Guidance for Domestication of the Fleming Fund Qualifying the Workforce for AMR Surveillance in Africa and Asia (QWArS) Professional Qualification Framework – Draft v2.0

A Practical Roadmap for Country Adoption and Sustainable Implementation

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June 2025

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Executive Summary

This document guides countries on how to adopt and adapt the Fleming Fund Qualifying the Workforce for Antimicrobial Resistance Surveillance (QWArS) qualification framework. It sets out key steps, enabling factors, and sustainability mechanisms, and is intended for government ministries, national public health institutes, antimicrobial resistance coordinating bodies, regulators, regional centres of excellence (CoE), and universities.

Antimicrobial resistance (AMR) is rising across Africa and Asia, with a disproportionate impact in sub-Saharan Africa. Many countries lack sufficient numbers of trained professionals in laboratory science and epidemiology to run strong surveillance across One Health—that is, human, animal, and environmental health working together. QWArS is a competency-based programme delivered through a blended approach: online modules hosted by the African Society for Laboratory Medicine (ASLM) Academy and hands-on practical training delivered in-country or through regional CoE. A common set of standards and a formal qualification (recorded in an ASLM professional registry) help countries maintain quality while allowing national additions where needed.

A review across fourteen African countries found that most national action plans already call for training and recognise continuous professional development (CPD), even though implementation gaps remain. Nigeria's domestication pathway (NiQWArS) shows how the QWArS curriculum can be mapped to existing national programmes—such as the Field Epidemiology and Laboratory Training Programme (FELTP)—and aligned with workforce plans; details appear later in the case study.

This guidance provides a step-by-step domestication framework: align with national policy; decide how the qualification will be recognised; set up delivery partnerships; choose between a full qualification or stackable modules; and agree governance and a country roadmap. Recognition can be either partner-issued CPD with a common examination and registry (via ASLM Academy) or national CPD while retaining the common examination and registry to protect standards and portability. Implementation is supported by practical indicators, common risks and mitigations, and sustainability measures that begin with partnerships and progress to domestic funding. Consistent with the AU Framework for AMR Control (2020–2025) and aligned with the forthcoming revised framework (2026–2030), this guidance turns continental commitments on governance, One Health coordination, partnerships, and training into a country-led qualification pathway for AMR surveillance.

This document does not provide detailed costing for each country and does not replace national laws or regulations. Countries should develop costed plans using this roadmap and align with existing national requirements.

Intended outcomes

- Training that is recognised by national regulators and professional bodies.
- Accredited practical-training sites and a growing pool of skilled instructors.
- A qualification that is consistent across countries while allowing local additions.
- A steady pipeline of skilled laboratory and epidemiology professionals working across One Health.

1. Introduction and Purpose of the Guidance Document

A shortage of trained professionals in microbiology and epidemiology is a barrier to strong AMR surveillance across One Health—that is, human, animal, and environmental health working together. The Fleming Fund Qualifying the Workforce for Antimicrobial Resistance Surveillance (QWArS) training program was created to close this skills gap through a competency-based curriculum and a blended approach to learning.

This guidance document helps countries adopt and adapt the QWArS professional qualification framework in their own systems. It sets out key steps, enablers, and sustainability mechanisms so that implementation is practical, aligned with national policy, and feasible to run at scale.

1.1 Purpose

To enable country-led, sustainable adoption of QWArS so that national systems can continuously develop a competent, recognized, and motivated AMR surveillance workforce and improve public health protection.

1.2 Scope

This guidance is intended for organizations that plan, regulate, deliver, or support antimicrobial resistance surveillance workforce training and development. It is relevant to:

- ***Government leadership and national public health authorities*** – for policy direction, coordination, and accountability.
- ***Antimicrobial resistance coordination mechanisms and regulatory/professional bodies*** – for recognition of the qualification, continuous professional development (CPD), and related standards.
- ***Higher education and training providers*** (universities and centres of excellence) – for delivering practical learning and assessment.
- ***Field epidemiology and laboratory training programs*** – for integrating the qualification into existing national training pathways.
- ***Sectoral partners across One Health*** **and other implementation partners** – for technical input and practical delivery support.

1.3 How to use this guidance

1. Start with the domestication framework to plan the domestication approach.
2. Decide how the qualification will be recognized i.e., either partner-issued CPD with a central examination and registry, or national CPD while keeping a common examination and professional registry.
3. Set up delivery partnerships between the African Society for Laboratory Medicine (ASLM Academy) for online e-learning and assessment, and in-country providers for practical training.
4. Decide whether to offer a full qualification now or begin with stackable modules that build up over time.
5. Agree on governance and a national roadmap, then track progress using the indicators provided later in this guidance.

2. Context and Key Achievements

Across many countries in Africa and Asia, antimicrobial resistance is rising while the number of trained people in microbiology and epidemiology remains too low to sustain strong AMR surveillance. Most national plans already call for training and recognize continuous professional development (CPD), yet practical delivery capacity, consistent recognition of qualifications, and stable financing are still uneven across the One Health sectors.

2.1 Insights from the Landscape analysis

(*also see Annex 1*)

- **Policy conditions are in place:** National action plans (NAPs) for AMR in most African countries commonly includes training and professional development, creating an entry point for recognizing the QWArS professional qualification. On the other hand, delivery capacity exists but needs organizing. Regional centers of excellence, Public Health Institutes, or National Reference Laboratories, as well as tertiary universities, can host practicums; however, site accreditation and instructor pipelines require deliberate planning and implementation.

- **Recognition pathways vary:** Some countries can adopt partner-issued professional development credits (CPDs) with a central examination and registry offered by the ASLM Academy; others prefer national credits while keeping a common examination and registry to protect standards.

- **Proof of "domestication" feasibility:** Early adoption (for example, in Nigeria) shows how the QWArS curriculum can be mapped to existing training programs, such as the field epidemiology and laboratory training (FELTP) pathways, and aligned to the national workforce plans without diluting quality.

2.2 Implications for domestication—what decision-makers must settle

- **Who leads and convenes:** As countries consider domesticating the QWArS professional qualification framework, they need to name a lead public authority to coordinate across sectors and own the roadmap.

- **How the qualification will be recognized**: Countries need to choose between partner-issued or national professional development credits—both anchored by a common examination and registry (that can be provided through the ASLM Academy).

- **Where and by whom training is delivered**: As part of sustainability planning, the Fleming Fund QWArS project produced over a hundred African Subject Matter Experts (SMEs) and Master Trainers across the continent, who are capable of supporting the delivery of the training in-country and across regions. This pool of professionals can support in-country training facilitation, which can be paired with the online e-learning through the ASLM Academy platform. The microbiology-specific in-country practicums can be hosted at regional centers of excellence and accredited/recognized universities as part of sustainable partnerships.

- **Scope and sequencing:** Countries can consider offering a full QWArS professional qualification from the start, or begin with stackable modules that then build into the full award.

- **Governance and financing:** Countries will need to agree on the terms of reference, milestones, and a shift from partnership support to domestic funding to sustain this workforce development program.

2.3 Fleming Fund QWArS key results at a glance

The Fleming Fund QWArS program has demonstrated feasibility and growing capacity (Figure 1), underscoring demand for the curriculum and its effectiveness in developing a competent, credentialed workforce for antimicrobial resistance surveillance.

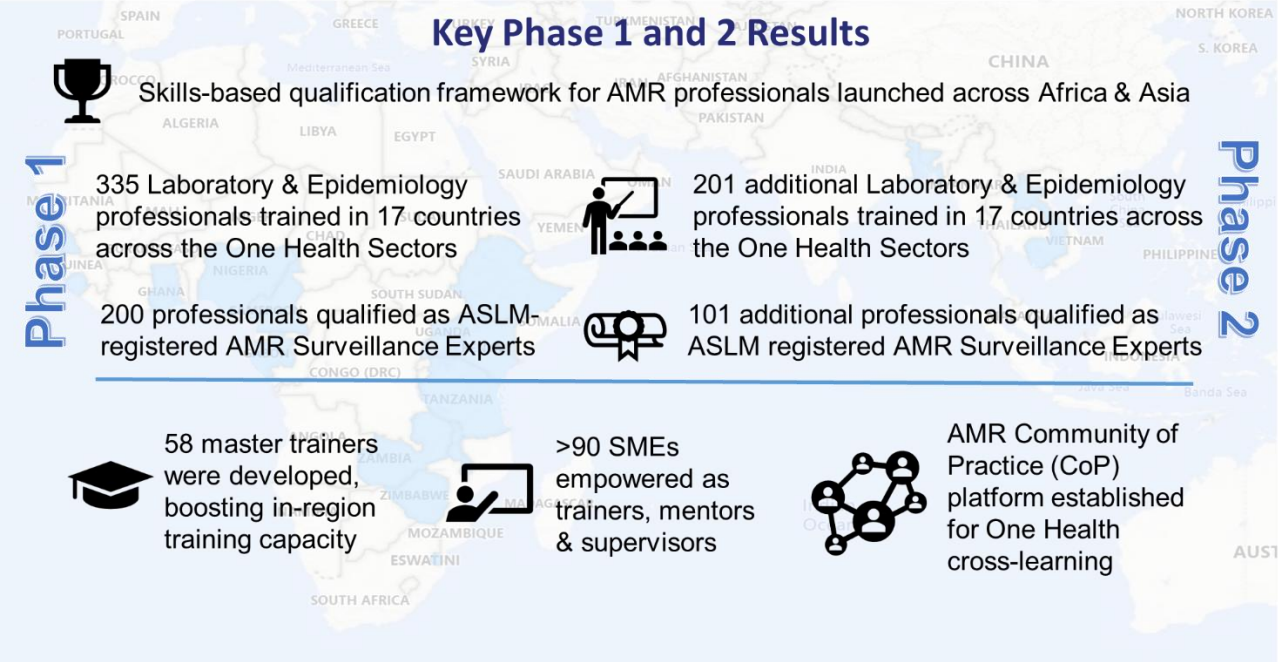


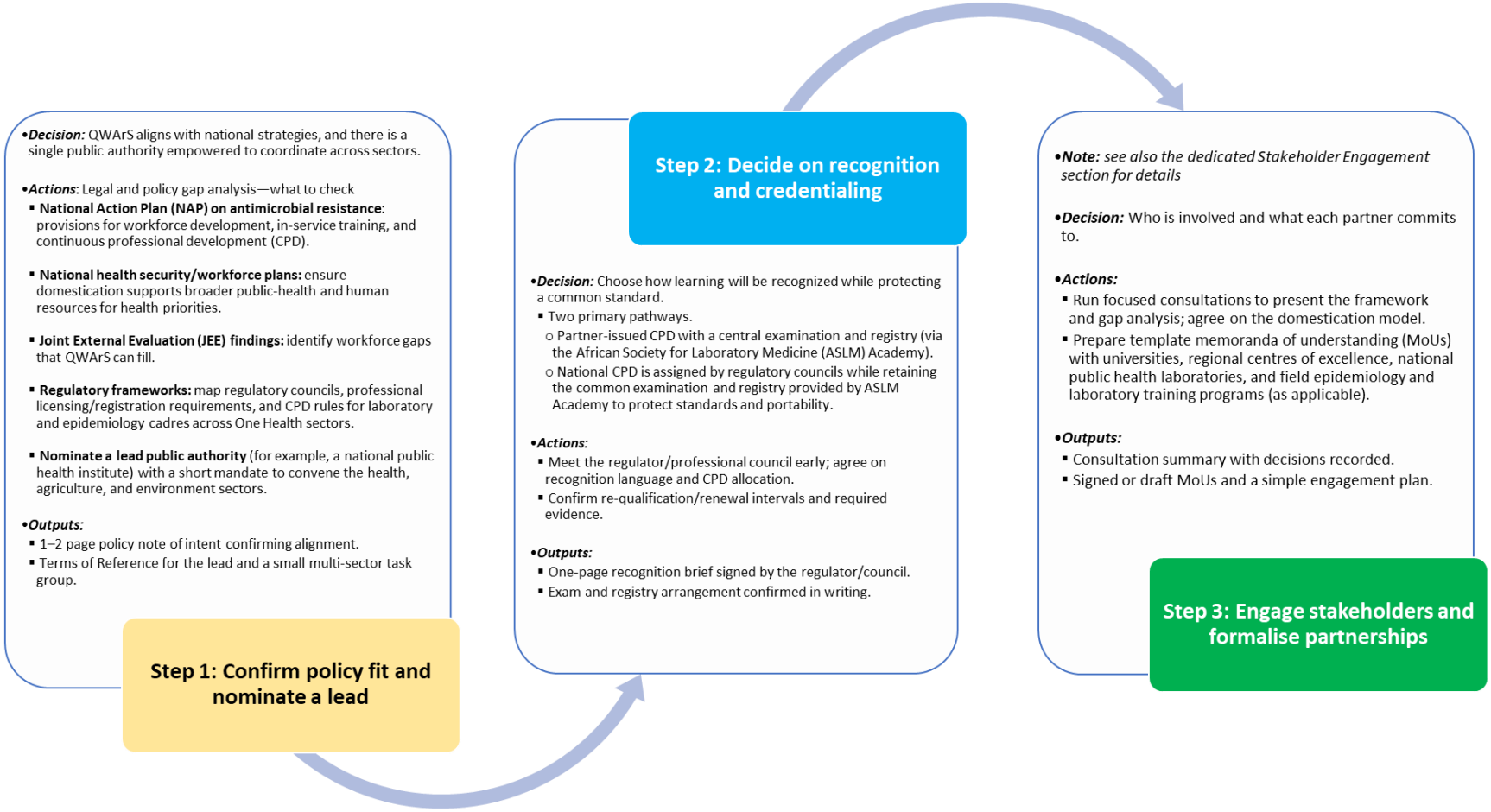
Figure 1: Key Results for the Fleming Fund QWArS Phase 1 and 2

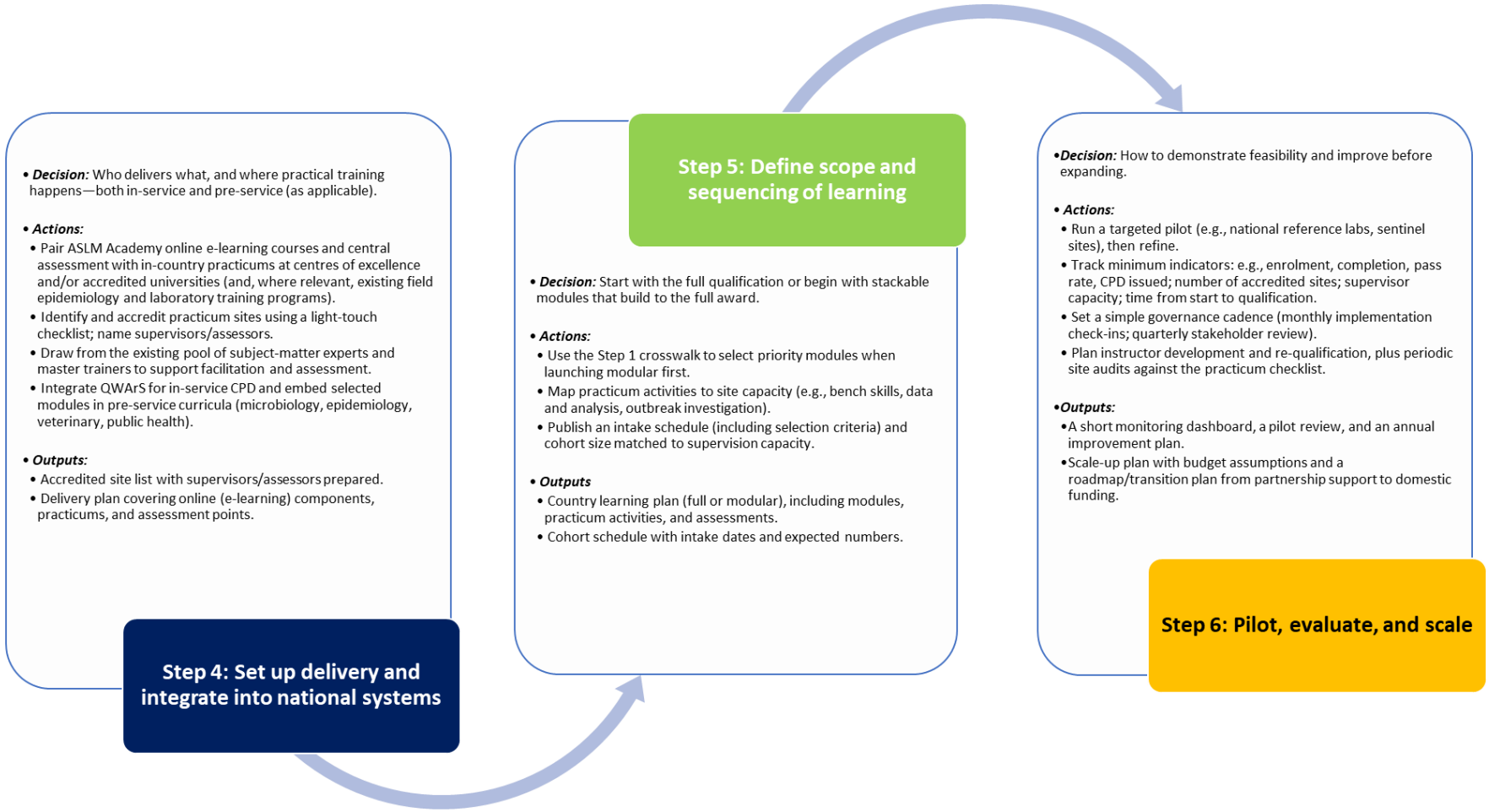
With these results and implications for domestication in view, the next section sets out how to secure national ownership through stakeholder engagement and buy-in.

3. Recommended Approach to Domestication Framework

This section sets out how to adopt and adapt the Qualifying the Workforce for Antimicrobial Resistance Surveillance (QWArS) curriculum through national systems. It builds on the previous section and provides a sequence of decisions and actions that countries can follow and tailor.

The approach involves six steps—each with a key decision, practical actions, and the outputs you should produce. Use this as your country roadmap.





Using the framework

Treat these steps as an ordered checklist; adapt the depth to your context. Where relevant, you can draw on Nigeria's experience as a worked example of mapping the QWArS curriculum to existing national pathways; the full case study appears later in this guide.

4. Building Country Ownership: Stakeholder Engagement and Buy-in

The successful domestication of the Qualifying the Workforce for Antimicrobial Resistance Surveillance (QWArS) professional qualification depends on clear national ownership, early agreement on key decisions, and practical partnerships that can deliver.

This section sets out who to engage, what to agree on, and how to build and maintain buy-in so the program is coordinated, recognized, and sustainable.

4.1 Who to engage

Engage organizations that plan, regulate, deliver, or support antimicrobial resistance workforce training and surveillance:

- **Government leadership and the national public health authority** — sponsor the effort, align policy, and convene sectors across One Health (human, animal, and environmental health working together).
- **Antimicrobial resistance coordination mechanism and regulatory/professional bodies** — recognize the qualification, assign continuous professional development (CPD) credit, and confirm re-licensing implications.
- **Higher education and training providers** — universities and centres of excellence to host practicums and assessment.
- **Field epidemiology and laboratory training programs** — integrate QWArS within existing learning pathways.
- **Implementation partners and funders** — provide technical assistance and short-term support where needed.

Output: a concise stakeholder map with roles and a decision matrix.

4.2 What to agree

- **Lead entity and mandate** — nominate a public authority to coordinate across sectors and own the roadmap (link to Framework Step 1).
- **Recognition decision** — partner-issued CPD with a central examination and registry (via the African Society for Laboratory Medicine (ASLM) Academy), or national CPD while keeping a common examination and registry (Framework Step 2).
- **Delivery partnership model** — online learning and assessment through ASLM Academy; in-country practicums through accredited universities and centres of excellence; assessor and site accreditation (Framework Step 4).
- **Scope and sequencing** — full qualification now or stackable modules that build to the full award (Framework Step 5).
- **Governance and review** — timelines for implementation check-ins and periodic oversight.

Outputs:

- Policy note of intent (1–2 pages).
- One-page recognition brief agreed with the regulator/professional council.
- Template memoranda of understanding (MoUs) for delivery partners and practicum sites.

4.3 How to build and maintain buy-in

- **Map interests and value early:** Show each stakeholder what they gain (e.g., recognized CPD for professionals, accredited practicum sites for universities, standardized competence evidence for regulators).
- **Co-design the essentials:** Short working sessions to confirm modules, practicum sites, assessor roles, and examination/registry steps.
- **Secure quick formalities:** Issue the policy note and recognition brief; use standard MoUs to save negotiation time.
- **Start focused, then expand:** Pilot one or two sites and share simple indicators (enrolment, completion, pass rate, CPD issued) before scaling.
- **Keep a single source of truth:** Maintain a simple public/online dashboard or progress note that tracks decisions, milestones, and results.

Outputs:

- Engagement plan (who, when, for what decisions).
- Pilot plan and metrics aligned to the framework's indicators.
- Progress dashboard updated regularly.

Nigeria engaged regulators from the outset, mapped the QWArS curriculum to the field epidemiology and laboratory training (FELTP) pathway, and used accredited university sites for practicums—moves that created early clarity on roles and recognition - See the NiQWArS case study in the next section for details.

With ownership and agreements in place, countries can proceed to Credential Pathways (Recognition) to finalize how the qualification will be recognized and credited.

3. Case Study of Domestication: NiQWArS

Nigeria provides an example of how a country can take the Qualifying the Workforce for Antimicrobial Resistance Surveillance (QWArS) professional qualification and embed it inside national systems—tailoring delivery to local needs across One Health.

Current status (summary)

- **Completed:** country scoping/engagement; multi-sector consultations; draft country-specific domestication framework.
- **In progress:** formal recognition decision; site accreditation; delivery partnerships; pilot design.
- **Not yet started:** pilot delivery and scale-up.

1. Governance and country ownership (achieved)

- **Lead entity and convening:** The Nigeria Centre for Disease Control and Prevention (NCDC) convened national antimicrobial resistance stakeholders, regulators/professional bodies, and sector ministries to shape domestication.
- **Country visit and framework:** A joint country visit with technical support from the African Society for Laboratory Medicine (ASLM) produced a draft, country-specific domestication framework that sets out roles, proposed recognition options, and a preliminary sequence of activities.
- **Outputs:** Consultation notes; stakeholder map; draft domestication framework (not yet piloted). Short policy note and template memoranda of understanding (MoUs) are prepared but pending final sign-off.

2. Alignment with national strategies (achieved)

(*see also Fig. 2, 3 and 4*)

- **National Action Plan on antimicrobial resistance:** The draft framework aligns with workforce and training provisions.
- **Health security and workforce plans**: The domestication approach is designed to support public-health readiness and progression.
- **Regulatory fit (mapping):** Councils and licensing/registration requirements were mapped to ensure the future qualification can be recognized for continuous professional development (CPD) once the recognition route is confirmed.

3. Stakeholder engagement and options agreed in principle (achieved)

- **Recognition options shortlisted (pending formal approval).**
    - Partner-issued CPD with a central examination and registry (all via ASLM Academy), or
    - National CPD while retaining the common examination and registry via ASLM Academy for portability.
- **Delivery concept discussed**: Online e-learning and assessment via ASLM Academy paired with in-country practicums hosted by accredited universities and centres of excellence; practicum supervision to draw from a pool of subject-matter experts and master trainers.

- **Outputs:** Agreed-in-principle options; list of candidate practicum sites; outline of assessor/supervisor roles. Formal recognition brief, site accreditation, and MoUs to follow approvals.

4. Embedding the QWArS core within Nigeria's FELTP (proposed)

- **Tier mapping (proposal):** The regionally benchmarked QWArS Professional Qualification Training Package would form the common core aligned to Nigeria's Field Epidemiology and Laboratory Training Program (FELTP) tiers—frontline, intermediate, and advanced.
- **National extensions (proposal):**
  - ***Frontline:*** foundational "bridge" content where needed (introduction to AMR surveillance)
  - ***Intermediate:*** practice-intensive and analytic modules (e.g., WHONET and data analysis modules, equipment maintenance, and AST Lab methods).
  - ***Advanced:*** specializations (e.g., surveillance system design, advanced molecular microbiology methods, and spatio-temporal analysis of AMR).
- **Intended result:** A country approved and recognised pathway from frontline to advanced roles that preserves standards and allows national customisation.

5. Sequencing and scale-up (planned)

- **Pilot design:** Initial cohorts would prioritise reference laboratories, sentinel sites, and ministry epidemiology units responsible for the national data analysis.
- **Evaluation and expansion:** Pilot results would inform site accreditation, assessor preparation, and cohort sizing prior to broader rollout.
- **Financing:** Partnerships first (national public-health labs, FELTP, CoEs, universities,), followed by a phased pathway to domestic funding once the model is proven.

6. Immediate next steps for Nigeria (practical, time-bound)

- Formalise the recognition pathway (sign the one-page recognition brief; confirm examination and registry arrangements).
- Accredit two pilot practicum sites using a light checklist; name supervisors/assessors.
- Sign MoUs with delivery partners (centres of excellence; public-health placements, universities).
- Approve the pilot plan and metrics (enrolment, completion, pass rate, CPD issued, time to qualification).
- Schedule the first intake once the three items above are in place.

Transferable practices (what others can copy)

- Name a single public owner to convene sectors and approve the roadmap.
- Lock recognition early to avoid downstream delays.
- Use a light site-accreditation checklist and publish a supervisor/assessor roster.
- Map QWArS to existing national training ladders (e.g., FELTP) so it becomes a recognised integrated curriculum, not an add-on.

The NiQWArS case study demonstrates that with strong national leadership, alignment with policy, and collaboration, the QWArS framework can be effectively domesticated to build a sustainable AMR surveillance workforce that meets the critical mass targets.

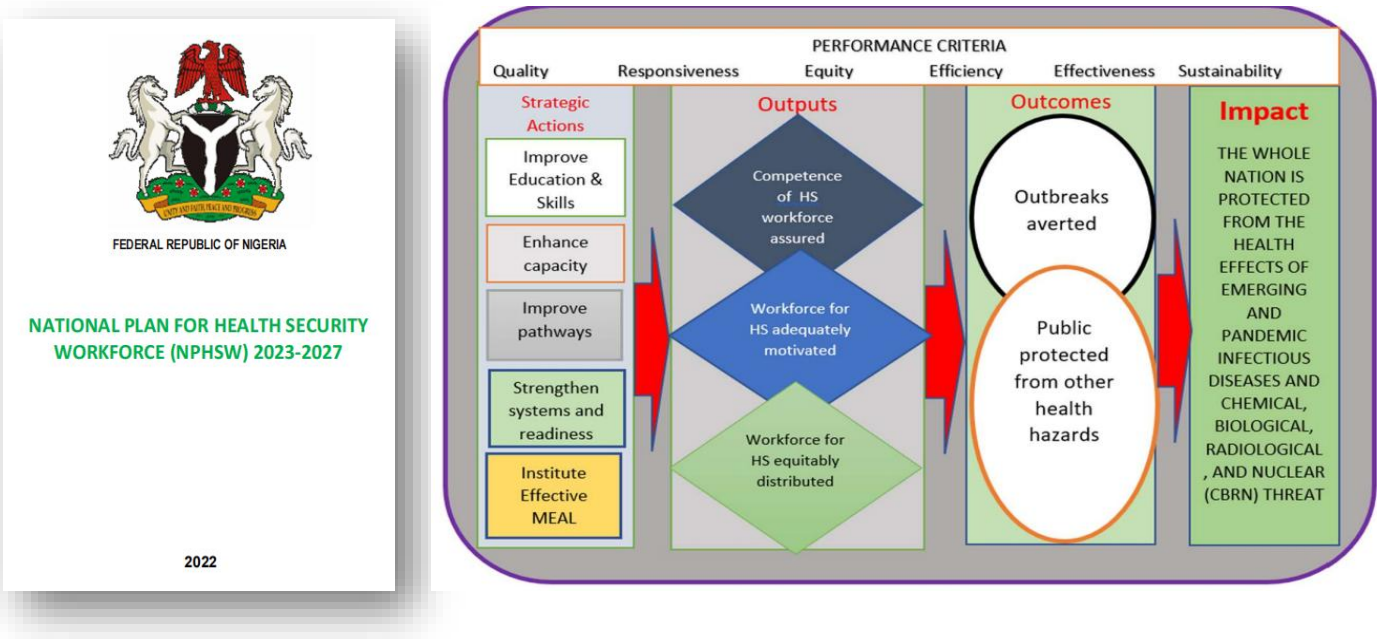


Figure 2: National Public Health Workforce Strategic Plan 2022-2026

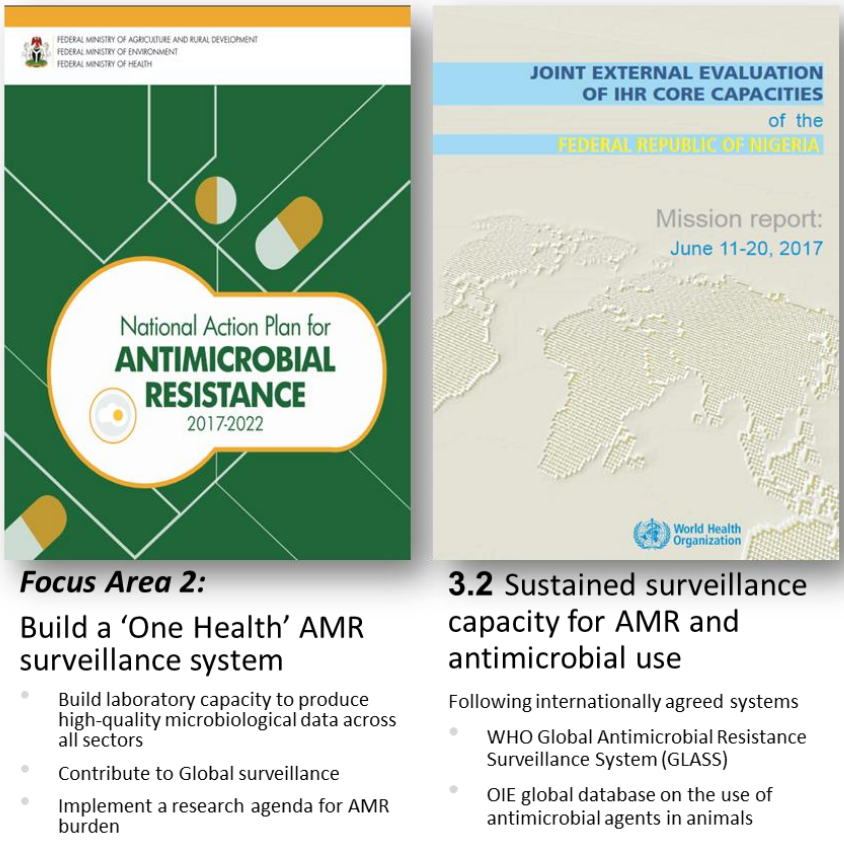
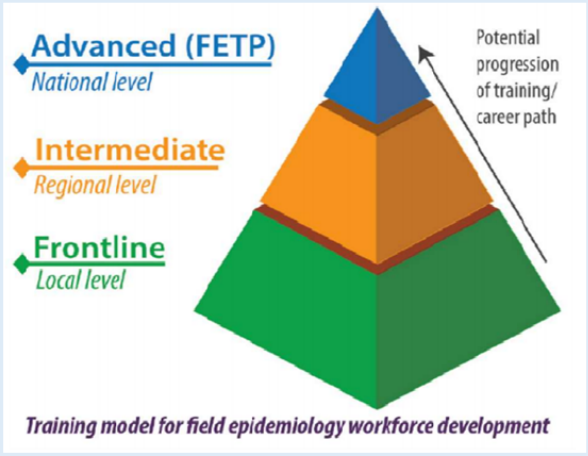
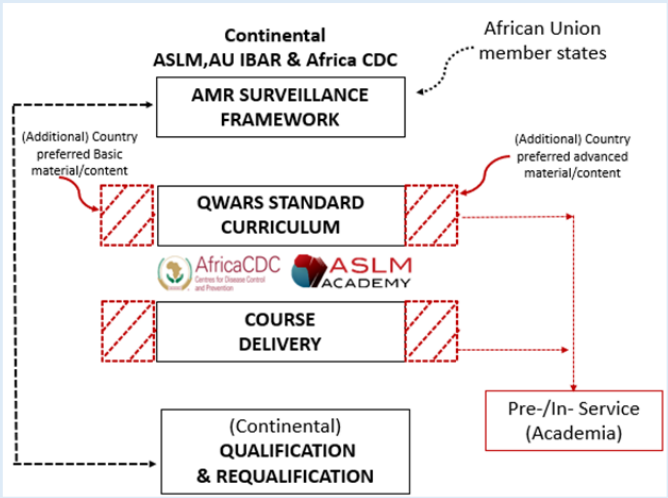


Figure 3: Link between National AMR Action Plan and National Public Health Workforce Strategic Plan





Summary Overview and Integration Framework (NiQWArS)

Domestication choice (agreed in principle). Nigeria's stakeholders elected to embed the QWArS qualification within the existing Field Epidemiology and Laboratory Training Programme (FELTP), creating NiQWArS—a nationally owned pathway that aligns the regional QWArS core with Nigeria's tiered training model. This approach places antimicrobial resistance (AMR) surveillance skills inside the national workforce pipeline, not as a stand-alone project.

How the framework fits (at a glance)

- ***Standard core and national extensions:*** The regionally benchmarked QWArS core (common curriculum, examination, registry) is retained; Nigeria-specific basic or advanced content can be added where needed.
- ***Recognition and quality:*** The common examination and registry (via ASLM Academy) protects standards and portability; CPD crediting will follow the national recognition route once approved.
- ***Delivery roles:*** ASLM Academy provides online learning and central assessment; centres of excellence and NPHI/FELTP placements provide practicums and supervision across One Health.

Indicative tier mapping within FELTP (proposed)

- ***Frontline (ITSON):*** foundational/bridge competencies for AMR surveillance; supervised practice in basic microbiology data capture and reporting.
- ***Intermediate (I-NFELTP):*** practice-intensive modules (data analysis and use, outbreak investigation, quality systems), with bench or field practicums.
- ***Advanced (A-NFELTP):*** specializations (e.g., genomic epidemiology, surveillance system design, leadership/mentorship), with advanced assessment and project work.

Pre-/in-service integration: Where universities are ready, selected QWArS modules can be embedded in pre-service or in-service programs, strengthening national ownership and long-term sustainability.

Continental alignment: The qualification process remains aligned to the Contnental Africa CDC and AU-IBAR continental AMR surveillance framework, with member-state input guiding updates.

Figure 4: Intergration of QWArS into the Field Epidemiology and Laboratory Training Program (FELTP) in Nigeria to form NiQWArS

5. Credential Pathways

The QWArS program focusES on providing a formal, credible qualification, moving beyond simple certificates of completion. Understanding the distinction between training and certification is critical for establishing a respected and professionalized workforce.

Two viable options

Option A — Partner-issued professional development with a common examination and registry

- ***When it fits***: early adoption; where national continuous professional development (CPD) mechanisms are new or uneven.
- ***How it works:*** the African Society for Laboratory Medicine (ASLM) Academy hosts the online learning, examination, and professional registry; partner-issued CPD credits are awarded (for example, through a recognised academic partner).
- ***Why choose it:*** fast to start; protects quality and portability from day one.
- ***What to watch:*** plan an eventual transition to national CPD once processes are stable.

Option B — National professional development with a common examination and registry

- ***When it fits:*** mature national CPD systems and engaged councils.
- ***How it works:*** national regulators assign CPD points; the examination and registry remain common to protect standards and cross-border comparability.
- ***Why choose it:*** embeds recognition within national systems and re-licensing rules.
- ***What to watch:*** keep the examination and registry common to avoid drift in standards.

Quality, re-qualification, and portability (applies to both options)

- ***Common assessment:*** candidates sit the same examination; practical assessments follow one rubric.
- ***Registry:*** qualifications are recorded in a single registry (managed through ASLM Academy) to support verification and portability.
- ***Re-qualification:*** set a renewal interval (for example, every 3 years) tied to evidence of practice and/or micro-credentials.
- ***Appeals and integrity:*** publish a short procedure for examination integrity, assessor conflicts, and appeals process.

6. Implementation Metrics, Risks, and Strategic Actions

Purpose. Keep implementation practical, visible, and improvable—without adding heavy reporting burdens.

Minimum indicators (track these from the start)

- ***Access and partnerships:*** number of signed memoranda of understanding (MoUs); number of accredited practicum sites; number of named supervisors/assessors; time to first cohort.
- ***Learning and qualification:*** enrolment; completion; pass rate; CPD issued; time from start to award; number recorded in the ASLM professional registry.
- ***Integration and quality:*** percentage of practicum sites meeting accreditation standard; use of QWArS-aligned standard operating procedures in sentinel laboratories; number of programmes embedding modules (for example, in field epidemiology and laboratory training).
- ***Equity and reach***: geographic spread of sites; balance across human, animal, and environmental health - including gender balance
- ***Sustainability***: share of costs covered by domestic funds; continuity of instructor pool (active subject-matter experts/master trainers).

How to run it

- ***Monthly implementation check-in*** (implementation leads): resolve operational blockers; update the dashboard.
- ***Quarterly oversight review*** (lead authority, regulator and partners): confirm recognition status, site pipeline, cohort plan, quality findings.
- ***Annual improvement plan***: lessons learned; updates to site accreditation, assessment, and instructor development.

Common risks and practical mitigations

- ***Fragmented ownership***: name a single public lead; publish a 1–2 page policy note of intent.
- ***Recognition delays***: agree on the recognition pathway early; keep the common examination and registry in place; start with partner-issued CPD if needed.
- ***Practicum capacity gaps***: accredit more than one site; stagger cohorts; pool supervisors across institutions.
- ***Instructor bottlenecks***: develop a roster; schedule instructor refreshers; pair new assessors with experienced ones.
- ***Funding uncertainty***: start with partnerships; set a phased pathway to domestic funding tied to the first two cohorts.
- ***Quality drift***: annual audit of training sites; re-qualification of assessors; review of examination integrity.

7. Sustainability Mechanisms

Principle. Start with partnerships to launch quickly, then move on a phased pathway to domestic ownership and funding.

1. **Partnerships first (to launch and learn)**
   - ***Who:*** centres of excellence, national public health laboratories, field epidemiology and laboratory training programs, reference laboratories and, where applicable, universities.
   - ***What:*** practicum delivery, assessor capacity, and shared supervision.
   - ***How to formalize***: short MoUs; light site-accreditation checklist; shared calendar for cohorts and examinations.

2. **Domestic financing (to sustain and scale)**
   - ***Budget lines***: place QWArS under human resources for health, training, or public health laboratories; include CPD-related costs.
   - ***Co-financing:*** provinces/states (as applicable) contribute to travel, supervision, and venue costs; national funds cover examinations and registry.
   - ***Procurement basics:*** plan for laboratory consumables for practicums; include assessor time and facility use.

3. **Capability loops (to protect standards over time)**
   - ***Instructor pipeline:*** maintain an active list of subject-matter experts (SMEs) and master trainers; schedule their refreshers and re-qualification.
   - ***Site quality:*** annual site audit; rotate placements to balance workloads; capture learner feedback.
   - ***Assessment integrity:*** periodic review of the examination process; resolve appeals quickly; track re-take rates.

4. **Data and accountability (to keep confidence high)**
   - ***Public dashboard***: publish a simple snapshot—cohorts, completion, pass rate, recognition status, accredited sites.
   - ***Story of value:*** capture short case examples of changed practice (for example, improved antimicrobial susceptibility testing data use).
   - ***Policy feedback:*** use results to inform national workforce and training plans.

8. Call to Action

For government leaders and national public health authorities

- Issue a policy note of intent to domesticate the QWArS qualification.
- Nominate the lead entity and convene partners across human, animal, and environmental health.
- Decide the recognition pathway (partner-issued professional development or national professional development), keeping the common examination and registry.
- Approve site accreditation for initial practicum locations and name supervisors/assessors.

For regulators and professional councils

- Sign the one-page recognition brief and confirm how professional development credits apply to re-licensing.
- Agree on the re-qualification interval and evidence requirements.

For training providers (NPHIs/NRLs/Centres of Excellence/Universities)

- Sign MoUs for practicum delivery; complete the site-accreditation checklist; nominate assessors.
- Plan for integration of selected modules into pre-service curricula where appropriate.

For implementation partners

- Provide short-term technical support for site accreditation, assessor preparation, and the first examination cycle.
- Support the dashboard and an annual improvement review.

References & Acknowledgements

This guidance document was developed based on the work and resources of the Qualifying the Workforce for AMR Surveillance (QWArS) consortium. The QWArS program was supported by **The Fleming Fund** and **UK Aid**.

Key implementing and collaborating partners include:

- Mott MacDonald (funding management agent)
- African Society for Laboratory Medicine (ASLM)
- Africa Centres for Disease Control and Prevention (Africa CDC)
- Institut de Recherche en Santé, de Surveillance Epidémiologique et de Formation (IRESSEF)
- Foundation Mérieux (FM)
- International Centre for Diarrhoeal Disease Research, Bangladesh (icddr-b)
- Ministries of Health, Agriculture, and Environment in participating countries
- National Antimicrobial Resistance Containment Committees (AMRCCs)
- National Regulatory Authorities and Professional Councils for Medical and Veterinary Professions

Contacts

For more information on this domestication guideline, please do reach out via info@aslm.org or communication@aslm.org

Annex

Table 1: Fleming Fund Qualifying the Workforce for AMR Surveillance (QWArS) in Africa and Asia Training Modules

Module	**ASLM AMR Microbiology Skilled** - *able to perform the field and laboratory tasks required to identify and track AMR*	**ASLM AMR Epidemiology Skilled-** *able to perform the field and laboratory tasks required to identify and track AMR*
1	**Introduction to AMR (core module)**	
2	**AMR data management (core module)**	
3	Bacteriology testing	Basic data management and analysis
4	Equipment maintenance	Sampling and surveillance
5	Quality management	Communication skills
	ASLM AMR Microbiology Expert - *able to design and manage systems for AMR surveillance*	**ASLM AMR Epidemiology Expert** - *able to design and manage systems for AMR surveillance*
6	Advanced techniques	Spatio-temporal analysis of AMR
7	Supervision skills	
	Master Trainer (Micro) or Epi - *able to create and deliver educational programs for AMR professionals*	

Table 2: Landscape Analysis summary findings tables

Indicator	Finding	Count (of 14)	Percentage
Public AMR National Action Plan (with training provisions)	Yes	12	86%
Regulatory body — **Laboratory professionals (human health)**	Present	12	86%
Regulatory body — **Laboratory professionals (animal health/veterinary)**	Present	—	—
Regulatory body — **Epidemiology professionals (human health)**	Present	4	29%
Regulatory body — **Epidemiology professionals (animal health/veterinary)**	Present	—	—
Regulatory requirements (registration/licensing) — **both** lab & epi (human health)	Present	10	71%
Regulatory requirements — **lab only** (human health)	Present	2	14%
Regulatory requirements — **neither** (human health)	Present	2	14%
CPD required for annual re-licensing (where regulatory frameworks exist)	Yes	12	86%
Councils recognise **regional** accredited training	Yes	10	71%
Councils recognise **international** accredited training	Yes	8	57%