Nigeria Smart Choice Process

Prioritization to guide the operationalization of Nigeria's 2024-2028 National Action Plan on Antimicrobial Resistance

FINAL REPORT

August 2025

AMR Policy Accelerator

NCDC
NIGERIA CENTRE FOR DISEASE CONTROL

Federal Ministry of Health & Social Welfare
Federal Republic of Nigeria

FEDERAL MINISTRY Or ENVIRONMENT

FEDERAL MINISTRY OF LIVESTOCK DEVELOPMENT

Global Strategy Lab at York University and the University of Ottawa

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Disclosure Statement

The findings herein are informed by multisectoral discussions emerging from the Smart Choice Workshop and reflect the perspectives of experts from Nigeria on antimicrobial resistance who took part in each phase of the Smart Choice Process.

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GLOSSARY

Term	Definition
Antimicrobials	Includes medicines – antibiotics, antivirals, antifungals, and antiparasitics – used to prevent and treat infections in humans, animals, and plants (1).
Antimicrobial resistance	A natural process that happens over time through genetic changes in pathogens. Its emergence and spread can be accelerated by human activity, including the misuse and overuse of antimicrobials to treat, prevent or control infections in humans, animals and plants (2).
Appropriate antimicrobial use	Refers to the administration of antimicrobial agents, such as antibiotics, in a manner that is consistent with evidence-based guidelines and best practices, and aligned with guidelines by international organizations (e.g. AWaRe and Codex Alimentarius) (3).
Consensus-building	A process in which stakeholders engage in dialogues to identify policies that meet the needs of all stakeholders involved in the process (4)
Diagnostics	Tools to identify the presence of diseases, or other health conditions (5).
One Health	An integrated, unifying approach that aims to sustainably balance and optimise the health of people, animals and ecosystems. It recognizes that the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and inter-dependent (1).
Surveillance of antimicrobial resistance	Assessing changes and trends of microbial populations, including drug-resistant microorganisms and resistance determinants, such as genes and resistance mechanisms, to inform and monitor the impact of local, national, and global strategies (6,7).
Surveillance of antimicrobial use	Tracking how and why antimicrobials are being used (8).

EXECUTIVE SUMMARY

Introduction

As Nigeria advances the implementation of its second National Action Plan (NAP 2.0) 2024-2028 on antimicrobial resistance (AMR), prioritization has emerged as a crucial step to ensure that efforts to mitigate and prevent AMR are both effective and sustainable. To support the strategic prioritization of activities on AMR, the AMR Policy Accelerator was invited by the Government of Nigeria to undertake the Smart Choice Process (SCP), a systematic, three-phase process to guide multisectoral prioritization of NAP activities.

As part of the SCP, stakeholders from across the One Health (OH) sectors convened for a workshop held from August 5th to 7th, 2025 in Lagos, Nigeria, with the AMR Policy Accelerator team facilitating virtually. This workshop involved structured, multisectoral discussions to prioritize AMR activities aligned with Nigeria's specific context and priorities. Participants engaged in multisectoral discussions using the Smart Choice outputs, ensuring that their selected activities aligned with each sector's short- and long-term goals for AMR action. The outcomes of this prioritization process are presented to establish a consensus-driven approach for the strategic implementation of Nigeria's NAP 2.0 AMR priority activities.

Smart Choice Methodology

The SCP is a three phase, multisectoral process designed to assist governments in prioritizing NAP activities. In Phase 1, a Nigeria Core Team was established, comprising representatives from animal, plant, environment, and human health sectors. Working closely with the AMR Policy Accelerator, the Nigeria Core Team supported the coordination of workshop logistics and collectively identified an initial list of 48 priority AMR activities to be used for the Phase 2 Prioritization Scoring Tool. In Phase 2, key experts from Nigeria evaluated 48 activities against seven key indicators: anticipated cost, impact, root drivers, transformative potential, implementation timeline, equity, and alignment. From this analysis, 31 Smart Choice activities were identified, spanning all six strategic objectives of the NAP 2.0. These were classified into four priority categories: Quick Wins, Best Buys, Game Changers, and Equity Drivers. These 31 Smart Choice activities served as the foundation for in-depth, multisectoral discussions that were virtually facilitated by the AMR Policy Accelerator team. This process led to the further selection of a list of 29 priority activities that participants ranked through the final Ranking Survey, resulting in 18 activities prioritized for coordinated AMR action across sectors.

2024-2028 NAP 2.0 Activities

Through the SCP, **18 activities emerged as 2024-2028 NAP 2.0 priority activities across OH sectors** to guide strategic planning and implementation (Box 1). These identified NAP 2.0 priorities will serve as focal activities for collaborative action in NAP 2.0 implementation.

Box 1: NAP 2.0 Priority Activities

Strategic Objective 1: Strengthen leadership, collaboration, coordination, and AMR governance structures at national and subnational levels

Activity 1.4.1: Support establishment/revitalization of state AMR programmes

Activity 1.1.5: Set up a national One Health AMR secretariat with required space, human resources, and budget line to coordinate AMR NAP 2.0 implementation

Activity 1.6.1: Develop resource mobilisation strategy

Strategic Objective 2: Improve antimicrobial resistance (AMR) awareness, education, understanding, and behaviour change among all relevant stakeholders

Activity 2.8.1: Partner with the National Youth Service Corps (NYSC) for the creation of AMR One Health community development service (CDS)

Activity 2.2.1: Develop a national AMR awareness strategy to outline annual awareness activities and target groups

Activity 2.2.2: Advocate for the inclusion of AMR in state awareness activities, to sustain AMR awareness activities beyond World Antimicrobial Awareness Week (WAAW)

Strategic Objective 3: Improve evidence base through strengthening One Health AMR surveillance systems and operational research for decision making

Activity 3.1.1: Increase participation of private laboratories in the national surveillance networks (easily accessible to the community)

Activity 3.1.2: Strengthen AMR laboratory capacity for the environment and establish a national AMR surveillance network (spatiotemporal insight into possible burden of AMR in the community)

Activity 3.1.13: Support distribution of samples, consumables, and reagents between field sites, AMR sentinel labs, and the central procurement units

Strategic Objective 4: Improve implementation of infection prevention and control (IPC) programmes, biosecurity, and vaccination uptake including access to WASH across the One Health sectors

Activity 4.2.4: Strengthen WASH programme and hand hygiene infrastructure across selected healthcare facilities

Activity 4.3.4: Improve waste management in healthcare waste settings, farms, abattoirs, veterinary hospitals, and communities

Activity 4.4.1: Scale up IPC programme implementation to 75% of public and private healthcare facilities and establish WASH and biosecurity programmes in health and animal facilities across the country (meagre resources, political will and buy-in are suboptimal)

Strategic Objective 5: Improve access to quality antimicrobials and optimise their use across One Health sectors

Activity 5.1.3: Support the expansion of AMS programmes in human healthcare facilities nationwide

Activity 5.1.4: Develop a prescription policy for veterinary medicinal products, biologicals, and vaccines

Activity 5.1.5: Establish antimicrobial stewardship programmes in veterinary hospitals and clinics (public and private)

Strategic Objective 6: Build knowledge and capacity of relevant stakeholders to improve local innovations, research and development in antimicrobials, diagnostics, and vaccines

Activity 6.1.2: Identify AMR research priorities in Nigeria based on current evidence and needs

Activity 6.1.1: Conduct scoping analyses and systematic reviews to synthesize existing evidence and identify research gaps

Activity 6.1.3: Create a research agenda to coordinate AMR research in Nigeria

Report Structure

This report is comprised of three sections: the first provides an introduction to the development of Nigeria's NAP 2.0 on AMR and highlights the importance of prioritization in its strategic planning; the second outlines the methodology of the SCP used for prioritization; and the third presents the prioritized activities identified through the SCP, further summarizing key implementation considerations emerging from participant discussions to inform the implementation of Nigeria's NAP 2.0.

INTRODUCTION

Antimicrobial resistance (AMR) poses a significant global health and development threat, with projections indicating over 10 million deaths annually by 2050 if not effectively addressed (3). Low-resource countries are particularly vulnerable to AMR, facing challenges such as limited financial and technical support, competing health priorities, and governance gaps. To support countries in their strategic efforts, the World Health Organization (WHO) launched the Global Action Plan (GAP) on AMR urging Member States to develop and implement national action plans (NAPs) on AMR (9).

The Government of Nigeria launched its first NAP on AMR in 2017. Aligned with the GAP, the first NAP outlined five strategic objectives: (1) improve awareness and understanding of AMR; (2) strengthen surveillance and research; (3) reduce the incidence of infection through effective sanitation, hygiene and infection prevention and control (IPC) measures; (4) optimize access and use of antimicrobials; and (5) invest in research and innovation (9,10).

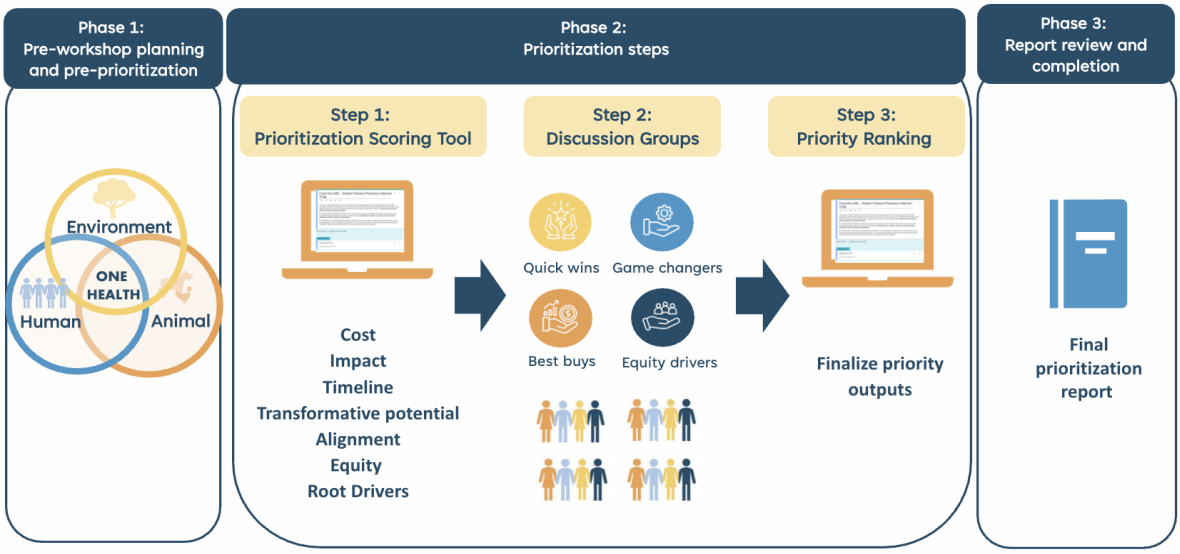
During the implementation of Nigeria's first NAP on AMR, spanning 2017-2022, notable milestones were achieved across the five strategic objectives. Under the first strategic objective—strengthening awareness and education—both local and subnational Nigerian authorities conducted AMR awareness campaigns across One Health (OH) sectors (11). The second strategic objective saw the establishment of AMR surveillance networks across human, animal, and environmental health domains, with a particular concentration in human health, as exemplified in the availability of monthly surveillance data from this sector (10). The Government of Nigeria has also established a number of policies, guidelines, and projects that addressed the mandates of strategic objective three, including National Biosecurity Policy and Action Plan in 2021, as well as the "Turn Nigeria Orange" project, which sought to improve the culture around hand hygiene in healthcare institutions (10,13). Similarly, a number of regulations were established in the context of antimicrobial use (AMU) in order to fulfill strategic objective four, such as the Pharmaceutical Traceability Strategy policy in 2020 and the Drug and Related Products Registration Regulations in 2021 (10). Between 2016 and 2021, Nigeria witnessed an approximate 200% increase in scientific output, reflecting the country's greater commitment to strengthening strategic objective five (11). The first NAP included crucial preliminary steps towards enhancing Nigeria's capacity to tackle AMR, positioning it for success moving forward. A key enabler of these achievements was the establishment of the Antimicrobial Resistance Coordinating Committee (AMRCC), a dedicated governance structure for AMR that includes representation from across the OH federal ministries. The AMRCC provides leadership to the National AMR Technical Working Group (TWG), which is comprised of five sub-TWGS that focus on each strategic objective from the first NAP. Collectively, this team leads the implementation of the NAP on AMR through a OH framework.

Following the first NAP, the Government of Nigeria began developing a second iteration known as the NAP 2.0, with an additional sixth strategic objective added, focusing on leadership and governance, to facilitate collaborative action and targeted resource mobilization efforts in light of its 143 activities in total (10). As the NAP 2.0 is in early stages of implementation, the Government of Nigeria partnered with the AMR Policy Accelerator to conduct a prioritization of NAP activities using the Smart Choice Process (SCP). Through this process, OH stakeholders were convened to identify and prioritize NAP 2.0 activities that support strategic and coordinated AMR action (see Appendix 2 for stakeholder organizations). The resulting prioritized activities identified through this process will support the mid-term review, work plan, and resource mobilization efforts guiding Nigeria's NAP 2.0 implementation.

SMART CHOICE PRIORITIZATION METHODOLOGY

Developed at the Global Strategy Lab's AMR Policy Accelerator, the SCP is a three-phased, multisectoral process designed to assist governments in prioritizing NAP activities (Figure 1). This prioritization process takes a structured approach by considering the current context, implementation facilitators and barriers, and resource availability.

Figure 1. Three key phases of the Smart Choice Process



The success of this process depends on OH engagement. Stakeholders are selected to ensure comprehensive representation of all relevant sectors, including human health, agriculture, aquaculture, veterinary, plant, and environmental fields. Active stakeholder participation is also critical as it integrates diverse perspectives into the prioritization, making identified priority activities both relevant and feasible across sectors. This approach ultimately aims to foster a structured OH approach to intervention prioritization.

Phase 1: Pre-workshop planning and pre-prioritization

In June 2025, a Smart Choice Core Team in Nigeria was established, comprising country-level representatives from each OH sector along with members of the AMR Policy Accelerator team (Table 1). This team met bi-weekly (June) and weekly (July) to coordinate workshop logistics and other SCP activities, including the selection of pre-prioritized activities. Through the collective efforts of the core team, **an initial list of 48 pre-prioritized AMR activities were identified to feed into the Phase 2 Prioritization Scoring Tool.**

Table 1. Nigeria Smart Choice Process Core Team

Smart Choice Process Core Team	
Name	**Designation**
Nigeria	
Dr. Demola Onakomaiya	Chair AMR Implementation Committee, Nigeria Centre for Disease Control and Prevention
Anietie Akpan	AMR Surveillance Officer, Nigeria Centre for Disease Control and Prevention

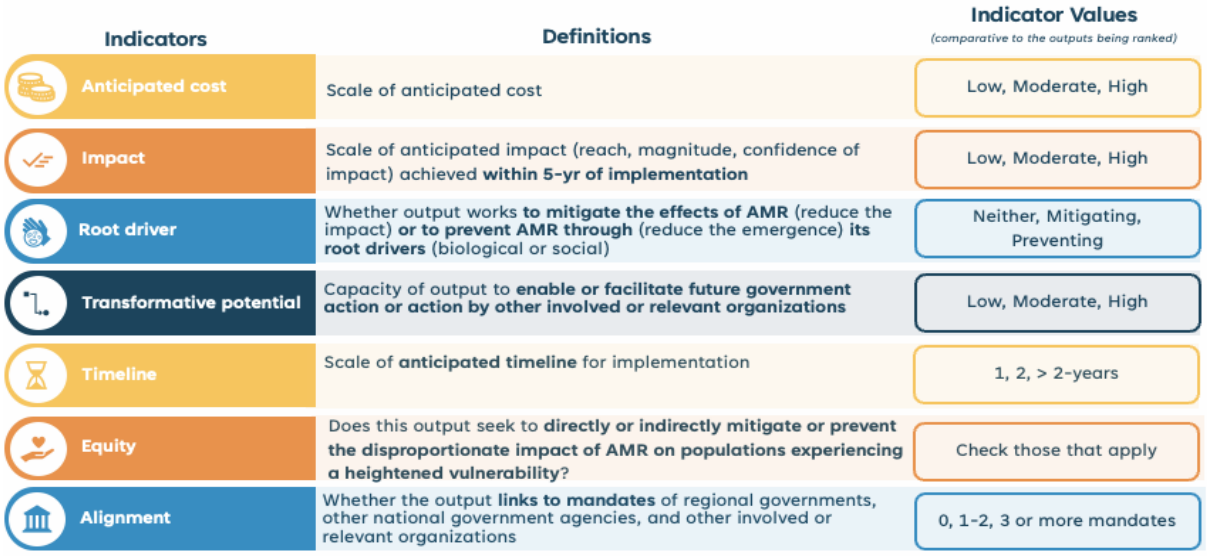
Dr. Tochi Okwor	Head Department of Disease Control and Health Promotion and AMRCC, Nigeria Centre for Disease Control and Prevention
Dr. Mwapu Ndahi	AMR Focal Point for Animal Health, Federal Ministry of Livestock Development
Okea Rita A	Deputy Director and Head of Environmental Health and Sanitation Division, Federal Ministry of Environment
James Yakubu	Pharmacist and Deputy Director of Pharmacy, Federal Ministry of Health and Social Welfare
Dr. Ridwan Yahaya	National AMR Program Manager and Focal Point, Nigeria Centre for Disease Control and Prevention
Dr. Oluwaseun Odebajo	AMR Research Scientist and Technical Officer, Nigeria Centre for Disease Control and Prevention
Dr. Chavan Laxmikant	Technical Officer, AMR and Coordination, World Health Organization – Nigeria Country Office
Dr. Ayodele Majedokunmi	Executive Director, Ajisefii Consulting
Dr. Solomon Olorunleke	AMR Epidemiologist, Food and Agriculture Organization of the United Nations
AMR Policy Accelerator Team	
Dr. Kadia Petricca	Senior Policy Lead
Suzanne Naro	Policy Advisor II
Heba Qazilbash	Policy Advisor
Medha Bhushan	Policy Intern

Phase 2: Prioritization steps

Step 1: Prioritization Scoring Tool

Across the animal, human, plant, and environmental health sectors, 28 participants attended the in-person three-day workshop, with the AMR Policy Accelerator team facilitating virtually. The first day provided an overview of the SCP and Prioritization Scoring Tool. Through the tool, participants scored each of the 48 pre-prioritized activities against seven prioritization indicators: cost, impact, timeline, transformative potential, alignment, equity, and root drivers (Figure 2).

Figure 2. Seven indicators used in the Phase 2 Prioritization Scoring Tool



Each scored activity was then analyzed using the Smart Choice algorithm and categorized into **four priority axes**: Quick Wins, Best Buys, Game Changers, and Equity Drivers (Table 2). Each priority axis reflects a specific policy strategy for tackling AMR informed by select prioritization indicators. Analysis of all scored activities was aggregated across sectors to facilitate a OH prioritization of activities. Activities which ranked highly in two or more of these axes were considered Smart Choice activities. **In total, 31 Smart Choice activities (Appendix 3) were categorized** and presented during the Step 2 workshop discussions.

Table 2. Four Smart Choice priority axes and associated prioritization scoring tool indicators

Priority Axis	Definition	Prioritization Indicators
Quick Wins	Activities that offer **high value on a quick timeline**. They are actions implemented quickly and are expected to produce short-term results with focused efforts.	*Impact* *Timeline*
Best Buys	Activities that offer **high value at low cost**, therefore prioritizing cost-effectiveness.	*Impact* *Transformative potential* *Cost*
Game Changers	Activities that focus on **creating long-term, transformative change**. They target the root causes of AMR and prioritize prevention over mitigation. These actions have the potential to lead to more extensive, lasting impacts by creating opportunities for future efforts by the government or other stakeholders. They also align with the goals of multiple organizations or sectors.	*Root driver* *Transformative potential* *Alignment*
Equity Drivers	Activities that ***directly*** **aim to improve equity**. Activities seek to directly mitigate or prevent the disproportionate impact of AMR on populations experiencing heightened vulnerability.	*Equity*

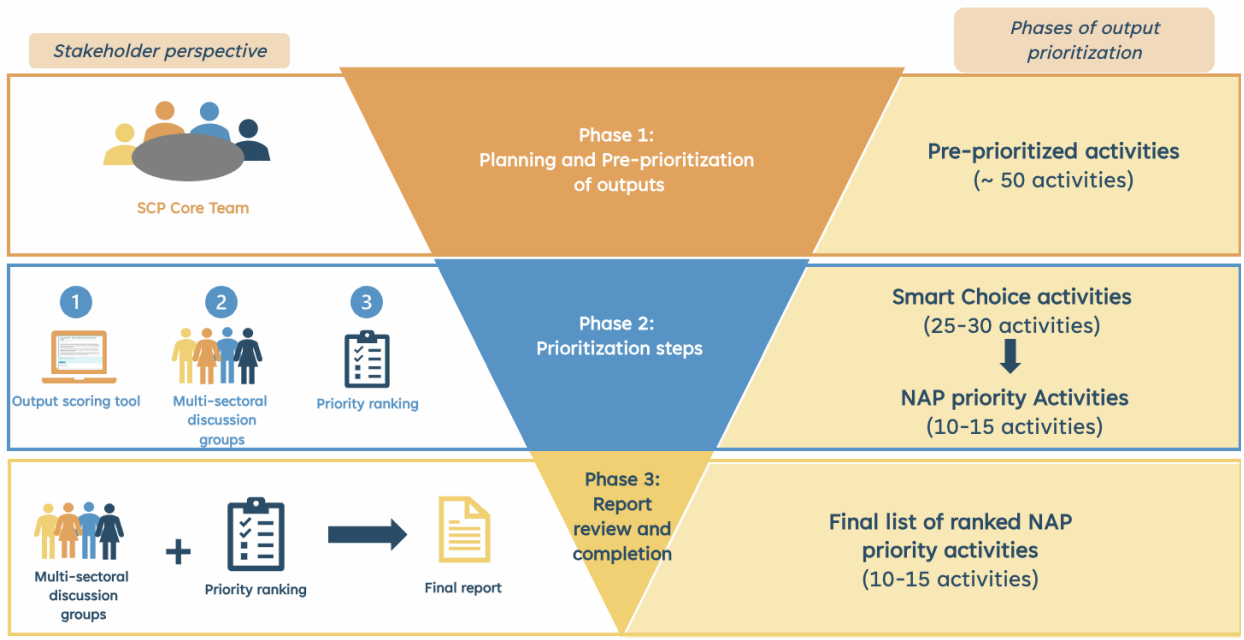
Step 2: Discussion Groups

During the second and third days of the in-person workshop, **the 28 participants were organized into five multisectoral groups to reflect on and discuss the Smart Choice activities and identify two priority activities for each strategic objective, taking into consideration the priority axes categorizations and current context, including political climate, implementation process, existing infrastructure, and human and financial resources.** These reflective discussions ensured that the selected priority activities for each strategic objective were grounded in a shared consensus on their feasibility and potential impact within the Nigerian context.

Step 3: Priority Ranking

The priority activities identified during the Step 2 workshop were consolidated into a digital prioritization ranking form (Step 3). **Final Prioritization Ranking** aims to build further consensus through a process of reviewing the list of prioritized activities under each objective and ranking them in order of their priority. **This is a final measure of consensus-building among participants to isolate the top three activities under each objective** (Figure 3)**.** Consensus is defined as achieving broad agreement among stakeholders from all OH sectors on the selection and ranking of key NAP 2.0 activities. Through consensus-building, each prioritized activity reflects shared perspectives and aligns with sector-specific needs and objectives.

Figure 3. The Smart Choice Process's One Health approach to NAP activity prioritization



Phase 3: Report review and completion

The **refined list of 18 NAP 2.0 priority activities is presented in this final report,** along with their associated implementation considerations that also emerged during multisectoral discussions. This report **will help guide the work plan for Nigeria's NAP 2.0 on AMR.** The prioritized activities reported herein reflect a unified OH approach to addressing AMR that aligns with local needs, resources, and implementation capacities.

NAP 2.0 GOALS, CHALLENGES AND PRIORITIES

The workshop began with several keynote addresses from the Nigerian Core team, which outlined some of the current goals, challenges, and priorities for Nigeria's NAP 2.0 on AMR. Key NAP 2.0 goals that were highlighted include both the translation of political commitments into measurable impact, and careful prioritization to make strategic progress on the NAP 2.0. These goals are closely linked: while political leaders have shown increased commitment to addressing AMR, the NAP 2.0 is a comprehensive document, containing 143 activities. Given this breadth, it has not been feasible to implement all activities at once. As a result, Nigeria stands to benefit from focusing on high-impact, cost-effective, and feasible activities. To ensure resources are effectively directed and meaningful change is achieved, it is recommended to identify and advance a set of top priorities from the plan. This prioritization will be especially important for overcoming challenges encountered during the implementation of the previous NAP, which included funding gaps, limitations in infrastructure and laboratory capacity, weak enforcement of existing laws and regulations, and the absence of a fully integrated digital OH AMR surveillance platform.

Considering these goals and challenges, key priorities must be centered on context-driven and evidence-informed decision-making from a OH approach. By providing a platform for multisectoral perspectives, NAP 2.0 implementation has the opportunity to deliver sustainable and system-wide results. AMR has a cross-cutting effect, across human, animal, environmental, and plant health

sectors, and as such it is essential to involve personnel from each of these key sectors to limit siloed progress and solidify strengthened coordination mechanisms.

The SCP workshop was undertaken at a timely point in the Nigerian effort to tackle AMR. It is designed to infuse a OH approach in achieving prioritized activities, which will ultimately help to further galvanize government support, and circumvent challenges by utilizing resources strategically. The SCP is contextually informed and evidence-based, making it a credible pathway to AMR activity prioritization in Nigeria.

PRIORITIZATION RESULTS

The priority activities from the Step 2 workshop discussions and the Step 3 Final Prioritization Ranking are presented below. The activities are presented by strategic objective and are listed in hierarchical order, with "1" indicating the activity ranked among participants with the highest priority. Participants were also able to review and accept or modify any changes to the language of the activities. Any suggested content changes to the original activity statements are presented in ***bold, underlined, and italicized text***. If a priority activity scored high in two or more of the four priority axes—Game Changer (GC); Quick Win (QW); Best Buy (BB); Equity Driver (ED)—the corresponding priority axes will be listed under the activity.

The report also outlines associated implementation considerations per priority activity that were shared during the discussions and captured in the workshop exercise booklets assigned to each discussion group. These considerations reflect on the required resources, potential implementation barriers, strategies to overcome identified barriers, key stakeholders and critical next steps for implementation.

OBJECTIVE 1: STRENGTHEN LEADERSHIP, COLLABORATION,COORDINATION, AND AMR GOVERNANCE STRUCTURES AT NATIONAL AND SUBNATIONAL LEVELS

Priority Activities

1	**Activity 1.4.1:** Support establishment/revitalization of state AMR programmes

Identified as a priority activity through workshop discussions considering **political context, state-level gaps in infrastructure, and implementation challenges and enablers.**

Implementation Considerations	
Activity Rationale	An effective AMR response requires not only country-wide action but also activities implemented at the subnational level. Since the Joint External Evaluation in Nigeria, the remaining challenges identified in governance have revolved around coordination between national and state-level approaches to AMR, and as such, the establishment of state AMR programmes will be a strategic means of broadening the subnational effort to tackle AMR.

Components Needed for Effective Implementation	Success in this activity hinges on a dedicated budget to support trainings, workshops, inauguration of OH TWGs, developing a state plan, high level advocacy work directed to the state government, as well as to support regular TWG meetings. Moreover, there must be a concerted effort to build capacity within the facilitators of the programmes themselves. A stream-lined approach to this activity can be aided by appointing AMR focal Points/Persons within the states.
Critical Barriers	Key barriers to implementation include financial constraints, an inadequate technical capacity for the programmes, low political will, state ownership and sustainability of the program, as well as a lack of integration amongst various public health programs leading to siloed action and limited progress.
Strategies to Overcome Identified Barriers	To support the implementation of this activity, it is recommended to concentrate on high-level advocacy for dedicated budget lines to fund this programme. With regards to state ownership, developing a sustainability plan for the programme would provide a strong foundational framework to maintain action. By conducting periodic capacity building for State AMR TWGs, such as within leadership skills and program management, this may ensure broadened technical capacity. Alongside this, integrating AMR in other public health programs, such as OH structures and Polio programmes, fragmentation in state health responses can take a more unified approach that better maximizes technical and fiscal resources.
Key Stakeholders	Key stakeholders include members of the OH government ministries, such as Health, Environment, Agriculture and Livestock, Animal Health, and Water Resources. Local government actors will also aid the implementation process. Other key actors include members of the AMRCC, traditional and religious leaders, as well as civil society organizations (CSOs).
Next Steps for Implementation	1. Conduct a state-specific situational analysis on targeted sites for implementation and develop concept notes for the programme. 2. Identify key advocacy opportunities, such as the Governors Forum, the National Council on Health (NCH), and the Commissioners Forum 3. Advocate for members of state government to secure fiscal and technical resources to support the implementation of the programme. 4. Launch the programme upon development of action plan and procurement of resources.

2	**Activity 1.1.5**: Set up a national One Health AMR secretariat with required space, human resources, and budget line to coordinate AMR NAP 2.0 implementation

Implementation Considerations	
Activity Rationale	This activity is considered a low-cost, high impact activity for managing NAP 2.0 implementation efforts, as seen its classification as a quick win and equity driver in the SCP process. Currently, the secretariat resides in the Nigeria Centre for Disease Control and Prevention (NCDC). Allocating the secretariat its designated space will ensure that it has room to expand and harness its resources, altogether improving its capacity to manage completion of AMR activities.
Components Needed for Effective Implementation	Sufficient office space must be secured to accommodate all relevant personnel, including a coordinator, a technical assistant, three support staff and desk officers from each OH sector. The offices must be furnished with modern information and communication technical (ICT) infrastructure to support conferencing and other operational needs.
Critical Barriers	Barriers include limited funding with regard to technical needs in AMR activities, a lack of physical space at the NCDC facility that will compromise the adequacy of the office area of the secretariat, as well as a few personnel available due to competing priorities.
Strategies to Overcome Identified Barriers	One key strategy will be advocating to the National Assembly and Ministerial Steering Committee to support the implementation of this activity. Alternative spaces outside of the NCDC can be considered for the secretariat office, and it is recommended to provide funds to hire adjunct staff to support the secretariat.
Key Stakeholders	Key stakeholders include the NCDC, Federal Ministry of Health and Social Welfare (FMOHSF), the Federal Ministry of Livestock Development (FMLD), the Federal Ministry of Agriculture and Food Security (FMAFS), and the Federal Ministry of the Environment (FME).
Next Steps for Implementation	1. Make this a discussion agenda point at the next AMR-TWG and AMRCC meeting. 2. Identify where the secretariat should be situated and clarify costing. 3. Advocate to the government and partners, including OH ministers, Director General (DG), Director Pollution Control and Environmental Health (DPCEH), and Chief Veterinary Officer of Nigeria (CVON), for funding to acquire necessary resources.

3	**Activity 1.6.1:** Develop resource mobilization strategy

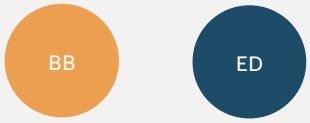
Implementation Considerations

Activity Rationale	To support the implementation of the NAP 2.0, a resource mobilization strategy can outline critical elements of the implementation process and allow for forward-thinking that plans around potential barriers.
Components Needed for Effective Implementation	Core components include human resources, such as a consultant to aid the development of the strategy, a dedicated budget, and the technical capacity to support regular meetings for the activity. In addition, a stakeholder mapping process would be critical to building out a comprehensive strategy. Involving partners from the Quadripartite would also bring in necessary insight.
Critical Barriers	Some of the major obstacles to implementing this activity include inadequate funding, low technical capacity, reduced human resources, political disengagement, limited donor relationships to secure greater financial support, as well as insufficient data to support the business case for donor support.
Strategies to Overcome Identified Barriers	To build momentum, it will be critical to leverage key donors by involving them in the early stages of the strategy's development and seeking their input. Procuring financial and human resources will also be achieved by advocating to the government for a dedicated budget, which can be fulfilled with comprehensive policy briefs that outline the urgency for proactive strategizing.
Key Stakeholders	Key stakeholders involve various federal ministries, including Health, Environment, Animal Health, Finance, and Budget and Economic Planning. Other internal public bodies, such as the NCDC and the Central Bank of Nigeria (CBN), as well as external partners from the Quadripartite, will be relevant in the completion of this activity. Outside the members of the public sector and in the international field, it would be useful to consider academia and research institutions, as well as the private sector and philanthropic organizations.
Next Steps for Implementation	1. Identify and leverage key sources of funding. 2. Establish terms of reference (ToRs) for human resources recruitment of a consultant. 3. Conduct stakeholder mapping and brainstorm strategy based on relevant personnel. 4. Identify priorities in resource mobilization to aid the launch of the strategy. 5. Receive relevant approvals and begin disseminating the strategy.

OBJECTIVE 2: IMPROVE AMR AWARENESS, EDUCATION, UNDERSTANDING, AND BEHAVIOUR CHANGE AMONG ALL RELEVANT STAKEHOLDERS

Priority Activities

1 **Activity 2.8.1:** Partner with the National Youth Service Corps (NYSC) for the creation of AMR One Health community development service (CDS)



Implementation Considerations	
Activity Rationale	There are around 300,000 Nigerian youth enrolled in the NYSC, across 31 states in the country. As such, this activity poses a major opportunity for wider engagement with the country's youth community and improving system-wide awareness of and diligence in terms of containing AMR, given that the NYSC already has active training modules that are useful for this purpose.
Components Needed for Effective Implementation	Success in the implementation of this activity will require relationship building with the NYSC to leverage their existing infrastructure. In addition, there must be sufficient funding for advocacy visits, CDS training modules, training workshops, and monitoring and supervision visits. There must also be a technical capacity to develop advocacy toolkits, and human resources at the subnational level. Collaborating with not only the NYSC, but also with Quadripartite agencies and other AMR key stakeholders will be beneficial in enhancing capacity to complete this activity.
Critical Barriers	Key barriers include low technical expertise of the CDS, limited funding, and minimal subnational monitoring of the service.
Strategies to Overcome Identified Barriers	To address such barriers, it is recommended that a standardized awareness package be developed to accommodate limitations around technical expertise, identify funding sources to support the service's activities, and establish a subcommittee to plan and coordinate the execution of this activity, including a memorandum of understanding (MOU) to define the scope of discussions within the subcommittee.
Key Stakeholders	Crucial to successful implementation of this activity is the engagement and leadership of the NYSC, including its main headquarters and state coordinators. In addition, members of the Quadripartite and other AMR experts may be involved to some capacity.
Next Steps for Implementation	1. In collaboration with members of NYSC, establish a subcommittee to manage the planning and execution process for the AMR OH CDS. 2. Develop an awareness improvement package, behavior change tools and any training materials with the NYSC. 3. Pilot materials and tools. 4. Roll out the capacity building for state level NYSC representatives, to train rotational NYSC corps for CDS focused messages.

2	**Activity 2.2.1:** Develop a national AMR awareness strategy to outline annual awareness activities and target groups

QW ED

Implementation Considerations

Activity Rationale	This is an easily implementable activity, that has high returns due to the overall low levels of awareness of AMR in Nigeria. Awareness levels play a critical role in AMR prevention and containment, by informing individuals of its transmission, its consequences, and best practices to limit its spread.
Components Needed for Effective Implementation	Numerous human resources are critical to bolster awareness, including the National AMR Task Force, public health communication experts, graphic designers and media specialists, monitoring and evaluation (M&E) experts, and cultural and language experts that aid in engaging populations all over the country. To accommodate the costs of production, design, advertising, campaign management, community outreach, and ongoing M&E, a dedicated budget will also be necessary. Beyond resources, it will be useful to leverage technology and related infrastructure as well as partnerships with public and private sectors to spread awareness messages. Managing these tasks effectively requires a subcommittee to oversee progress.
Critical Barriers	Financial constraints, low public interest and misinformation, limited media reach in rural areas, as well as cultural sensitivity issues all pose barriers towards successful implementation.
Strategies to Overcome Identified Barriers	Countering these hurdles can be achieved by engaging donors to receive increased funding, using relatable messaging to appeal to the public, leveraging social media and influencers to correct myths on AMR, using existing platforms such as local health centers and grassroots organizations to reach rural communities, as well as localized materials and tools that includes themes and language adapted to local contexts.
Key Stakeholders	Key stakeholders include federal OH ministries, the AMRCC, media partners, public health communication specialists, non-profit organizations (NGOs), CSOs, local health workers, academic and research institutions, as well as donors from private and international domains.
Next Steps for Implementation	1. Inaugurate a subcommittee or working group with ToRs to develop the strategy. 2. Conduct a situational analysis to assess current levels of AMR knowledge and behaviors, identifying key misconceptions and evaluate existing communication materials. 3. Define target audiences and messaging for each distinct group. 4. Develop the strategy document. 5. Design campaign materials tailored to the varying target audiences. 6. Launch a nationwide campaign based on the strategy and place under ongoing evaluation.

3	Activity 2.2.2: Advocate for the inclusion of AMR in state awareness activities, to sustain AMR awareness activities beyond World AMR Awareness Week (WAAW)

Implementation Considerations	
Activity Rationale	While WAAW is critical for drawing attention to AMR and its drivers, broadening awareness activities through advocacy work beyond WAAW is key in promoting sustained action for AMR awareness.
Components Needed for Effective Implementation	To build advocacy, it will be necessary to procure funding to support advocacy visits to the states and develop an advocacy toolkit, based on the synthesis of existing advocacy efforts. Five states have an existing AMR TWG with links to the National TWG, that has standardized outreach materials and M&E tools that can be leveraged for this activity.
Critical Barriers	Key challenges include insufficient funding as well as disintegration of public health programs at the subnational level. In addition, while five states have standardized outreach materials, the other 31 do not, which limits their capacity to engage in advocacy tasks.
Strategies to Overcome Identified Barriers	By identifying funding sources, there will be a means of addressing financial constraints. This activity will also mandate the development of an advocacy toolkit, which will be useful in synthesizing existing awareness platforms and briefs, ultimately supporting the advocacy process. Leveraging other health and social welfare awareness activities in the states, as well as the National Risk Communication TWG, will improve overall engagement.
Key Stakeholders	Key stakeholders include the federal ministries of Health, Environment, Agriculture and Livestock, Information and Finance. The National AMR Awareness TWG and the National Risk Communication TWG will be critical players as well. It is also recommended to leverage CSOs, media sources, and youth groups.
Next Steps for Implementation	1. Engage highlighted stakeholders on the key steps associated with this activity to reach consensus on the plan's roll-out. 2. Identify funding sources 3. Develop advocacy toolkit. 4. Conduct zonal training of public health officers, via the train-of-trainer approach, on how to incorporate AMR into other health and social welfare awareness activities in the states 5. Develop feedback mechanisms

OBJECTIVE 3: IMPROVE EVIDENCE BASE THROUGH STRENGTHENING ONE HEALTH AMR SURVEILLANCE SYSTEMS AND OPERATIONAL RESEARCH FOR DECISION MAKING

Priority Activities

1 **Activity 3.1.1:** Increase participation of private laboratories in the national surveillance networks (easily accessible to the community)

Implementation Considerations	
Activity Rationale	This activity will strengthen representation and coverage within the Nigerian AMR surveillance, improve data availability across the country, and foster engagement between the public and private sector. This will work toward long-term transformative changes in making AMR surveillance a system-wide effort.
Components Needed for Effective Implementation	Implementation will require funding to support a mapping and assessment of private labs to strengthen quality management and improve overall laboratory capacity for surveillance. There will also be a need for technical capacity amongst government stakeholders to identify key private labs, to conduct training and workshops on AMR data reporting, and to establish a uniform reporting template across sectors. To facilitate seamless enrollment in national surveillance networks, it will be critical to establish criteria for private lab participation as well. This process may require aid from the TWGs.
Critical Barriers	One critical obstacle will be effective engagement of the private sector, including barriers around limited incentives, concerns around sharing data, conflicts of interest, and suspicions of government intentions. There will also be costs incurred through capacity-building efforts that may strain existing finances.
Strategies to Overcome Identified Barriers	To overcome highlighted barriers, it will be beneficial to sensitize laboratories to the role of private sectors in AMR surveillance, create regulatory mechanisms to manage operations within private sector laboratories, hold periodic meetings with stakeholders to build confidence, explore incentives to aid engagement, and develop a joint capacity-building program to ensure feedback mechanisms. Mobilizing resources and advocating for funds can support these actions.
Key Stakeholders	Key stakeholders include the OH federal ministries, the NCDC, Quadripartite partners, regulatory bodies, private practitioners and related associations, such as the National Private Medical Microbiology Lab Associations.
Next Steps for Implementation	1. Hold a meeting with the AMRCC and the AMR TWG to develop guidelines for the identification and engagement of private sector laboratories, including the designation of a team to manage subsequent steps. 2. Conduct sector-specific private microbiology laboratory mapping, led by team identified in the previous step. 3. Develop joint tools, capacity-building programs, and reporting templates. 4. Ensure a robust feedback reporting mechanism.

2	**Activity 3.1.2:** Strengthen AMR laboratory capacity for the environment and establish a national AMR surveillance network (spatiotemporal insight into possible burden of AMR in the community)

Implementation Considerations	
Activity Rationale	The environment is an underrepresented sector, and this activity provides an opportunity to address this limitation, filling a gap in AMR surveillance among this sector.
Components Needed for Effective Implementation	This activity requires human resources, such as environmental microbiologists, AMR surveillance officers, laboratory technicians trained in environmental sampling, and data scientists. Key infrastructure and technology include sample collection equipment, cold chain logistics for sample transport, as well as sequencing and molecular diagnostic platforms for advanced pathogen detection. Procuring these resources when absent may require increased funding. Lastly, this activity will require robust collaboration mechanisms, including OH coordination, policy frameworks, inter-agency collaborations, and global guidance/standards.
Critical Barriers	Key barriers revolve around existing environmental lab and skilled workforce capacity, and standard protocols. There may also be funding constraints, and potential barriers arising in strengthening data sharing mechanisms.
Strategies to Overcome Identified Barriers	To respond to highlighted barriers, it is recommended to leverage various stakeholders, such as political leadership and potential donors to lend funding support, as well as members of Quadripartite organizations to help build standardized protocols. In addition to stakeholder outreach, addressing weaknesses in capacity can be achieved through train-the trainer programs and collaborations with academic institutions.
Key Stakeholders	Key stakeholders include federal ministries of Health, Environment, Agriculture, and Food Safety, the National Environmental Standards Regulation & Enforcement Agency (NESREA), university environmental and microbiology labs, donors (WHO, UNEP, FAO), lab experts, as well as research institutions and CSOs.
Next Steps for Implementation	1. Conduct stakeholder mapping and engagement, forming a technical working group on environmental AMR surveillance. 2. Undergo a situational analysis of existing environmental lab capacity, data gaps, and high-risk environments. 3. Develop a national strategy aligned with international guidelines. 4. Upgrade laboratory infrastructure to ensure biosafety, molecular testing, and quality assurance systems. 5. Build workforce capacity through train-the-trainer programs, and e-learning modules for ongoing professional development. 6. Pilot environmental AMR surveillance, launching first in high-risk zones. 7. Scale and integrate surveillance network across all geopolitical areas.

3	**Activity 3.1.13:** Support distribution of samples, consumables, and reagents between field sites, AMR sentinel labs, and the central procurement units

Identified as a priority activity through workshop discussions about **private sector engagement, available resources, and implementation challenges and enablers.**

Implementation Considerations

Activity Rationale	This activity is critical in strengthening supply chain systems and generating surveillance data. This step supports the implementation of subsequent activities, including the development of a surveillance platform.
Components Needed for Effective Implementation	Relevant resources include a dedicated AMR supply-chain contingency fund as well as technical and skilled personnel to participate in sample-courier teams, supply-chain management, cold-chain maintenance, shipment tracking, and quality assurance. Completion of these tasks will also require certain infrastructure and technology, such as temperature-controlled vehicles, central warehouse with cold-storage rooms, and inventory management software. Policy, regulations, and a MOU between the NCDC, the OH state ministries, and private courier services will also help guarantee standardized procedures associated with this activity.
Critical Barriers	Key barriers include delayed funding streams, cold-chain breakdowns, human capacity constraints, data and visibility gaps, regulatory delays, and coordination siloes.
Strategies to Overcome Identified Barriers	To address gaps and delays within fiscal resources, it is recommended to consolidate an AMR logistics budget under the NAP-AMR line item and establish a rapid-release “AMR Logistics Fund” with clear procedures. Measures to reduce cold chain breakdowns include the deployment of solar-powered refrigerators and cold boxes, contract maintenance agreements with local engineering firms, and scheduled quarterly preventative maintenance. Addressing data gaps through digital shipment tracking mechanisms and supporting human capacity within this activity through a cadre of “AMR Logistics Champions” will also be beneficial strategies.
Key Stakeholders	Key stakeholders include government officials, particularly within finance, the Nigeria Customs Service, private courier companies, and the AMR TWGSs. The energy sector may also be relevant stakeholders to engage in supporting solar-powered options.
Next Steps for Implementation	1. Securing cabinet approval for a dedicated AMR logistics line item. 2. Develop and validate standard operating procedures (SOPs) for the transport of samples, consumables, and reagents. 3. Establish a digital tracking system to aid this transportation process. 4. Sign MOUs and permits to execute agreements with other stakeholders. 5. Procure and deploy assets, including cold-chain vehicles, cold boxes, and information technology (IT) hardware. 6. Train logistics cadre, with a three-day courier and data-management training in all six zones. 7. Launch coordinate rollout and monitor for routine adaptations.

OBJECTIVE 4: IMPROVE IMPLEMENTATION OF IPC PROGRAMMES, BIOSECURITY, AND VACCINATION UPTAKE INCLUDING ACCESS TO WATER, SANITATION, AND HYGIENE (WASH) ACROSS THE ONE HEALTH SECTORS

Priority Activities

1 **Activity 4.2.4:** Strengthen WASH programme and hand hygiene infrastructure across selected healthcare facilities

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Implementation Considerations

Activity Rationale	Hygiene practices play a crucial role in preventing the spread of infectious diseases. By strengthening this infrastructure in healthcare facilities, which are at risk sites for disease, this activity has the capacity to better control its consequences, including heightened AMR.
Components Needed for Effective Implementation	Successful implementation requires funding to support health facility upgrades, including strengthening infrastructure, such as hand-washing stations and incinerators, as well as strengthening capacity of relevant personnel including IPC officers and WASH engineers. To further guide standard protocols, there must be policies, procedures, and MOUs with water boards and borehole contractors put in place.
Critical Barriers	Key barriers include funding gaps, siloed working mentality between the OH sectors that barricades standardized progress in healthcare facilities, and limited clean water and hygiene compliance as it is perceived as low priority.
Strategies to Overcome Identified Barriers	To build a culture of maintenance and compliance, it will be necessary to employ regular audits and maintenance schedules, as well as leverage hand hygiene champions to vouch for adherence to guidelines. Any behaviour change communications should be designed as culturally sensitive and community-led to be effective. Advocating for a dedicated budget and investing in relevant infrastructure to strengthen water supply will also be key steps to take. To best optimize resources, it is recommended to leverage existing platforms where available.
Key Stakeholders	Key stakeholders include the OH federal ministries, the NCDC, subnational structures, local government authorities, development partners, NGOs, CSOs, community leaders, hospital personnel, and the private sector.
Next Steps for Implementation	1. Conduct WHO Water and Sanitation for Health Facility Improvement Tool (WASHFIT) surveys in select facilities to quantify gaps. 2. Advocate for increased funding within facility budgets. 3. Develop and adapt guidelines for WASH and biosecurity.

	4. Identify hand hygiene champions to aid the roll-out of the guidelines.

2	**Activity 4.3.4: Improve waste management in healthcare waste settings, farms, abattoirs, veterinary hospitals, and communities**

Implementation Considerations	
Activity Rationale	Inadequate management of waste across OH sectors can contribute to AMR, and prioritizing this activity across sectors will ensure greater preventative measures to prevent the development and spread of drug resistance.
Components Needed for Effective Implementation	This activity will require a task force to oversee compliance with waste management protocols, funding for regular education and training for waste handlers, human resources, an M&E framework, and ongoing community engagement to increase awareness levels on the importance of proper waste management.
Critical Barriers	Challenges include financial constraints as well as existing behavioral patterns on waste management both within OH facilities and within the community. Failure to sufficiently involve the private sector can also be seen as a limitation in the implementation process.
Strategies to Overcome Identified Barriers	To overcome these barriers, advocacy for a sufficient budget will be instrumental towards mobilizing resources. Addressing the behavioral component must be made a priority in trainings, and leveraging a relationship with the private sector will aid in disseminating messaging around waste management.
Key Stakeholders	Key stakeholders include the federal ministries of Health, Environment, Agriculture and Food Security, Livestock Development, the NCDC, National Environmental Standards and Regulations Enforcement Agency (NESREA), Environmental Health Officers Council of Nigeria (EHOCN), local government authorities, private health practitioners, farms, and communities.
Next Steps for Implementation	1. Develop training models on waste management through input collected from key stakeholders specializing in specific kinds of waste management, including from the Ministry of Environment, NESREA, and EHOCN. 2. Strengthen the biological waste management value chain. 3. Establish a mechanism for feedback and reporting.

3	**Activity 4.4.1: Scale up IPC programme implementation to 75% of public and private healthcare facilities and establish WASH and biosecurity programmes in health and animal facilities across the country (meagre resources, political will and buy-in are suboptimal)**

Implementation Considerations

Activity Rationale	This activity places an increased focus on IPC in both the public and private sector healthcare facilities, which is critical in establishing a system-wide, united front against AMR. Further, there is a clear interest to enhance WASH and biosecurity among health and animal facilities based on the importance of an aligned approach between these two sectors.
Components Needed for Effective Implementation	Successful implementation requires financial support, technical expertise at the state and facility levels for human and animal health, a built environment for IPC and WASH infrastructure in healthcare facilities, including a streamlined supply of recommended disinfectants and dispensing tools, as well as dedicated trained IPC teams in healthcare facilities that are aligned with national guidelines.
Critical Barriers	Restricted financial capacity may hinder progress on this activity. In addition, there are limitations around behavioral patterns and conflicted interests between public and private facilities, limited incentives for the private sector, as well as inadequate technical capacity and infrastructure.
Strategies to Overcome Identified Barriers	To address these challenges, it is recommended to ramp up advocacy efforts based on existing IPC data, develop national standards for IPC infrastructure within healthcare facilities that are included in a national accreditation system, as well as establish a stepwise approach to improve microbiology lab capacities for both the human and animal sectors. To engage the private sector and promote public-private partnerships, there must be consideration for regulative measures, as well as incentives and rewards to motivate compliance, such as through the reduction in payable fees or greater recognition.
Key Stakeholders	Key stakeholders include the OH federal ministries, the NCDC, the IPC TWG, development partners, private healthcare and veterinary facilities, regulatory bodies, and professional associations such as the Nigerian Medical Association (NMA) and the Nigerian Veterinary Medical Association (NVMA).
Next Steps for Implementation	1. Conduct a national review of IPC and biosecurity coverage. 2. Development of a National Scale-Up Plan. 3. Mobilize political support with a focus on the economic case. 4. Develop tailored SOPs and training packages.

OBJECTIVE 5: IMPROVE ACCESS TO QUALITY ANTIMICROBIALS AND OPTIMIZE THEIR USE ACROSS ONE HEALTH SECTORS

Priority Activities

1 **Activity 5.1.3:** Support the expansion of AMS programmes in human healthcare facilities nationwide

Implementation Considerations	
Activity Rationale	This activity will promote the expansion of antimicrobial stewardship (AMS) programmes across human healthcare facilities in Nigeria, which is critical for preventing AMR and enhancing best practices in priority areas.
Components Needed for Effective Implementation	Successful implementation requires funds to conduct facility baseline assessment, training, mentorship, IT support, and review meetings. Personnel skilled in AMS (eg., clinical pharmacists, infectious disease physicians), technical infrastructure for running the programmes, and existing resources and processes on AMS will also all be key.
Critical Barriers	Key challenges may include potential funding constraints, and the need for strengthening AMS expertise, and laboratory capacity. Nigeria also experiences minimal enforcement of AMS regulations, resistance to practice changes, limited political buy-in, fragmented data systems, and resource gaps in rural areas.
Strategies to Overcome Identified Barriers	Strategies should be concentrated on strengthening both advocacy for greater funding and broader buy-in from both political leadership and healthcare providers. To address the issue of limited AMS expertise, capacity-building initiatives and training for healthcare practitioners should be planned. Leveraging existing, functional programs, such as those on IPC, diagnostics stewardship, and pharmacovigilance, will additionally aid the implementation process.
Key Stakeholders	Key stakeholders include government ministries at the national and state level, the NCDC, hospital management boards and tertiary healthcare institutions, Pharmacists Council of Nigeria (PCN), the National Agency for Food and Drug Administration and Control (NAFDAC), Medical and Dental Council of Nigeria (MDCN), clinical and professional associations, development partners, and private healthcare providers.
Next Steps for Implementation	1. Update National AMS Implementation Plan, with milestones for expanding AMS to primary, secondary, and private facilities. 2. Conduct national mapping on AMS readiness across select healthcare facilities based on priority areas. 3. Develop a phased scale-up strategy, prioritizing facilities with high patient loads and resistance burdens. 4. Train and deploy AMS teams using a cascade model such as a train-the-trainer approach 5. Mobilize funding and technical support to support expansion.

2	**Activity 5.1.4:** Develop a prescription policy for veterinary medicinal products, biologicals and vaccines

Implementation Considerations

Activity Rationale	Developing a prescription policy would be aligned with international policies, such as the Muscat Manifesto. Prescription policies are significant in strengthening AMS, as they clarify the conditions for utilizing antimicrobials and lower the frequency of inappropriate AMU. Investment in this area is also considered a high impact and cost-effective undertaking.
Components Needed for Effective Implementation	Successful implementation requires a TWG to develop and review a prescription policy, which includes private sector stakeholders in the process. Other relevant components include funding, human resources, infrastructure such as a central database for registering products and digital tools for monitoring usage. Leveraging existing tools, regulations, and systems will also be beneficial.
Critical Barriers	Key barriers include the weak regulatory enforcement, limited funding, informal sector dominance, a lack of updated legislation, and inadequate coverage of veterinary services, such as limited access to licensed veterinarians, especially within rural areas.
Strategies to Overcome Identified Barriers	To overcome these challenges, it is recommended to engage in policy advocacy and sensitization, to promote buy-in amongst political leadership and other stakeholders. This must include both public and private sector engagement, inviting pharmaceutical companies, distributors, and veterinary associations to participate in co-developing and adopting the policy. Addressing minimal behavioral commitment to exercising AMS should be approached through public campaigns on appropriate usage of antimicrobials, and providing incentives for compliance, such as recognition and licensing benefits to facilities that adopt the policy. It is also critical to update existing regulations and train health professionals on AMS to promote compliance on a sustainable basis.
Key Stakeholders	Key stakeholders include the federal ministries of Agriculture and Food Security as well as Livestock Development as the lead government bodies in this area. Other key associations include the Veterinary Council of Nigeria (VCN), NAFDAC, and NVMA. State departments of veterinary services, private veterinary practices, and animal health companies may be crucial in promoting compliance. Lastly, development partners and CSOs can aid in technical and financial support.
Next Steps for Implementation	1. Inaugurate a TWG to develop and review the prescription policy. 2. Conduct a situational analysis to evaluate current veterinary drug use practices and gaps in regulations, hiring a consultant to support this process. 3. Draft the prescription policy. 4. Stakeholder consultations and validation prior to launching the policy. 5. Rollout trainings and awareness campaigns.

	6. Monitor compliance and revise where necessary.

3	**Activity 5.15:** Establish AMS programmes in veterinary hospitals and clinics (public and private)

Identified as a priority activity through workshop discussions about **current political context, healthcare facility needs, and implementation challenges and enablers.**

Implementation Considerations	
Activity Rationale	This activity is based on Joint External Evaluation requirements and is understood as being highly relevant in implementing AMS in healthcare facilities where there is a greater risk of inappropriate AMU. As such, it will be useful in strengthening preventative measures.
Components Needed for Effective Implementation	Successful implementation of this activity will require funds, political buy-in, manpower and expertise at healthcare facilities to implement AMS, as well as access to AMS consumables and materials.
Critical Barriers	Challenges include financial constraints, limited interest amongst political leadership, inadequate technical capacity within healthcare facilities to promote AMS, as well as low supply of AMS materials.
Strategies to Overcome Identified Barriers	Political advocacy, capacity-building within healthcare facilities, as well as usage of existing functional programs, like those concentrated on IPC and pharmacovigilance, can provide a strong platform for undertaking this activity effectively.
Key Stakeholders	Key stakeholders include federal ministries of Livestock Development, Agriculture, and Animal Health. Development partners, the AMR TWGs, the NVMA, VCN, and associations for private practitioners are other groups that should be engaged.
Next Steps for Implementation	1. Conduct mapping of all secondary and tertiary hospitals in the country. 2. Conduct a baseline assessment of all identified facilities. 3. Proceed with an assessment of all AMU/AMS data to establish a baseline for the country.

OBJECTIVE 6: BUILD KNOWLEDGE AND CAPACITY OF RELEVANT STAKEHOLDERS TO IMPROVE LOCAL INNOVATIONS, RESEARCH AND DEVELOPMENT IN ANTIMICROBIALS, DIAGNOSTICS AND VACCINES

Priority Activities

1 **Activity 6.1.2:** Identify AMR research priorities in Nigeria based on current evidence and needs

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Implementation Considerations

Activity Rationale	This activity will help strengthen the research strategy and awareness levels in Nigeria and is considered high impact and cost-effective.
Components Needed for Effective Implementation	To support the identification process for AMR research priorities, funds will be required to support a number of key activities including: the review process and dissemination of the agenda, enlisting human resources such as subject matter experts, research and data analysts, facilitators for workshops, as well as securing certain infrastructure and technology, such as access to national AMR surveillance data, research publication databases, and data management tools. To support this process, it will also be beneficial to leverage both technical and sectoral support, as well as existing resources and processes, such as previous research efforts and ongoing AMR-related projects funded by donors.
Critical Barriers	Key barriers include a fragmented research landscape, limited central repository for data, restricted funding, disparities in research capacity, and a disconnect between research outputs and policy uptake.
Strategies to Overcome Identified Barriers	Overcoming these challenges will involve advocacy to the government and development partners, multisectoral collaboration, evidence mapping of existing AMR research in Nigeria, stakeholder-driven priority-setting, leveraging global tools such as international best practices for AMR research prioritization, and institutional leadership that assigns clear coordination roles.
Key Stakeholders	Primary stakeholders include the NCDC, the federal ministries of Health, Agriculture and Food Security, and the Environment, as well as the TetFund and National Research Fund (NRF). Academic and research institutions, professional association, development partners, as well as the National AMR TWG will also be beneficial in aiding oversight and technical input.
Next Steps for Implementation	1. Develop a Research Priority-Setting Task team. 2. Conduct a desk review and evidence synthesis. 3. Map stakeholders and research institutions. 4. Develop and implement a stakeholder engagement plan to support in-person review and validation meetings of the research agenda.

2	**Activity 6.1.1:** Conduct scoping analyses and systematic reviews to synthesize existing evidence and identify research gaps

Implementation Considerations	
Activity Rationale	This activity will provide a foundation for research activities in Nigeria, addressing the paucity of data as a critical barrier to innovation in the country. It will also serve as a foundation for evidence-informed policy and practicing, aiding resource mobilization for other activities.
Components Needed for Effective Implementation	To implement this activity effectively, it will be important to procure funds to hire a consulting firm that conducts extensive scoping, review meetings, and dissemination. There must also be capacity-building efforts on research and manuscript writing skills for research TWG members.
Critical Barriers	Limited funding may barricade efforts to identify and renumerate experts, as well as to host in-person reviews and validation meetings. In addition, there are limitations are the National AMR Research TWG being nonfunctional, the scarcity of data on research and development (R&D), as well as poor synergy between government and private research institutions.
Strategies to Overcome Identified Barriers	Advocating to the government and development partners may support procurement of greater funds. It will also be key to develop a robust and efficient selection process for a consultancy to gain access to strong technical expertise.
Key Stakeholders	Key stakeholders include federal OH ministries, NCDC, the AMRCC, public and private research institutions, subject matter experts, as well as academic institutions.
Next Steps for Implementation	1. Develop a concept note for the scoping review processes and ToRs for consultancy. 2. Conduct a comprehensive stakeholder mapping to identify subject matter experts and other key stakeholders to involve in the scoping analysis. 3. Lead in-person reviews and validation meetings for the results of the research process.

3	**Activity 6.1.3:** Create a research agenda to coordinate AMR research in Nigeria

Identified as a priority activity through workshop discussions about **the need for a functional research pillar, available resources, and implementation challenges and enablers.**

Implementation Considerations	
Activity Rationale	There are many universities and research institutions undertaking research on AMR in Nigeria, but much of this work is independent and uncoordinated to address national priorities. Previous efforts to set up research programs have been unsuccessful, but it is instrumental to establish an agenda that will aid in addressing ongoing gaps and needs to effectively tackle AMR.
Components Needed for Effective Implementation	Resources required include researchers, a functional TWG for research, funding to support regular meetings, a strategic plan, and a revised TWG ToR to select active and experienced members.
Critical Barriers	Varying opinions amongst researchers who are already working in AMR may pose a limitation in the completion of this activity, alongside financial constraints to support regular meetings.
Strategies to Overcome Identified Barriers	Addressing these barriers will involve setting up a core team within the AMR TWG to draft a position paper that will guide the agenda for developing, and identify most relevant institutions, both public and private. It will also be beneficial to use electronic platforms to reduce the need for in-person meetings that require greater funding. By aligning work with global priorities, this can help reduce risk of fragmentation in priorities.
Key Stakeholders	Relevant stakeholders include OH ministries, the NCDC, development partners, donors, and researchers.
Next Steps for Implementation	1. Revise governance manual to ensure TWGs ToR is revised to include research. 2. Establish a core team, including partners and donors, to draft a position paper. 3. Develop a research agenda based on a scoping review and strengthen research network to support policy making.

CONCLUSION

Prioritization of activities is critical for sustainable NAP 2.0 implementation. Through the SCP, an OH context-driven, and evidence-informed decision-making approach was utilized to prioritize the most strategic activities to address AMR in Nigeria. The prioritized activities align with each of the OH sector's short- and long-term goals for AMR action along the six strategic objectives of the 2024-2028 NAP 2.0. As Nigeria begins to develop the work plan for their NAP 2.0 implementation, consideration of the priority activities selected through the SCP will be critical in supporting sustainable implementation.

APPENDIX 1

List of Nigeria organizations represented in the Smart Choice Process

One Health
Nigeria Centre for Disease Control and Prevention
Ajisefini Consulting
One Health & Development Initiative
Environment Health
Federal Ministry of Environment
Agriculture and Animal Health
Federal Ministry of Livestock Development
National Agency for Food and Drug Administration and Control
National Veterinary Research Institute
BlueBlood Veterinary Clinic
Ahmadu Bello University
Human Health
Federal Ministry of Health

APPENDIX 2

Complete list of 48 NAP outputs scored by participants using the Prioritization Scoring Tool.

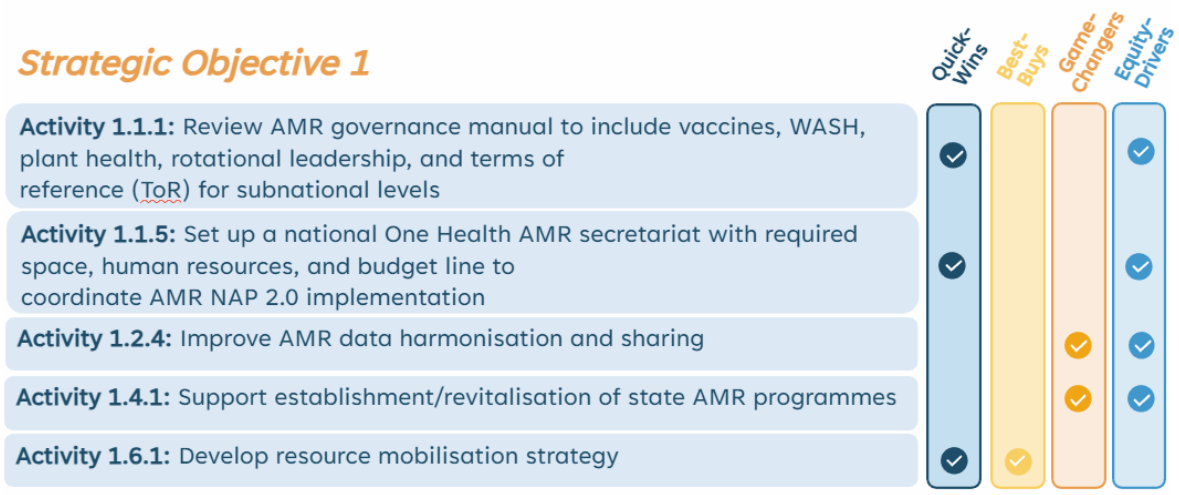
Nigeria AMR NAP 2.0 Outputs
Objective 1: Strengthen leadership, collaboration, coordination, and AMR governance structures at national and subnational levels.
1.1.1 Review AMR governance manual to include vaccines, WASH, plant health, rotational leadership, and terms of reference (ToR) for subnational levels.
1.1.5. Set up a national One Health AMR secretariat with required space, human resources, and budget line to coordinate AMR NAP 2.0 implementation
1.2.4 Improve AMR data harmonisation and sharing
1.4.1. Support establishment/revitalisation of state AMR programmes
1.6.1. Develop resource mobilisation strategy
Objective 2: Improve antimicrobial resistance (AMR) awareness, education, and understanding, and behaviour change among all relevant stakeholders.
2.1.2 Conduct nationawide KABP surveys (baseline, midline, and endline)
2.1.3 Create social and behavioural change communication (SBCC) messages and materials for identified target audiences in local languages
2.2.1. Develop a national AMR awareness strategy to outline annual awareness activities and target groups
2.2.2. Advocate for the inclusion of AMR in state awareness activities, to sustain AMR awareness activities beyond WAAW
2.5.1. Strengthen AMR risk communication of the subnational risk communication TWGs
2.5.2. Increase collaborations with existing One Health sector health programmes and structures, agencies, development partners, religious and community leaders to increase grassroots awareness of AMR and disseminate information to communities and the public
2.8.1. Partner with the National Youth Service Corps (NYSC) for the creation of AMR One Health community development service (CDS)
2.8.2. Integrate AMR into secondary school curricula across the 774 LGAs in Nigeria, leveraging existing structures
Objective 3: Improve evidence base through strengthening One Health AMR surveillance systems and operational research for decision making
3.1.1. Increase participation of private laboratories in the national surveillance networks (easily accessible to the community)

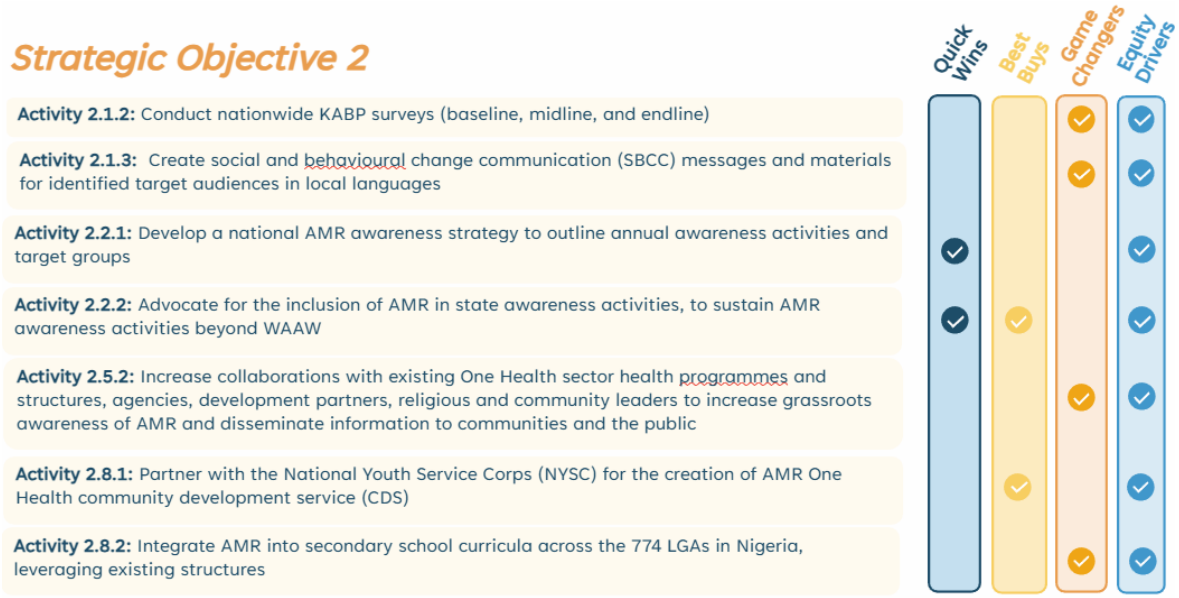
3.1.2. Strengthen AMR laboratory capacity for the environment and establish a national AMR surveillance network (spatiotemporal insight into possible burden of AMR in the community)
3.1.3. Identify priority pathogens for environment and include AMR-related indicators in existing environmental surveillance structures, including the Integrated National Environmental Health Surveillance System (stakeholder engagement)
3.1.4. Monitor antimicrobial resistance and antimicrobial residues in wastewater from hospitals, agricultural farms, and pharmaceutical industries
3.1.12. Expand routine AMR surveillance to include gonococci
3.1.13. Support distribution of samples, consumables, and reagents between field sites, AMR sentinel labs, and the central procurement units
3.2.2. Update and deploy systems for standardised data entry and reporting
3.2.4. Use of AMR surveillance data for decision making at national and subnational level
3.3.3. Build capacity of field officers on residue and control in food of animal origin and in environment
3.3.4. AMR prevalence survey in human health facilities
Objective 4: Improve implementation of infection prevention and control (IPC) programmes, biosecurity, and vaccination uptake including access to WASH across the One Health sectors
4.1.1. Gather available national data on IPC, WASH, and biosecurity
4.1.3. Expand IPC capacity gap assessments to address disparities (and initiate risk assessments for health facilities and assessments for IPC, WASH, and biosecurity) for (identification of) areas of improvement gaps and needs across the 36 states in Nigeria (Leverage on IT and existing structures)
4.1.4. Strengthen IPC/laboratory surveillance structure to detect continuous gene mutation in microbes (Strengthen laboratory capacity for IPC and HAI surveillance)
4.2.1. Link IPC and AMS activities at all levels – leverage the Orange Network and other existing IPC structures in Nigeria
4.2.4. Strengthen WASH programme and hand hygiene infrastructure across selected healthcare facilities
4.3.1. Develop standards for built environment including WASH to enhance safety of healthcare environment (Expertise exists in-country)
4.3.2. Provide bio-incineration facilities to incinerate waste at healthcare facilities, farms, food production facilities, and other industries
4.3.3. Provide quarantine facilities on farms and isolation rooms for health facilities
4.3.4. Improve waste management in healthcare waste settings, farms, abattoirs, veterinary hospitals, and communities
4.4.1. Scale up IPC programme implementation to 75% of public and private healthcare facilities and establish WASH and biosecurity programmes in health and animal facilities across the country (meagre resources, political will and buy-in are suboptimal)

4.4.5. Develop SOPs on vaccine administration in animals
Objective 5: Improve access to quality antimicrobials and optimize their use across One Health sectors
5.1.3. Support the expansion of AMS programmes in human healthcare facilities nationwide
5.1.4. Develop a prescription policy for veterinary medicinal products, biologicals, and vaccines
5.1.5. Establish antimicrobial stewardship programmes in veterinary hospitals and clinics (public and private)
5.1.10. Develop a road map to reduce the amount of critically important antimicrobials used in animal health
5.2.2. Develop a national system for reporting of antimicrobial consumption data at all levels including hospitals, both public and private, and community pharmacies
5.3.1. Improve the pathways and processes for registration and distribution of antibiotics (imported and locally manufactured)
5.3.3. Advocate to national assembly and NHIA to increase universal healthcare coverage to increase access to appropriate diagnostics and medicines
5.3.5. Mandate that international pharmaceutical companies establish antimicrobial manufacturing outlets in the country so their activities can be monitored by NAFDAC to ensure Nigerians are getting quality-assured antimicrobials
Objective 6: Build knowledge and capacity of relevant stakeholders to improve local innovations, research and development in antimicrobials, diagnostics, and vaccines
6.1.1. Conduct scoping analyses and systematic reviews to synthesise existing evidence and identify research gaps
6.1.2. Identify AMR research priorities in Nigeria based on current evidence and needs
6.1.3. Create a research agenda to coordinate AMR research in Nigeria
6.1.4. Advocate that AMR/AMU funding be included in the National Research Agenda
6.2.2. Establish R&D with a focus on plant health (There is a need to strengthen the value of phyto-related antimicrobials and also emphasise antimicrobial residues in plants)
6.4.1. Promote research into antimicrobial alternatives, diagnostics, and vaccines across the One Health sector

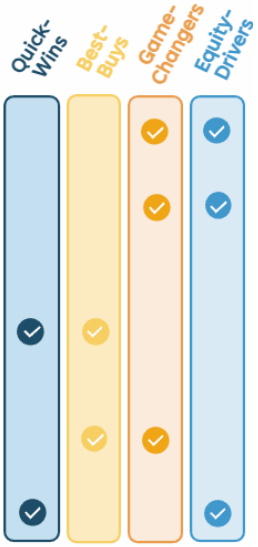
APPENDIX 3

List of 31 Smart Choice outputs identified across the four priority axes for each NAP 2.0 Objective that were shared and prioritized during the workshop, with aggregate results across all sectors





Strategic Objective 3



Activity 3.1.1: Increase participation of private laboratories in the national surveillance networks (easily accessible to the community)

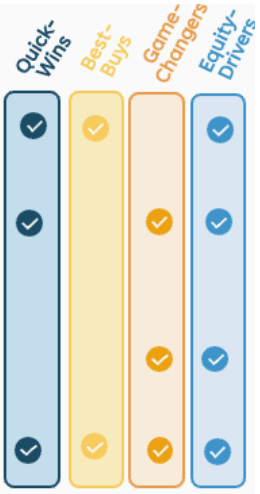
Activity 3.1.2: Strengthen AMR laboratory capacity for the environment and establish a national AMR surveillance network (spatiotemporal insight into possible burden of AMR in the community)

Activity 3.1.3: Identify priority pathogens for environment and include AMR-related indicators in existing environmental surveillance structures, including the Integrated National Environmental Health Surveillance System (stakeholder engagement)

Activity 3.2.4: Use of AMR surveillance data for decision making at national and subnational level

Activity 3.3.4: AMR prevalence survey in human health facilities

Strategic Objective 4



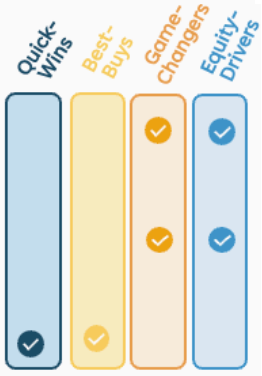
Activity 4.1.1: Gather available national data on IPC, WASH, and biosecurity

Activity 4.1.3: Expand IPC capacity gap assessments to address disparities (and initiate risk assessments for health facilities and assessments for IPC, WASH, and biosecurity) for (identification of) areas of improvement gaps and needs across the 36 states in Nigeria (Leverage on IT and existing structures)

Activity 4.2.4: Strengthen WASH programme and hand hygiene infrastructure across selected healthcare facilities

Activity 4.3.1: Develop standards for built environment including WASH to enhance safety of healthcare environment (Expertise exists in-country)

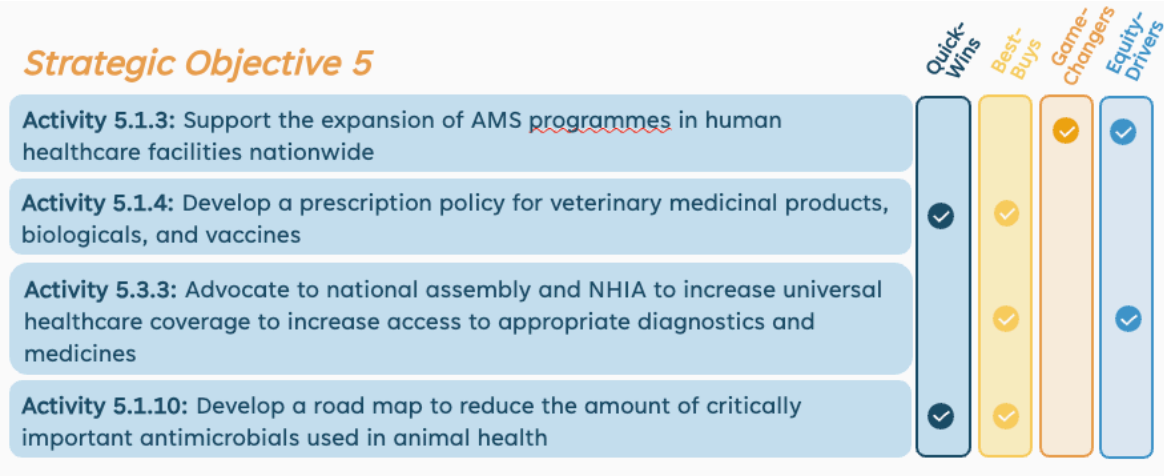
Strategic Objective 4



Activity 4.3.4: Improve waste management in healthcare waste settings, farms, abattoirs, veterinary hospitals, and communities

Activity 4.4.1: Scale up IPC programme implementation to 75% of public and private healthcare facilities and establish WASH and biosecurity programmes in health and animal facilities across the country (meagre resources, political will and buy-in are suboptimal)

Activity 4.4.5: Develop SOPs on vaccine administration in animals


Strategic Objective 5
Quick-Wins
Best-Buys
Game-Changers
Equity-Drivers
Activity 5.1.3: Support the expansion of AMS programmes in human healthcare facilities nationwide
Activity 5.1.4: Develop a prescription policy for veterinary medicinal products, biologicals, and vaccines
Activity 5.3.3: Advocate to national assembly and NHIA to increase universal healthcare coverage to increase access to appropriate diagnostics and medicines
Activity 5.1.10: Develop a road map to reduce the amount of critically important antimicrobials used in animal health


Strategic Objective 6
Quick-Wins
Best-Buys
Game-Changers
Equity-Drivers
Activity 6.1.1: Conduct scoping analyses and systematic reviews to synthesise existing evidence and identify research gaps
Activity 6.1.2: Identify AMR research priorities in Nigeria based on current evidence and needs
Activity 6.1.3: Create a research agenda to coordinate AMR research in Nigeria

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