUSE methodology).
    - % of CIAs in total veterinary AMU.
- Baseline: 2025/2026 WOAH ANIMUSE-based assessment.
- Data sources: Veterinary prescription records, farm AMU logs, import/sales data.
- Frequency: Annual.
- Methods: WOAH ANIMUSE protocols; combined analysis of import, farm, and prescription data.

4. IPC/WASH

- Indicators (annual):
    - % of hospitals with functional IPC programs/committees.

    - HAI incidence (e.g., CLABSI, SSI, neonatal sepsis, VAP) in sentinel sites.
    - % of PHC facilities meeting basic WASH standards (WHO/UNICEF service levels).
- Baseline: National WASH in HCF assessment and IPC baseline (2025/2026).
- Data sources: Facility assessments, IPC registers, HAI surveillance forms, WASH surveys.
- Frequency:
    - IPC/HAI: quarterly in sentinel sites; annual aggregation.
    - WASH: every 2–3 years with annual progress updates on key indicators.
- Methods: Standard WHO IPC core-component and WASH assessment tools, routine reporting via national health information systems.

5. Stewardship (Human & Veterinary)

- Indicators (annual):
    - % of hospitals with functional AMS programs.
    - % of prescriptions concordant with national/WHO guidelines.
    - Outpatient antibiotic prescribing rate for selected indications (e.g., URTI).
    - % reduction in veterinary growth promoter use.
- Baseline: 2025/2026 AMS readiness surveys and initial PPS.
- Data sources: AMS audits, e-prescribing data, PPS, veterinary AMU systems.
- Frequency:
    - Hospital AMS audits: annually.
    - PPS: every 2 years.
    - Veterinary AMU: annually.
- Methods: National AMS scorecards, audit & feedback tools, standard prescribing indicators.

6. Food Safety / Residues

- Indicators (annual):
    - % of meat, milk (and selected products) samples compliant with MRLs.
    - of HACCP-certified processors and antimicrobial-free certified producers.
- Baseline: 2025 residue surveillance and HACCP certification status.
- Data sources: Food safety lab reports, inspectorate records.
- Frequency: Annual.
- Methods: Sampling plans, lab testing, certification database review.

7. Environment

- Indicators (annual):
    - % of sentinel wastewater and surface water sites monitored.
    - Trends in AMR genes/pathogens and antimicrobial residues at those sites.
- Baseline: Established during initial 6-site pilot (2026–2027).
- Data sources: Environmental lab reports, WHONET or compatible databases.
- Frequency: Semi-annual or annual sampling.
- Methods: Standard WHO/UNEP-aligned protocols, ISO-compliant lab procedures.

8. Awareness, Education & Training

- Indicators (annual):
  - % of population reached by AMR messages (media, digital, PHC/community channels).
  - % of pre-/in-service trainees (human, veterinary, lab, pharmacy) completing AMR/AMS/IPC modules.
  - Changes in KAP scores over time.
- Baseline: 2025 KAP surveys and training coverage mapping.
- Data sources: KAP survey reports, training registries, digital analytics (web, apps, SMS).
- Frequency:
  - KAP: baseline and then at least every 2–3 years.
  - Training data: annual.
  - Population reach estimates: annual.
- Methods: Structured surveys, training monitoring tools, media reach and digital engagement metrics.

5.4 Using M&E Results for Learning and Adaptive Management

M&E findings will not only track progress but also drive course correction and inform broader policies:

- Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 adaptation: Mid-term and annual reviews will adjust targets, timelines, and resource allocation based on indicator trends.
- One Health integration: Cross-sector dashboards will inform One Health action plans for animal health, food safety, environment, and climate-sensitive risk management.
- IPC & AMS guidelines: HAI data, PPS findings, and AMS audits will guide updates to IPC protocols, clinical algorithms, and AMS tools (including e-prescribing decision support).
- Regulation & procurement: Data on SF products, OTC sales, and traceability will refine regulatory enforcement and procurement policies (Pillar 4).
- Financing decisions: Cost-effectiveness and burden data will feed into the AMR Basket Fund governance and domestic budget discussions (Pillar 6).
- Communication strategies: KAP and behavior indicators will shape RCCE, community engagement, and targeted awareness activities (Pillar 5).

This integrated M&E and learning approach will ensure that the Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 remains evidence-driven, adaptive, and tightly linked to national health, veterinary, food safety, and environmental strategies up to 2030 and beyond.

5.4 Using M&E Results for Learning and Adaptive Management

A central purpose of the AMR M&E system is not only to measure progress but also to continuously learn, adapt, and refine interventions across all One Health sectors. This learning

agenda ensures that evidence informs decision-making at national, regional, and facility levels, and that operational lessons from human health, animal health, food safety, WASH, agriculture, and environmental sectors are systematically captured, analyzed, and translated into policy and practice.

5.4.1. Establishing a National AMR Learning Agenda

The Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 will adopt a structured national AMR Learning Agenda focused on identifying what works, what does not, and why. This involves:

a) Documenting implementation experiences (successes, challenges, bottlenecks) in each sector.
b) Generating and curating evidence through surveillance data, operational research, KAP surveys, HAI/AMS audits, food residue monitoring, and environmental AMR sampling.
c) Synthesizing insights into actionable recommendations for the NIWG, ministries, and TWGs.
d) Adjusting policies, guidelines, and interventions based on evidence.

This cycle will ensure the Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 becomes a living, adaptive strategy responsive to changing epidemiology, resistance patterns, operational realities, and global guidance.

5.4.2. Mechanisms for Capturing Lessons from Implementation

a) Quarterly Learning Dialogues

Every quarter, each Technical Working Group (TWG)—representing human health, animal health, agriculture/food safety, WASH, and environmental sectors—will convene Learning Dialogues to interpret surveillance data and implementation experience. These meetings will include:

- review of quarterly dashboards,
- analysis of implementation bottlenecks,
- sharing of best practices from facilities/districts,
- identification of corrective actions.

All findings will be compiled into quarterly learning memos for the NIWG Secretariat.

b) Annual Multi-Sector AMR Learning Review

An annual national event will bring together actors across sectors to:

- review AMR/AMU trends, behavioral studies, and PPS/HAI results;
- update priorities for the following year;

- document cross-sectoral lessons that have system-wide implications (e.g., links between food residue data and human AMR patterns).

This review will directly inform annual revisions of the AMR Implementation Plan, One Health initiatives, and donor coordination efforts.

c) Learning from Sentinel Sites and Pilot Districts

Pilot sites (for AMS in PHC, environmental surveillance, HACCP/antimicrobial-free certification, veterinary AMU reporting, and IPC/WASH upgrades) will function as learning laboratories. They will:

- produce quarterly reports highlighting operational learning;
- test innovations (digital tools, rapid diagnostics, traceability systems);
- generate comparative analyses between pilot and non-pilot areas;
- prepare case studies for national scale-up.

Insights from pilots will guide phased national expansion.

d) KAP Surveys and Community Feedback Channels

Regular pre/post KAP surveys will assess changes in knowledge, attitudes, and practices across human health workers, farmers, and the public. Their insights will:

- inform targeted behavior-change campaigns,
- refine WAAW messaging,
- identify groups requiring tailored interventions,
- support design of regulatory enforcement (e.g., OTC controls, veterinary AMU compliance).

Digital feedback channels—SMS surveys, call-in lines, mobile app feedback—will enable continuous bottom-up learning.

e) Systematic Learning from Operational Research

Findings from operational and implementation research studies (e.g., PPS, residues, environmental sampling, cost-effectiveness analyses) will be:

- reviewed annually by the National AMR Research & Innovation Network,
- translated into operational recommendations for ministries,
- integrated into updates of clinical guidelines, AMS protocols, and IPC standards.

Each research study will include a policy-uptake plan to ensure results translate into real-world improvements.

5.4.3. Using Lessons to Adapt Policies, Guidelines, and Programs

a) Updating Clinical and Veterinary Guidelines

Insights from surveillance, AMS audits, and resistance trends will inform:

- updates to human STGs, AWaRe formularies, and clinical decision-support tools;
- revisions to veterinary treatment guidelines and CIA use restrictions;
- refinement of antimicrobial prescribing algorithms for PHC and hospitals.

This ensures that clinical and veterinary guidance reflects evolving epidemiology.

b) Strengthening IPC and WASH Protocols

HAI data, facility audits, and environmental monitoring results will be used to:

- adjust IPC guidelines and multimodal interventions;
- set new WASH upgrade priorities;
- guide the allocation of dedicated IPC budgets for high-burden areas (surgery, NICU/PICU, maternity).

c) Regulatory Adjustments

Data on OTC sales, traceability system pilots, and SF product detection will inform:

- enforcement adjustments,
- targeted regulatory sweeps in high-risk districts,
- revisions of penalties and licensing requirements.

This creates a regulatory ecosystem that evolves based on evidence.

d) Resource Allocation and Financing Decisions

Findings from the M&E system will guide:

- allocation of AMR Basket Fund resources,
- prioritization of investments in labs, surveillance, and AMS,
- annual domestic budget discussions across MoHSPP, MoA, Service of State of Supervision of Health and SPP, Service of State SES, CFS.

This ensures financing follows evidence—not tradition or inertia.

e) One Health Program Integration

Cross-sector results will be used to:

- harmonize AMR interventions with WASH, food safety, animal health, and environmental policies;

- align AMR actions with climate change adaptation and disaster preparedness plans;
- ensure coherence with international reporting (TrACSS, WOAH, Codex Alimentarius, UNEP).

This guarantees that AMR control remains a coordinated One Health effort.

5.4.4. Documentation, Knowledge-Sharing, and Institutional Memory

a) AMR Knowledge Repository

The NIWG Secretariat will maintain a digital repository containing:

- dashboards, reports, and datasets,
- case studies and learning briefs,
- updated guidelines, SOPs, and tools,
- evidence summaries from operational research.

b) Cross-Sector Learning Platform

A national learning portal will connect health facilities, veterinary authorities, research institutions, and environmental agencies, enabling:

- peer-to-peer learning,
- sharing of innovations and challenges,
- collaborative problem-solving.

c) Institutionalization of Lessons Learned

All guidelines, tools, and training materials (AMS, IPC, WASH, veterinary AMU, regulation) will undergo annual review and revision based on M&E findings.
This ensures that AMR practices do not remain static but evolve continuously with evidence.

5.4.5. Adaptive Management as a Core Principle

At the heart of this learning agenda is a commitment to adaptive management, meaning the Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 is not a fixed blueprint but a dynamic plan that:

- responds to changing resistance patterns,
- adapts to implementation challenges,
- incorporates stakeholder feedback,
- leverages new innovations,
- recalibrates priorities as needed.

6. Risk Management & Mitigation

A successful AMR response requires anticipating systemic risks and establishing contingency measures that maintain continuity of essential services, ensure stewardship, and prevent escalation of resistance. Key risks and corresponding mitigation strategies for the 2026–2030 period include:

6.1 Supply Chain Disruptions and Stock-Outs of Essential Antimicrobials

Tajikistan's reliance on imported antimicrobials—including critical WHO AWaRe "Access" group medicines—creates vulnerability to global supply disruptions, delays in customs clearance, quality issues, and parallel-market leakage. Supply interruptions may drive prescribers toward inappropriate broad-spectrum (Watch/Reserve) antibiotics, increasing resistance pressure.

Mitigation Measures

- National Essential Antibiotic Buffer Stock (3–6 months):
  Establish nationally managed emergency reserves for key Access antibiotics (e.g., amoxicillin, cloxacillin, cefazolin, cotrimoxazole), guided by national consumption patterns and CAESAR/GLASS-reported susceptibility trends.
- Framework Contracts & Pooled Procurement:
  Implement multi-year contracts with pre-qualified suppliers, joint procurement with international organization, and synchronize public-sector orders to reduce fragmentation and prevent stock-outs at hospital and PHC levels.
- Real-Time Stock Monitoring System:
  Introduce electronic LMIS modules integrated with WHONET/LIMS to flag early shortages, enable redistribution between regions, and link stock data with consumption trends.
- Emergency Import Fast-Track:
  Develop a rapid customs-clearance protocol for antimicrobials and laboratory reagents deemed critical for surveillance, AST, and hospital care.
- Traceability and Anti-Diversion Measures:
  Expand serialization and QR-based verification to prevent leakage of subsidized Access antibiotics into private markets, reducing risk of artificial shortages.

6.2 Ensuring Quality and Timely Availability of Laboratory Reagents & Diagnostics

Interruptions in transport, foreign currency constraints, or lack of reagent standardization can compromise bacteriology and AST performance, resulting in unreliable antibiogram data.

Mitigation Measures

- Annual tendering with certified ISO-compliant suppliers for media, antibiotic discs, E-test strips, and QC strains.
- Regional hubs in Dushanbe, Sughd, and Khatlon with minimum two-month reagent buffer capacity.
- Dual-supplier strategy to avoid exclusive dependence on a single international vendor.
- Contractual guarantees for preventive maintenance of incubators, biosafety cabinets, and automated systems.

6.3 Behavioral Resistance Among Healthcare Workers (HCWs)

Changing entrenched prescribing behaviors is difficult. Challenges include:

- habitual empirical prescribing without diagnostic confirmation
- preference for broad-spectrum agents regardless of clinical need
- low adherence to treatment guidelines
- perception that patients expect antibiotics
- limited time for counseling

Mitigation Measures

- Mandatory justification for antibiotic prescriptions in patient records and electronic systems (already included in AMS).
- Audit & Feedback Cycles: Quarterly prescription audits by AMS committees with confidential feedback to prescribers.
- Antibiogram-Guided Clinical Pathways: Each hospital to adopt *local antibiogram-informed* protocols updated annually based on CAESAR/GLASS data and WHO Priority Pathogens List (2024).
- Decision-support tools: Integration of stewardship prompts during electronic prescribing (alerts for Watch/Reserve antibiotics).
- Mentorship Networks: Link high-capacity hospitals in Dushanbe with regional hospitals for direct supervision on rational prescribing and interpretation of AST results.
- HCW Risk Communication & Behavior-Change Training: Practical modules on misconception management, patient dialogue, and consequences of misuse.

6.4 Community Misuse and Non-Prescription Sales of Antibiotics

Unregulated over-the-counter (OTC) sales by pharmacies, self-medication, and incomplete courses drive resistance. Many pharmacies continue to dispense antibiotics without prescription due to weak enforcement and public pressure.

Mitigation Measures

- Pharmacy Inspection & Licensing Enforcement:
  Annual inspections tied to pharmacy relicensing; enforce penalties for non-compliance with prescription-only policies.
- Standard Operating Procedures (SOPs) for pharmacists on patient counseling, refusal protocols, and reporting of unusual antimicrobial demand.
- Digital Pharmacy Audit System:
  Capture antibiotic dispensing patterns; flag pharmacies dispensing excessive Watch/Reserve antibiotics.
- Public Education:
  Continuous campaigns explaining resistance, dangers of self-medication, and correct antibiotic use—integrated with PHC/city health center outreach.

- Community Antibiotic Use Surveys (KAP):
  Conduct repeated KAP or CAP studies to monitor trends and refine RCCE strategies.

6.5 Inadequate Use of Local and National Antibiograms in Clinical Decision-Making

Even with improved laboratory capacity, clinicians may underutilize antibiograms or misinterpret resistance patterns, leading to continued inappropriate prescribing.

Mitigation Measures

- Annual National Antibiogram Publication led by Service of State SES, with region-specific annexes.
- Hospital antibiogram posters and mobile versions for quick reference.
- Integration of antibiogram trends into training curricula, SOPs, and restrictive prescribing lists.
- Prioritization of pathogens: Focus on WHO Bacterial Priority Pathogens List (2024), especially ESBL-producing Enterobacterales, MRSA, fluoroquinolone-resistant Salmonella/Shigella, and drug-resistant Acinetobacter.

6.6 Weak Compliance with New Regulations

Resistance to new laws—such as prescription-only sales or reporting requirements in human and veterinary practices—may undermine implementation.

Mitigation Measures

- Phased enforcement with grace periods, clear guidelines, and incremental penalties.
- Joint human–veterinary inspections supported by Committee for Food Safety and MoHSPP.
- Accreditation and certification incentives for compliant facilities.
- Targeted awareness for veterinarians and farmers on consequences of non-judicious antibiotic use.

6.7 Human Resources Constraints

Shortage of microbiologists, pharmacists, infection-control specialists, and veterinarians may affect quality and continuity.

Mitigation Measures

- Bonded scholarships for laboratorians and clinical pharmacists.
- Continuous mentorship and twinning arrangements with national reference hospitals.
- Salary top-ups or performance-based financing for critical positions.
- Short-term surge capacity teams during outbreaks or staffing gaps.

6.8 Data Fragmentation, System Interoperability, and Reporting Delays

Different sectors (human, veterinary, food, environment) may continue using disconnected systems, creating incomplete AMR/AMU data sets.

6.9 Insufficient integration of antimicrobial resistance aspects into the environmental monitoring system

Within the current environmental monitoring system, antimicrobial resistance (AMR) and the presence of antimicrobial residues are not yet fully integrated into environmental assessment and control processes. Insufficient cross-sectoral coordination in this area may create gaps in the information chain for decision-making and limit the timely identification of risks associated with the spread of resistant microorganisms through wastewater, agricultural runoff, and other environmental pathways, including those influenced by natural hazard events.

Mitigation Measures

- National integrated AMR/AMC database (already included in roadmap) with standardized unique identifiers.
- Automated data transfer (ETL) from WHONET, LIMS, pharmacy systems, veterinary AMU systems.
- Quarterly multisectoral data review sessions to harmonize and validate findings.
- Strengthening the laboratory capacity of the competent authority and environmental institutions to ensure readiness for monitoring antimicrobial resistance indicators, including developing technical capabilities and training specialists.
- Development and approval of an interdepartmental protocol for monitoring wastewater during outbreaks of infectious diseases and emergency situations.
- Development of recommendations for taking into account the risks of the spread of antimicrobial resistance in the design and construction of new medical and livestock facilities, including requirements for wastewater treatment systems.

7. Alignment & Synergies

This Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 updates and extends Tajikistan’s 2018-2022 and 2023-2025 AMR NAP it is tightly aligned to Quadripartite OH-JPA, WHO NAP implementation tools, CAESAR/GLASS, WOAH AMU reporting, and current FAO/UN One Health initiatives in Tajikistan—ensuring coherence, partner leverage, and sustainability.

8. Sustainability

- Embed AMR targets into National Health Strategy 2030, Food Safety Law, and Veterinary Services Modernization Plan.
- Capacity building ensures local ownership (labs, AMS committees, farmer schools).
- AMR Basket Fund and domestic budget lines sustain interventions beyond 2030.

Annex I: Activities, Timeline, Outcomes and Responsible Agencies for Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030

Pillar I — Surveillance & Laboratories (Human, Animal, Food, Environment)				Timeline implementation				
Objective 1. Establish nationally representative AMR/AMU surveillance across sectors, integrated with GLASS/CAESAR and WOAH systems								
	Focus area	**Main Activities**	**Outcomes**	**2026**	**2027**	**2028**	**2029**	**2030**
1. Human Health Surveillance	a. Upgrade and sustain bacteriology capacity at all designated sentinel facilities	1.a.1. Standardized bacteriology and AST capacity based on EUCAST standards;	All sentinel laboratories fully implement EUCAST methods for bacteriology and AST by 2028, unified national AST SOP package adopted and used across all human health laboratories by 2027, annual antibiograms produced by all sentinel hospitals and submitted to CAESAR/GLASS					
		1.a.2. Installation of MALDI-TOF mass spectrometers in the national reference laboratory and selected regional labs to reduce diagnostic turnaround time;	At least 2 regional laboratories equipped with MALDI-TOF by 2029, >80% isolates identified using MALDI-TOF workflows by 2030;					
		1.a.3 Improve capacity, infrastructure, QA, and training for molecular-based AMR testing in humans at sentinel surveillance sites under the National AMR Surveillance Network (joint activity)	The National AMR Surveillance Network in the human sector has been strengthened through the introduction of molecular testing, improved infrastructure, quality control and training, ensuring reliable data for national and international reporting					
		1.a.4 Establishment of reagent buffer stocks, dual-supplier agreements, and preventive maintenance contracts;	National buffer stock of critical bacteriology and AST reagents maintained at ≥3-month minimum level by 2027;					
		1.a.5 Sustained staffing through specialist training, retention incentives, and mentorship	Mentorship program operating in all sentinel labs by 2027 and conducting ≥2 mentorship cycles per year, competency assessments show ≥80% compliance with SOPs among trained laboratory staff					

		1.a.6 Implement capacity for disk diffusion testing for Service of State Sanitary Epidemiology Supervision district level, supported by a structured sample collection, training, development of SOPs, QA, equipment, and reagents	At the district level, the Service of State Sanitary Epidemiology Supervision has implemented disk diffusion testing for antimicrobial resistance, supported by training, standard procedures, quality control, and the necessary infrastructure, which allows for the generation of reliable data for the national AMR monitoring system					
		1.a.7 Update national clinical guidelines for antibiotic use in PHC and hospitals that align with international standards	National clinical guidelines for the use of antibiotics in primary health care and hospitals have been updated, approved and implemented, in line with international standards and ensuring the rational use of antimicrobials					
	b. Expand participation of 18 SES laboratories, oblast, city-level, and private diagnostic laboratories in national AMR surveillance	1.b.1 Conduct stepwise onboarding and accreditation readiness assessments for oblast, city-level, and private laboratories	70% of oblast and city hospitals (outside Dushanbe), including private labs meeting minimum quality criteria, contribute AST/AMR data to the national database by 2030					
		1.b.2 Standardized SOPs						
		1.b.3 Integrate laboratory AST data into the National AMR Database and ensure reporting to CAESAR/GLASS	AMR Data annually reported to CAESAR/GLASS					
	c. AMR/AMU Data interoperability and digital integration	1.c.1. Adopt common data standards for WHONET/LIMS across all laboratories, including peripheral facilities;	Unified national WHONET/LIMS data standard adopted and implemented in 100% of sentinel laboratories by 2028, ≥ 90% of laboratories produce AST datasets that meet WHO/CAESAR data-quality criteria by 2029;					

		1.c.2. Ensure automated data exchange through API or ETL scripts into a unified National AMR/AMU Integrated Database, enabling real-time dashboards	National AMR/AMU Integrated Database receives ≥95% complete and timely datasets from human, veterinary, and environmental sectors, real-time AMR data dashboards (with auto-refresh functionalities) operational at national level by 2029;					
		1.c.3. Implement a cross-sectoral AMR surveillance network (joint activity). Implement digital AMR dashboards for policymakers, clinicians, veterinarians, and—where appropriate—the public, supporting transparency and evidence-informed interventions.	≥80% of policymakers, clinicians, and veterinarians regularly use AMR dashboards for decision-making, guideline updates, and stewardship interventions by 2030					
	d. Surveillance of high-risk populations:	1. Expand pathogen and resistance pattern monitoring in vulnerable groups including NICUs, PICUs, neonatal sepsis wards, obstetric units, and pregnant women, given their historically distinct AMR profiles. Sentinel hospitals will maintain separate antibiograms for these demographics and report annually to CAESAR/GLASS.	80% of designated hospitals, veterinary labs, food safety labs, and environmental surveillance sites submit AST and AMR data to the national platform and CAESAR/GLASS, meeting WHO quality standards by 2028					
2. Human Antimicrobial Use (AMU) Surveillance		Establish digital pharmacy and health insurance data capture to estimate DDD/1,000 inhabitants/day and inpatient consumption patterns	Baseline human AMU established by 2027, with 10% reduction by 2030 (DDD/1,000 inhabitants/day), monitored by digital prescribing and PPS results					

		Implement e-prescribing in selected hospitals to automate AMU analytics by AWaRe category	Automated AMU analytics by AWaRe category established through implementation of e-prescribing in selected hospitals, resulting in real-time consumption data, improved guideline-adherent prescribing, and strengthened AMS decision-making					
		Conduct Point Prevalence Surveys (PPS) anually to monitor antibiotic prescribing practices, identify high-use departments (e.g., surgery, ICUs, pediatrics), and establish baseline hospital-acquired infection (HAI) burdens.	% of generate standardized national data on antibiotic prescribing practices, high-use clinical departments, and baseline HAI burdens, enabling hospitals and the Ministry of Health and Social Protection of the Population to identify priority areas and implement targeted antimicrobial stewardship interventions					
		Use PPS results to update stewardship priorities and guideline-revision cycles						
3. Animal Health and Food Chain Surveillance		Improve capacity, infrastructure, QA, and training for AMR testing in animals under the National AMR Surveillance Network (joint activity)	The National Surveillance Network for antimicrobial resistance in animals has been strengthened through improved infrastructure, quality control and training, ensuring reliable and standardized testing of AMR					
		Upgrade veterinary laboratories using FAO ATLASS guidance, ensuring standardized bacteriology, AST, and EQA participation	Sentinel veterinary laboratories are upgraded and standardized according to FAO ATLASS guidance, resulting in improved bacteriology and AST performance, routine participation in external quality assurance (EQA), and reliable AMR data for national surveillance and One Health					

			decision-making					
		Adopt WOAH ANIMUSE methodology for veterinary AMU measurement	Baseline veterinary AMU mg/kg biomass reported via WOAH ANIMUSE by 2027, with 15% reduction by 2030					
		Strengthen surveillance of antimicrobial residues in meat, milk, eggs, and aquaculture products	% of sampled animal-origin food products tested for antimicrobial residues that comply with national/Codex maximum residue limits (MRLs)					
		Prioritize monitoring of critically important antimicrobials in poultry and dairy sectors	A list of critically important antimicrobials in the poultry and dairy sectors has been approved and is being monitored at the national level					
		Establish basic AMR active surveillance from a statistically relevant sample of small-holder farms	Basic active surveillance of antimicrobial resistance is in place on smallholder farms, providing representative data for the national AMR monitoring system					
4. Environmental AMR Surveillance	a. Implement phased expansion of wastewater and surface water AMR surveillance, starting with 3 urbans and 3 rural sites, and scaling to additional sites	4.a.1. Include monitoring of: - hospital effluent and drainage systems; - pharmaceutical manufacturing discharge; - agricultural runoff from poultry, dairy, and - horticulture sectors; - landfill leachate and municipal waste sites	6 sentinel environmental surveillance wastewater/surface water sites reporting by 2027, expanded coverage by 2030, including monitoring of agricultural runoff and pharmaceutical waste					

		4.a.2. Integrate environmental AMR and AMU residue data into national dashboards and One Health risk assessments	Fully worked environmental AMR and AMU national dashboards and One Health risk assessments by 2029					
		4.a.3. Develop accountability and oversight mechanisms for chemical substances, including antimicrobials and pesticides, that contribute to the emergence and spread of antimicrobial resistance in the environment						
		4.a.4. Strengthen the laboratory capacity of the environmental sector to ensure timely monitoring of antimicrobial residues, resistant microorganisms, and resistance genes in wastewater and soil.						
		4.a.5. Strengthen the workforce capacity of environmental authorities and institutions in antimicrobial resistance monitoring, including the development and integration of training modules for environmental inspectors on wastewater and soil sampling, assessment of resistance-driving risk factors, and interpretation of monitoring results.						

		4.a.6. Develop Standard Operating Procedures (SOPs) and methodological guidelines for the detection of antimicrobial residues, resistant microorganisms, and resistance genes in environmental samples, incorporating a stepwise approach to strengthening workforce and laboratory capacity						
5. Community and Informal-Use Surveillance		Pilot community-based surveillance in selected districts to capture informal antibiotic use, including OTC purchases, leftover antibiotics use, and self-medication behaviors	Annual antibiograms produced for NICUs, PICUs, neonatal wards, and obstetric units with tailored IPC and AMS recommendations					
		Engage PHC workers, community health volunteers, and pharmacies in reporting trends in antibiotic requests and episode-level usage	A community-level surveillance mechanism is established and 50% of PHC facilities and pharmacies submitting timely monthly reports on antibiotic requests and episode-level usage by 2028					
		Link findings to RCCE strategies and community-targeted AMS interventions	Number of RCCE and community-targeted AMS interventions annually adapted or developed based on surveillance findings					
6. Data Governance, Interoperability, and National Database Rollout		Develop a National AMR/AMU Integrated Database based on the Service of State Sanitary Epidemiological Surveillance and Service of State Supervision of Health and Social Protection of the Population in cooperation with Republican center for medical statistics of MOHSPP, with rollout as follows	Fully interoperable National AMR/AMU Database functional by 2029, generating quarterly NIWG dashboards and annual national reports					

		2027: system design, interoperability standards, WHONET/LIMS connection						
		2028: onboarding of all sentinel hospitals and veterinary labs						
		2029: onboarding of private labs, food safety labs, and environmental monitoring sites						
		2030: full integration across human, veterinary, food, and environment sectors						
		2030: national public-facing AMR dashboard operational						
		Ensure quarterly NIWG dashboards and an annual National AMR/AMC Report drawing from integrated data streams						
7. Integration of antimicrobial resistance and antimicrobial residue monitoring into the national environmental monitoring system		Piloting wastewater monitoring in priority facilities (medical organizations, livestock complexes, pharmaceutical enterprises) to assess the presence of antimicrobial residues, resistant microorganisms and resistance genes).						
		Develop criteria and methodological approaches to the inclusion of AMR indicators in the existing system of monitoring surface waters and soils, especially in areas of intensive agricultural production.						

		Assess the feasibility of integrating environmental monitoring components of antimicrobial resistance, including landfill leachate analysis, into a national AMR surveillance system within the One Health approach.						
		Create a national list of environmental hot spots for AMR based on a cross-sectoral analysis of data from health, veterinary and environmental monitoring systems.						
Pillar II — Infection Prevention & Control (IPC), WASH, Vaccination								
Objective 2. Reduce infections and transmission in health care, households, farms, and food chains								
1. Strengthen IPC in Health Care Facilities		a. Implement national IPC and WASH standards and WHO core IPC components across all tertiary, regional, and district hospitals, including regular supervision, annual IPC assessments, and introduction of multimodal IPC strategies	90% of hospitals and PHC facilities have functional IPC committees and protocols by 2029					
		b. Enhance HAI surveillance systems by scaling surveillance of CLABSI, SSI, neonatal sepsis, ventilator-associated pneumonia (VAP), and other priority HAIs in 6 sentinel hospitals by 2028, expanding to additional facilities by 2030	20% reduction in HAI rates at sentinel hospitals by 2030, based on expanded surveillance of CLABSI, SSI, VAP, neonatal sepsis, and obstetric infections					

		c. Introduce early IPC screening and detection protocols, including: • structured questionnaires on hand hygiene, HAI knowledge, and adherence to IPC protocols • standardized screening of high-risk patients (e.g., rectal swabs for carbapenem-resistant Enterobacterales such as NDM-1–producing strains, MRSA nasal screening, etc.) • periodic audit of medical device reprocessing, including protective sheaths for endoscopic equipment, sterilization practices, and compliance with microbiology diagnostic protocols	Annual implementation of screening protocols for high-risk patients (e.g., NDM-1, MRSA), with standardized practices embedded into national IPC/CQI guidelines					
		Strengthen IPC governance within hospitals by enhancing collaboration between: • Infection Prevention Committees • Drug & Therapeutics Committees (DTCs) • Quality Improvement (QI) teams • AMS committees Each hospital will designate an IPC Coordinator responsible for oversight, reporting, M&E, and liaison with IPC Councils at national and oblast levels	Hospital IPC governance strengthened, with functional IPC committees operating in all sentinel hospitals, regular multisectoral collaboration established, and compliance with WHO IPC Core Components reaching ≥80% by 2030					

		Develop monitoring and evaluation capacity within health facilities by integrating IPC indicators into the IPC Training Curriculum, including data collection, audit cycles, supervision checklists, HAI reporting, and budgeting/financial tracking for IPC supplies	Health facilities implement standardized IPC monitoring and evaluation systems, with ≥80% of hospitals conducting quarterly IPC audits, reporting HAI indicators, and integrating IPC-related budgeting and supply tracking into routine management by 2030					
2. Strengthen IPC, WASH, and Immunization in Primary Health Care & Community Settings		a. Scale WASH improvements in PHC facilities and village health centers, focusing on hand hygiene stations, functional sanitation, safe waste management, reliable water supply, and environmental cleaning	≥70% of PHC facilities and village health centers achieve the basic WHO/UNICEF JMP WASH service level—including functional hand hygiene stations, reliable water supply, safe sanitation, waste management, and environmental cleaning—by 2030					
		b. Implement National Guidelines for Hand Hygiene in Community Settings (2025) in households, schools, markets, and transport hubs	National Hand Hygiene Guidelines implemented across priority community settings, with ≥60% of households, schools, markets, and transport hubs demonstrating compliance with core hand hygiene indicators by 2029					
		c. Integrate immunization with IPC and WASH programming, focusing on catch-up vaccines (e.g., pneumococcal, Hib, pertussis, measles), to reduce antibiotic-preventable infections	Coverage of priority catch-up vaccines (pneumococcal, Hib, pertussis, measles) increased by ≥15% in targeted districts, contributing to a measurable reduction in antibiotic-preventable infections by 2030					
		d. Early behavioral risk detection through community questionnaires that assess antimicrobial misuse, hygiene gaps, and infection risk behaviors	Regular community risk assessments institutionalized in pilot districts, with ≥70% of households surveyed every two years and findings used to inform targeted AMR, IPC, and WASH					

			interventions by 2030					
		f. School-based IPC and WASH programs including implementation of new school WASH standards, hygiene clubs, and waste management improvements	≥80% have functional hygiene, sanitation, and waste management protocols by 2029					
3. Veterinary IPC and Livestock Production Biosecurity		Introduce veterinary IPC indicators for livestock farms and veterinary clinics, including: • biosecurity measures • animal waste management • isolation of sick animals • cleaning and disinfection protocols • vaccination programs	≥60% of large-scale livestock farms and ≥50% of veterinary clinics meet national IPC indicators by 2029					
		Scale farm-level IPC training and bio-containment packages through Farmer Field Schools	≥75% achieve compliance by 2030					
		Strengthen hygiene and waste management in slaughterhouses, cold chains, and live animal markets, aligned with national food safety regulations	≥70% of slaughterhouses, cold-chain facilities, and live animal markets comply with national hygiene and waste management standards by 2030, as verified through annual inspections by the Committee for Food Security					
4. Food Safety and Antimicrobial-Free Certification		Reinforce HACCP standards in food processors and high-risk markets and require alignment with NRA certification systems	≥50 food processors HACCP-certified by 2030, with selected producers piloting antimicrobial-free certification					

		Pilot an antimicrobial-free certification scheme for selected food producers (e.g., poultry, dairy) to incentivize compliance, strengthen competitiveness, and reduce AMR risk along the food chain	Antimicrobial-free certification piloted in ≥10 poultry and dairy producers by 2029					
		Expand surveillance of antimicrobial residues in food products, linking results to certification, regulatory enforcement, and sanctions where necessary	≥70% of tested food samples meet national and Codex MRL standards by 2030					
5. Strengthen Governance, Collaboration, and Knowledge Sharing		Establish formal collaboration pathways between Hospital Infection Prevention Councils, DTCs, QI Committees, and national IPC responsible bodies	Formalized coordination mechanism (TOR, reporting templates, meeting schedule) implemented in all sentinel hospitals by 2027, IPC–DTC collaboration results in ≥20% improvement in adherence to antibiotic stewardship and IPC practices by 2030					
		Improve reporting lines between hospital IPC units, the National IPC Coordination Group, and the national One Health AMR NIWG	Monthly IPC reports submitted to the National IPC Coordination Group with ≥90% timeliness and completeness					
		Develop IPC case studies and learning platforms, enabling hospitals and PHC centers to share lessons on multimodal IPC interventions, HAI reduction strategies, and WASH best practices	Online IPC learning platform launched with ≥20 case studies and best-practice examples by 2028, ≥70% of hospitals and PHC centers contribute at least one case study or lesson learned by 2030					

		In 2–3 tertiary and PHC centers, document and standardize the IPC governance structure, featuring IPC coordinators, committee roles, supervision mechanisms, and pathway diagrams to guide national scale-up	IPC governance model validated and standardized in 2–3 tertiary hospitals and 2–3 PHC centers by 2027, National IPC governance guidance developed and approved for country-wide scale-up by 2028					
6. Alignment with National IPC and Clinical Guidelines		Ensure Pillar II implementation is fully aligned with: • the National IPC Action Plan • the National WASH in Health Care Facilities Road Map • national immunization program • national clinical guidelines and standard treatment protocols • AMR surveillance priorities from Pillar I.						
		Integrate IPC and HAI data with AMR data flows, enabling targeted interventions for departments with high AMR or high infection burdens	High-burden departments (ICU, NICU, surgical wards) identified using real-time dashboards and supported with tailored interventions					
Pillar III — Antimicrobial Stewardship (AMS) & Access								
Objective 3. Institutionalize AMS across human and animal health systems while ensuring equitable access to quality-assured antimicrobials and essential diagnostics								
1. Human Health AMS (Hospital Sector)		Establish AMS committees in all national/republican hospitals by 2027, and in 50% of regional/district hospitals by 2029, expanding to 70% by 2030	100% of republican hospitals and 50% of regional/oblast hospitals have functional AMS programs by 2029, expanding to 70% by 2030					
		Train 80% of clinicians, pharmacists, nurses, and microbiologists in republican, oblast, and district hospitals on AMS principles, rational antibiotic use, and interpretation of AST/antibiogram data	Conducted trains on AMS principals and rational use of antibiotics					

		Update national and facility-level standard treatment guidelines (STGs) using: • WHO AWaRe Categorization • WHO Antibiotics Book • ESCMID clinical guidelines • CDC Antibiotic Prescribing and Use guidance • local antibiograms (including NICU/PICU and obstetric profiles)	National and facility-level standard treatment guidelines updated and approved by 2028					
		Align national and hospital formularies with AWaRe classifications and introduce restrictive policies for Watch/Reserve antibiotics	Integrate AWaRe Classification into national and hospital guidelines					
		Expand e-prescribing pilots (2026–2028) to all republican hospitals, linked to decision-support tools, formulary restrictions, patient allergy alerts, and real-time AMS dashboards	60% of total antibiotic use in pilot districts comes from AWaRe Access antibiotics by 2029					
		Integrate AMS with IPC and laboratory systems, ensuring feedback loops between clinicians and microbiologists to support evidence-based prescribing	Rapid diagnostic tests available in at least 50% of PHC facilities in pilot districts by 2030					

2. AMS in Primary Care and Rural PHC Settings		Strengthen primary care prescribing practices by developing and deploying: • clinical decision-support tools for URTI, diarrheal disease, and childhood febrile illness • delayed antibiotic prescribing protocols • symptom-based triage algorithms that incorporate vaccination history and nutritional status (particularly for children under 5) • rapid diagnostic tools (RDTs) where feasible (e.g., CRP, rapid strep testing)	by 2030, 40% reduction in unnecessary URTI antibiotic prescriptions in pilot districts by 2029, at least 60% of PHC policlinics implement decision-support tools; - all e-prescribing data linked to national AMR/AMU database by 2029, with quarterly prescribing quality dashboards					
		Expand AMS interventions in rural PHC through: • pharmacist-led antimicrobial counseling • enforcement of prescription-only sales in rural pharmacies • integration of AMS materials into community health education and maternal-child health programs	AMS interventions in rural primary healthcare improve responsible antibiotic use through pharmacist-led counseling, strengthened enforcement of prescription-only sales, and integration of antimicrobial stewardship messages into community health education and maternal–child health programs, resulting in reduced inappropriate community-level antibiotic demand					
		Strengthen preventive strategies in PHC to reduce demand for antibiotics: • nutrition programs for infants and pregnant women • catch-up vaccination campaigns • WASH improvements linked with hygiene promotion	Preventive strategies in primary healthcare — including improved nutrition for infants and pregnant women, catch-up vaccination campaigns, and WASH-linked hygiene promotion — reduce the incidence of common infections and thereby decrease community-level demand for antibiotics are updated by 2029					

3. Veterinary Stewardship & One Health Integration		Introduce prescription-only rules for critically important antimicrobials (CIA) in veterinary settings and enforce phased restrictions on antimicrobial growth promoters	Veterinary: 50% reduction in use of antimicrobial growth promoters by 2030; 100% reporting compliance for CIAs in digital veterinary AMU systems					
		Deploy digital veterinary AMU reporting systems that capture: • prescriptions by type, species, and indication • use of CIAs • compliance with withdrawal periods • reductions in growth-promoter use These indicators will link to the national AMR/AMU database and WOAH ANIMUSE reporting	Digital reporting system for veterinary AMUs has been developed and implemented					
		Strengthen farm-level stewardship by scaling FAO-supported biosecurity/bio-containment packages and producer training in poultry, dairy, and aquaculture sectors	Farm-level governance is strengthened through the expansion of FAO-supported biosecurity/biocontainment packages, with improved compliance demonstrated by at least 70% of poultry, dairy, and aquaculture producers trained and applying core biosecurity measures in their daily operations					
		Create incentives for compliance, including eligibility for antimicrobial-free certification (see Pillar II) and market access advantages for compliant producers	Incentive mechanisms are established to promote compliance with responsible antimicrobial use, with effectiveness demonstrated by an increase of at least 30% in the number of producers qualifying for antimicrobial-free certification and associated market access benefits					

4. Quality Assurance and Substandard/Falsified (SF) Products		Strengthen market surveillance, including batch-level testing, retail outlet audits, and periodic targeted sweeps for substandard or falsified antimicrobials	Market surveillance for veterinary and human-use antimicrobials is strengthened through batch-level testing, retail outlet audits, and targeted sweeps, with effectiveness demonstrated by an annual increase of at least 25% in the number of samples tested and outlets inspected for substandard or falsified antimicrobials					
		Expand post-marketing quality testing for both human and veterinary antimicrobials, ensuring alignment with WHO guidance on medical product quality surveillance	Implemented pharmacovigilance system in post-marketing surveillance in the human sector and quality control in the veterinary sector					
		Enhance cross-border cooperation with Customs to block illegal/OTC antimicrobial imports and enable rapid alerts for SF products	Cross-border cooperation with Customs is enhanced to prevent illegal and over-the-counter antimicrobial imports, with improved control demonstrated by at least 30% increase in jointly intercepted illegal/SF antimicrobial consignments and rapid alerts issued through established communication channels					
Pillar IV — Legislation, Regulation & Procurement								
Objective 4. Modernize, enforce, and monitor antimicrobial regulations to curb misuse, safeguard quality, and protect public health, animal health, and food safety								

1. Strengthen Human and Veterinary Medicines Legislation		Review the outcome of Tajikistan National Road Map and Implementation Plan on Antimicrobial Resistance (AMR), for 2026–2030 and develop National AMR strategy for the next National Health Strategic Plan 2030-2040 and develop multi-sector National AMR Road Map for the period of 2030-2033 (joint activity)	The National AMR strategy for the next National Health Strategic Plan (2030–2040) and the Multisectoral National AMR Road Map (2030–2033) have been developed, agreed upon and integrated into the National Strategic Health Plan of the Republic of Tajikistan					
		Conduct a comprehensive review of existing antibiotic prescription, distribution, and use regulations that will contribute to improved national regulations on antimicrobial use in humans and animals (joint activity)	National guidelines for the prescribing, distribution and use of antibiotics in humans and animals have been revised and improved based on a comprehensive review, ensuring the rational use of antimicrobials and compliance with international standards					
		Undertake a baseline review of current veterinary antibiotic use and prescription regulations, to identify gaps and inform future policy improvements on antimicrobial use in animals	Based on a baseline analysis of current regulations for the use and prescription of veterinary antibiotics, gaps were identified and recommendations were developed to improve national policies for the rational use of antimicrobials in animals					
		Update human and veterinary antimicrobial laws to mandate prescription-only access, regulate online and OTC sales, and require mandatory AMU record-keeping for veterinary farms	Revised and enacted national antimicrobial legislation for human and veterinary sectors by 2027, integrating prescription-only use, import/sales controls, and mandatory AMU recording for farms					

		Define clear legal consequences for non-compliance, including progressive penalties such as fines, license suspensions, and revocation of operating permits for persistent violators	Enforcement guidelines and penalty structures finalized and disseminated by 2027					
		Establish joint regulatory responsibilities across Ministry of Health and Social Protection of the Population of the Republic of Tajikistan, Committee for Food Security under the Government of the Republic of Tajikistan, Ministry of Agriculture of the Republic of Tajikistan, veterinary inspectorates, and law enforcement authorities	By 2030, prescription-only rules enforced nationwide, with annual compliance reports and published inspection results					
		Develop enforcement guidelines in consultation with pharmacists, veterinarians, private sector retailers, and producer associations to ensure practical implementation	Full alignment of veterinary and food safety regulations with WOAH/SPS standards by 2030					
2. Enforcement of OTC Bans, Internet Sales, and Unregulated Markets		Introduce structured regulatory enforcement mechanisms, including: - regular inspections of pharmacies, veterinary retailers, and feed stores - undercover compliance checks - random audits of online platforms and social media marketplaces - validation of veterinary prescriptions during farm inspections	Structured regulatory enforcement mechanisms are established and operational, resulting in more consistent detection and reduction of non-compliant antimicrobial sales through regular inspections of pharmacies, veterinary retailers and feed stores, undercover compliance checks, random audits of online marketplaces, and verification of veterinary prescriptions during farm inspections					

		Pilot targeted enforcement campaigns in high-risk districts (e.g., border regions, high livestock-density areas, and urban centers with OTC sale patterns), followed by national scale-up	OTC and internet sales enforcement piloted in at least 6 high-risk districts by 2028, with structured inspection cycles					
		Launch a national campaign to inform pharmacists, veterinarians, and the general public about the updated legal requirements and consequences of non-compliance	Conduct twice-yearly information campaigns to inform pharmacists, veterinarians and the general public about updated legal requirements and the consequences of non-compliance					
3. Strengthen Procurement, Quality Assurance, and Border Controls		Modernize public-sector procurement systems for human and veterinary antimicrobials by enforcing mandatory supplier prequalification, GMP/GDP compliance, and batch-level quality verification	70% of public health and veterinary procurement conducted under updated quality-assurance standards, with supplier prequalification, by 2028					
		Enhance border control procedures and cross-border collaboration to detect illegal imports, mis-labelled veterinary antimicrobials, and substandard/falsified (SF) products	Border control procedures and cross-border collaboration are strengthened to detect illegal imports, mislabelled veterinary antimicrobials, and substandard/falsified (SF) products, with improved effectiveness demonstrated by at least 30% increase in jointly identified and intercepted high-risk consignments reported through official border control and regulatory channels					
		Develop rapid alert and recall mechanisms with Service of State Supervision of Health and Social Protection of the Population, Customs Service, and regional inspectorates	Mechanisms for rapid notification and recall of substandard/counterfeit products have been developed and are used jointly with the State Service for Supervision of Healthcare and					

			Social Protection of the Population, customs and regional inspectorates					
		Introduce annual quality audits for wholesalers, importers, and veterinary drug distributors	Annual quality audits are introduced for wholesalers, importers, and veterinary drug distributors, with compliance demonstrated by at least 80% of audited entities meeting core quality and regulatory standards each year					
4. Digital Traceability and Product Verification		Pilot a digital traceability system in high-risk districts (e.g., Dushanbe, Sughd, Khatlon), incorporating: - QR-based product verification, - electronic batch tracking from import to point-of-sale, - monitoring of sales volumes of Watch/Reserve antibiotics	Digital traceability pilot launched in high-risk districts by 2027					
		Integrate traceability data with the national AMR/AMU database and AMS dashboards	Traceability data has been integrated with the national database on antimicrobial resistance and antibiotic consumption, antimicrobial therapy dashboards based on the combined data have been created, and the transparency and efficiency of antibiotic management have been improved					
		Scale up to national implementation by 2030, covering all antimicrobials for human and veterinary use	National roll-out of electronic traceability and product verification for all imported and locally distributed antimicrobials by 2030					

5. Alignment with International Trade, Food Safety, and Veterinary Standards		Harmonize national veterinary and food-safety regulations with WOAH, Codex Alimentarius, SPS (Sanitary & Phytosanitary Measures), and FAO/WHO guidelines	National inspectorate trained and resourced to detect/remove SF products by 2027					
		Implement regular assessments of compliance among poultry, dairy, and aquaculture producers, with certification pathways for compliant operations	Annual national reports on SF detection published starting 2028					
		Strengthen coordination between Service of State Supervision of Health and Social Protection of the Population, food safety authorities, and veterinary inspectorates to unify surveillance and enforcement	% of developed and approved interdepartmental agreements					
Pillar V — Awareness, Education & Behavior Change								
Objective 5. Shift public, professional, and community norms toward responsible antimicrobial use through sustained, evidence-based communication, education, and training								
1. National Awareness and Communication Campaigns		Conduct annual World Antimicrobial Awareness Week (WAAW) campaigns with unified messaging across human health, veterinary services, agriculture, food safety, and environmental sectors	Annually conduct WAAW campaigns in 3rd week of November in One Health approach					

		Develop targeted communication packages for high-risk groups, including: - health workers (clinicians, pharmacists, veterinarians, lab professionals) - farmers and livestock producers - informal drug sellers and rural pharmacies - youth, students, and teachers - pregnant women and mothers of young children	≥70% of the population reached annually with AMR messages by 2028 and ≥85% by 2030					
		Use local languages and culturally resonant formats, with defined channels for urban and rural populations	AMR communication efforts become linguistically accessible and culturally relevant for both urban and rural populations, resulting in significantly improved understanding of antimicrobial use and resistance across diverse communities and stronger engagement in responsible health and livestock-care behaviors					
2. Evidence-Based Behavior Change: KAP Surveys and Feedback Loops		Conduct baseline and annual pre/post Knowledge, Attitudes, and Practices (KAP) surveys in communities, PHC settings, schools, and among professional groups	Baseline and annual KAP surveys conducted, with results integrated into national AMR communication strategies					
		Describe AMU patterns, behaviors, and quantify overall consumption of antibiotics in large-scale poultry and dairy farms to inform development of national framework AMU monitoring and reporting in livestock	The National Antibiotic Monitoring and Reporting Framework for Animal Husbandry operates on the basis of reliable data on antibiotic consumption on large poultry and dairy farms.					

		Use KAP findings to: - adjust national AMR communication strategies; - tailor WAAW messaging; - refine training curricula for health and veterinary professionals; - guide resource allocation and community interventions						
		Organize annual feedback workshops with MoHSPP, veterinary authorities, CSOs, and community leaders to translate KAP findings into policy and program improvements	Demonstrated improvement in knowledge and reduction in self-medication behaviors by 2030, based on KAP trends					
3. Pre-Service and In-Service Education & Cadre of Trainers		Integrate standardized AMR/AMS, IPC, hygiene, and waste management modules into all medical, nursing, pharmacy, public health, veterinary, and laboratory schools	Standardized AMR/AMS, IPC, hygiene, and waste management modules are integrated into all medical, nursing, pharmacy, public health, veterinary, and laboratory training programs, with successful implementation demonstrated by at least 70% of institutions incorporating the modules into their formal curricula and teaching schedules by 2029					
		Establish a national cadre of AMR/IPC master trainers, ensuring: - competency-based progression (basic → intermediate → advanced levels), - routine refresher courses every 2 years, - certification linked with accreditation processes for hospitals, pharmacies, and	National cadre of trainers established by 2027, with at least 300 certified AMR/IPC trainers across regions by 2030					

		veterinary clinics						
		Train PHC workers, village health volunteers, women HCW networks, teachers, and community leaders to deliver behavior-change messaging at the local level	70% of medical, nursing, pharmacy, veterinary, and laboratory schools include AMR/AMS/IPC competencies by 2029					
4. Community Engagement and Primary Care Behavior Change		Utilize PHC centers, village health facilities, community volunteers, women's councils, religious leaders, and youth networks to disseminate tailored messages on: - prudent antimicrobial use; - dangers of OTC/self-medication; - hygiene and WASH behaviors; - vaccination and nutrition as AMR-prevention tools; - antimicrobial-free livestock production	Tailored AMR/AMS communication materials are developed and disseminated through PHC centers, village health facilities, community volunteers, women's councils, religious leaders, and youth networks, with effective outreach demonstrated by at least 70% of targeted community structures actively delivering the standardized messages by 2029					
		Engage farmer field schools to deliver hands-on training in biosecurity, farm hygiene, vaccination, alternatives to antibiotics, and safe manure management	Farmer field schools on biosecurity and antimicrobial-free production operational in all regions by 2028					

5. Digital Platforms for AMR Communication		Develop a national AMR digital communication strategy using: - SMS-based alerts for rural populations; - mobile health apps for PHC workers (decision-support, AMR "fast facts"); - social media platforms (Facebook, Instagram, Telegram, WhatsApp) for youth and urban outreach; - national websites and portals hosting AMR learning materials, guidelines, and interactive modules	National AMR digital platform fully operational by 2029, with SMS and app-based outreach covering ≥70% of rural districts by 2030					
		Partner with telecom operators to send free public SMS messages during outbreak seasons and WAAW	At least 1 million digital engagements (views/clicks) annually across digital channels by 2030					
Pillar VI — Financing, Research & Innovation								
Objective 6. Sustain AMR capacity, secure long-term financing, and generate context-specific evidence and innovations for effective AMR prevention and control								
1. Establish and Govern a National AMR Basket Fund		Create a National AMR Basket Fund to pool contributions from government (Ministry of Health and Social Protection of the Population of the Republic of Tajikistan, Ministry of Agriculture of the Republic of Tajikistan, Ministry of Finance of the Republic of Tajikistan, Committee of Food Security under the Government of the Republic of Tajikistan, Committee of Environment Protection under the Government of the Republic of Tajikistan),	AMR Basket Fund established by 2027, operational with clear governance, fund management system, and accountability framework					

		donors, multilateral organizations, and private-sector partners						
		Define a clear governance structure, potentially housed within the MOHSPP or the National Intersectoral Working Group Secretariat, with: o a steering committee (MoHSPP, MoA, CFS, CEP, MoF, academia, and donor representatives), - a Fund Manager responsible for financial oversight, - transparent criteria for disbursement to surveillance, IPC, AMS, and laboratory initiatives	By the end of 2026, the governance structure is formally approved, with at least 4 meetings held annually and ≥80% participation of designated members					
		Define a narrow initial scope for the Basket Fund during 2026–2028 (e.g., surveillance and laboratory strengthening), expanding gradually based on performance and capacity	By end of 2028, at least 80% of Basket Fund resources are allocated to surveillance and laboratory strengthening, with two independent performance reviews completed and recommendations adopted for scope expansion					

		Publish annual financial reports to ensure full transparency and accountability	Financial reports published annually to ensure full transparency and accountability					
2. Domestic Resource Mobilization and Dedicated Budget Lines		Introduce dedicated AMR budget lines in the annual budgets of MoHSPP, MoA, CEP, CFS and MoF	Dedicated AMR budget lines included in MoHSPP, MoA, CFS, CEP budgets by 2028					
		Allocate protected funding for: - IPC interventions (with earmarked resources for high-burden departments such as surgery, intensive care, maternity, and NICU/PICU); - AMR surveillance (human, veterinary, food, environment); - Laboratory equipment, reagents, EQA, and maintenance; - AMS rollout in hospitals and PHC; - veterinary AMU reporting systems and farm biosecurity improvements						
		Develop a phased costing plan (2026–2030) for major interventions, integrated into National Health Strategy and annual public expenditure reviews	Approved phase costing NHS					

3. Operational and Applied Research for AMR Control		Support priority operational research, including: - point prevalence surveys (PPS) for hospital antibiotic use and HAIs; - antimicrobial residue studies in food and the environment; - cost-effectiveness analyses for AMS and IPC packages; - studies on AMR transmission dynamics in NICU/PICU and maternal health; - behavioral research on antimicrobial misuse in the community; - economic modeling of AMR burden and productivity loss	Five or more operational research studies on AMR/AMU completed by 2030					
		Integrate research findings into annual AMR policy reviews and resource allocation decisions	Research findings are systematically integrated into annual AMR policy reviews and resource allocation decisions, with institutional uptake demonstrated by at least 80% of annual AMR review meetings formally incorporating evidence from recent studies into updates of policies, budgets, or priority actions					
4. Define National AMR Research Priorities	Develop a National AMR Research Agenda, including priority areas such as	Diagnostics: low-cost rapid AST, point-of-care tests, molecular detection						
		Resistance Mechanisms: surveillance of ESBL, carbapenemase (NDM, OXA-48) and colistin resistance						
		One Health epidemiology: cross-sectoral AMR pathways (farms–food–environment–humans)						

		Economic/financial studies: cost of inaction, investment case for AMR						
		IPC innovations: protective equipment, environmental disinfection technologies, digital IPC compliance tools						
		AMS efficacy: local guideline effectiveness, AWaRe consumption monitoring, digital prescribing tools						
		Climate and environmental drivers of AMR						
5. Innovation Incentives and Private Sector Engagement		Launch targeted innovation grants or challenge funds to support: - local startups developing diagnostics, waste-water AMR detection tools, biosensors, animal-health alternatives (probiotics, vaccines), and mobile health tools; - academia–industry partnerships for novel AMR solutions	At least three innovation pilots (diagnostics, digital tools, wastewater surveillance, animal-health alternatives) implemented by 2030					
		Introduce market incentives for pharmacies, veterinary clinics, and producers that comply with AMR regulations (e.g., reduced licensing fees, recognition schemes, preferential procurement for antimicrobial-free producers)	Incentive mechanisms introduced by 2028 for pharmacies, veterinary clinics, and compliant producers					
		Explore fiscal incentives for local manufacturers to adopt GMP/GDP standards and invest in high-quality antimicrobial production	Demonstrated reduction in SF product circulation and improved AMU compliance in the private sector by 2030					

6. Strengthen and Laboratory Innovation Capacity		Equip and accredit AMR Reference laboratories with advanced AMR detection methods such as: - mass spectrometry (MALDI-TOF), - molecular diagnostics (PCR-based resistance testing), - residue analysis for antimicrobials in food and water	AMR Reference Laboratory fully equipped and accredited to perform advanced AMR-related quality assurance by 2029					
		Support development of validated analytical methods for detection of SF products and AMR-related quality indicators	At least two validated analytical methods developed for AMR detection and substandard/falsified product monitoring by 2030					
		Strengthen laboratory biostatistics and data management capacity through mentorship and collaboration with international reference labs						
7. Build the National AMR Research & Innovation Network		Establish a multi-sector National AMR Research and Innovation Network linking universities, research institutes, public health laboratories, veterinary services, environmental agencies, and private innovators	National AMR Research & Innovation Network operational by 2028, at least three innovation pilots (diagnostics, digital tools, wastewater surveillance, animal-health alternatives) implemented by 2030					
		Facilitate annual AMR Research Symposia to share results, co-develop studies, and promote cross-sector collaboration	By 2029 conducted annually AMR Research Symposia					
		Promote regional cooperation, cooperation with Central Asian countries and neighboring countries to exchange experiences, conduct joint research and establish regional benchmarks	Evidence generated through research and innovation incorporated into annual AMR reviews, informing funding allocations and priority setting					