Market Access as the Missing Link: How Structured and Pooled Procurement Can Unlock Nigeria's Health Manufacturing Potential

ABSTRACT

Background: Nigeria is on the verge of meeting local manufacturing capacity for malaria commodities like ACTs, RDTs, LLINs, and APIs. Despite meeting significant portions of national demand in theory, manufacturers face restricted market access driven by fragmented procurement structures, donor dominance, and stringent WHO-PQ requirements. This study examines how procurement dynamics shape industrial outcomes and identifies reforms needed to unlock domestic manufacturing potential.

Methods: The study was based on qualitative synthesis, conducted using the complete set of seven technical briefs and readiness assessment report from the Enhancing Local Manufacturing and Supply Chain Management Project, an initiative of PVAC and NMEP, with the support of World Bank IMPACT project. Data were analysed across the following procurement domains: governance, market structure, quality pathways, financing mechanisms, and utilisation trends. Comparative insights were drawn from countries like India, Kenya, Ethiopia, and Bangladesh.

Results: Findings show that donor-funded procurement accounts for 70–90% of malaria commodity purchasing and overwhelmingly favours WHO-PQ imports, excluding local firms despite adequate capacity and improving regulatory readiness. Fragmented federal–state procurement, slow payment cycles, and lack of multi-year demand visibility suppress domestic investment. Input dependency and limited PQ-relevant laboratory infrastructure further constrain scale-up.

Conclusion: Market access is the primary bottleneck in Nigeria's health manufacturing ecosystem. Structured procurement reforms, tiered market access pathways, and strengthened regulatory/laboratory infrastructure are essential to transition from import dependence to domestic manufacturing resilience.

Keywords: Local manufacturing; Market access; Health procurement; WHO prequalification; Donor funding; Malaria commodities; Pooled procurement; Industrial policy; Supply chain resilience; Pharmaceutical regulation; Nigeria; Health systems strengthening.

1.0 INTRODUCTION

Malaria remains one of the most pressing global health challenges, with sub-Saharan Africa bearing the heaviest burden. The disease disproportionately affects vulnerable populations, including children under five, pregnant women, and the elderly, leading to significant morbidity and mortality (Nnamonu et al., 2020; World Health Organization, 2024a). Beyond its direct health impacts, malaria imposes substantial social and economic costs, including reduced household productivity, increased healthcare expenditures, and disruptions to education and workforce participation (Monroe et al., 2022).

Several structural and operational challenges undermine malaria control efforts, complicating the delivery of effective treatment and prevention strategies. The emergence of drug-resistant *Plasmodium* strains has heightened the risk of treatment failure, while weaknesses in healthcare

infrastructure, such as limited diagnostic capacity, inconsistent supply chains for antimalarial medicines, and insufficient trained personnel, contribute to delayed or inadequate care (Ippolito et al., 2021). Additionally, gaps in community awareness, adherence to preventive measures, and accessibility of healthcare services further exacerbate the disease burden.

Nigeria's attempt to address the challenges of malaria is worsened by the dependence on imported medical commodities. Although various investment in improving domestic manufacturing capacity have been made, there continue to be recorded challenges, particularly for Artemisinin-based Combination Therapies (ACTs), Active Pharmaceutical Ingredients (APIs), Long-Lasting Insecticidal Nets (LLINs), and Rapid Diagnostic Tests (RDTs) (Ekigwe, 2019). Addressing these production gaps is therefore essential for achieving a more resilient response to malaria and reducing the systemic vulnerabilities created by import dependence.

The procurement ecosystem for malaria commodities in Nigeria is fragmented across multiple actors, including the Federal Ministry of Health, states and local governments, parastatals, development partners, humanitarian agencies, and private-sector purchasers. Each operates with differing priorities, timelines, standards, and procurement rules. Donor-funded programmes such as those supported by the Global Fund, PMI/USAID, and UNICEF constitute more than 80% of national malaria commodity demand and overwhelmingly procure from WHO-Prequalified suppliers based outside Nigeria (Global Fund, 2022; PMI, 2023). Consequently, domestic manufacturers play a marginal role in procurement channels, thereby limiting their participation in national malaria commodity supply despite existing capacity to meet national demand (PVAC & NMEP, 2025b; PVAC & NMEP, 2025d).

This creates a paradox of manufacturers with access to infrastructure, machinery, and labour capacity to supply national needs, but without the predictable market access necessary to achieve economies of scale, secure affordable financing, retain skilled technical staff, or pursue WHO Prequalification (PVAC & NMEP, 2025g). Without stable and guaranteed offtake, domestic firms cannot justify the capital investments required to meet global procurement standards. This cycle of low demand leading to low investment, causing continued exclusion from donor markets has become one of the most significant bottlenecks inhibiting Nigeria's progress toward local manufacturing resilience.

Globally, several low- and middle-income countries have overcome similar constraints through structured procurement reforms, including pooled procurement, long-term framework contracts, tiered eligibility pathways, and predictable government offtake guarantees (Yadav et al., 2021; WHO, 2022). India's state-level pooled procurement mechanisms, Ethiopia's Pharmaceutical Supply Agency model, and Rwanda's performance-based framework contracting have all demonstrated that procurement reform can rapidly catalyse local manufacturing capacity and reduce dependence on imports (UNIDO, 2021; African Union, 2022). Nigeria's situation therefore aligns with global evidence: fragmented procurement undermines industrial growth, while coordinated demand can unlock domestic manufacturing potential.

The 2025 pooled procurement assessment demonstrates that a unified purchasing mechanism supported by clear local-content rules, transparent supplier eligibility criteria, and minimum offtake thresholds could significantly reduce commodity pricing, improve quality assurance, and stimulate greater investment by Nigerian manufacturers. Complementary findings across the ACT, LLIN, API, and RDT assessments further highlight that structured procurement, not just industrial support, is the missing link for unlocking Nigeria's domestic manufacturing ecosystem (PVAC & NMEP, 2025e; PVAC & NMEP, 2025f).

Given this context, this paper examines how procurement reform particularly structured and pooled procurement can advance Nigeria's transition from import dependence to domestic manufacturing resilience. It synthesises findings from seven technical briefs and a national consultant assessment to answer three critical questions: 1) What structural barriers in Nigeria's current procurement landscape limit domestic manufacturers' access to markets? 2) How can pooled and structured procurement mechanisms address these barriers? 3) What reforms are required to build a predictable, transparent, and investment-friendly procurement ecosystem that supports local manufacturing and aligns with global purchasing standards?

2. BACKGROUND AND CONCEPTUAL FRAMEWORK

Nigeria's health-commodity procurement landscape is shaped by a complex network of actors, regulatory quality-assurance systems, donor eligibility rules, and fragmented market channels. Understanding this ecosystem is essential to interpreting why domestic manufacturing capacity remains underutilised despite significant installed infrastructure and recent industrial policy reforms. This section synthesises the structural elements that govern access to malaria commodity markets in Nigeria, drawing from national policy documents, technical assessments, donor guidelines, and regional procurement literature.

2.1 Nigeria's Multi-Actor Procurement Architecture

Nigeria's malaria commodities are procured through four major pathways: federal procurement, state procurement, donor-financed procurement, and private sector channels. The federal level primarily the National Malaria Elimination Programme (NMEP) and the Central Medical Stores/CMU plays a coordinating role and occasionally conducts national-scale ACT or LLIN procurements (Federal Ministry of Health, 2024). State governments procure commodities independently using state budgets, resulting in variable procurement standards, inconsistent tendering processes, and fragmented demand (PVAC & NMEP, 2025b).

Donor partners remain the dominant purchasers. The Global Fund, U.S. President's Malaria Initiative (PMI), and UNICEF collectively account for more than 80% of Nigeria's malaria commodity demand, directly shaping market behaviour (Global Fund, 2024; PMI, 2023). Procurement through these channels adheres to strict global eligibility criteria, most notably the WHO Prequalification (PQ) requirement for ACTs, RDTs, and LLINs. As a result, procurement is largely externalised, with donors sourcing primarily from established global manufacturers in Asia or Europe (UNIDO, 2021). This framework creates a structural barrier for Nigerian manufacturers, who remain excluded from the largest and most financially stable segment of the market.

2.2 Quality Assurance Pathways: NAFDAC, ERPD, and WHO PQ

Eligibility for procurement depends on meeting a tiered system of regulatory and quality-assurance requirements. The first level is national registration by NAFDAC. While NAFDAC approval ensures products meet national safety and efficacy standards, it does not guarantee eligibility for donor-funded procurement, which requires globally recognized WHO PQ benchmarks (NAFDAC, 2022).

For diagnostics, an intermediate mechanism; the WHO Expert Review Panel for Diagnostics (ERPD) provides temporary eligibility for certain manufacturers for up to 24 months while they pursue PQ (WHO, 2022). However, for ACTs, LLINs, and APIs, no equivalent interim pathway exists. Consequently, even high-quality NAFDAC-certified products may remain excluded from donor tenders, limiting domestic firms' participation in large-volume procurement cycles.

Table 1: Procurement Eligibility and Quality-Assurance Pathways in Nigeria

Tier	Quality/Regulatory Gate	Eligibility	Who Qualifies? (Nigeria)	Implication for Market Access
Tier 1	NAFDAC Registration	Required for retail & national procurement	Most ACT, LLIN, and RDT manufacturers	Eligible for domestic public sector; not eligible for donor-funded tenders
Tier 2	ERPD (Diagnostics only)	Temporary donor eligibility (12–24 months)	A small number of RDT manufacturers	Allows limited donor procurement while pursuing PQ
Tier 3	WHO Prequalification (PQ)	Mandatory for Global Fund, UNICEF, PMI	Very few/no Nigerian malaria product manufacturers	Eligible for global tenders and large-scale pooled procurement

This tiered structure creates a steep "regulatory ladder" that domestic firms struggle to climb. WHO PQ demands extensive documentation, advanced GMP infrastructure, stringent QC testing, and substantial financial investment requirements that many local firms cannot meet without targeted support (Yadav et al., 2021).

2.3 The Problem of Fragmented Procurement and Market Distortions

Nigeria's procurement system is marked by fragmentation across federal, state, donor, and private channels. States procure independently and in small volumes, using differing specifications, varying QA requirements, and inconsistent tendering practices. This creates multiple micro-markets rather than one stable, predictable national market (PVAC & NMEP, 2025b). Manufacturers face erratic demand, low order quantities, and long payment delays—conditions that disincentivise investment in quality upgrades.

More critically, donor partners who purchase the majority of commodities procure almost exclusively from WHO-PQ certified manufacturers abroad. This structure produces a demand paradox: Nigerian manufacturing capacity exists and in some cases exceeds national need, but the largest buyers rarely procure domestically. The consequence is chronic underutilization of local capacity, typically at 20–40%, across ACTs, LLINs, and RDTs (HSCL, 2025).

2.4 Conceptual Logic for Structured or Pooled Procurement

Structured procurement mechanisms such as pooled procurement, framework contracts, and multi-year purchasing agreements have been shown globally to increase efficiency, improve product quality, and enhance supply security (WHO, 2022; UNIDO, 2021). In Nigeria, harmonising procurement through pooled mechanisms would consolidate fragmented demand and create predictable, multi-year volume commitments that manufacturers can use to secure financing, invest in automation, and pursue PQ certification.

Pooled procurement is particularly effective in settings where market fragmentation, inconsistent QA standards, and variable pricing undermine competitiveness (GAVI, 2023). By aggregating demand across states and federal entities, Nigeria can improve economies of scale, negotiate better prices, reduce unit costs, and incentivise domestic production. The pooled procurement feasibility assessment conducted under the PVAC initiative confirmed that

Nigeria has sufficient domestic demand to support structured procurement arrangements provided clear eligibility tiers and quality-assurance milestones are established (PVAC & NMEP, 2025f).

2.5 Conceptual Framework for the Study

The conceptual framework for this manuscript is based on the proposition that market access not technical capacity is the binding constraint to domestic manufacturing scale-up. Nigeria's local manufacturers possess the infrastructure, installed capacity, and technical know-how to meet national malaria commodity needs. However, without predictable, structured, and donor-aligned procurement arrangements, domestic utilisation remains low, investment risks remain high, and PQ readiness becomes financially unattainable.

The framework aligns four system components:

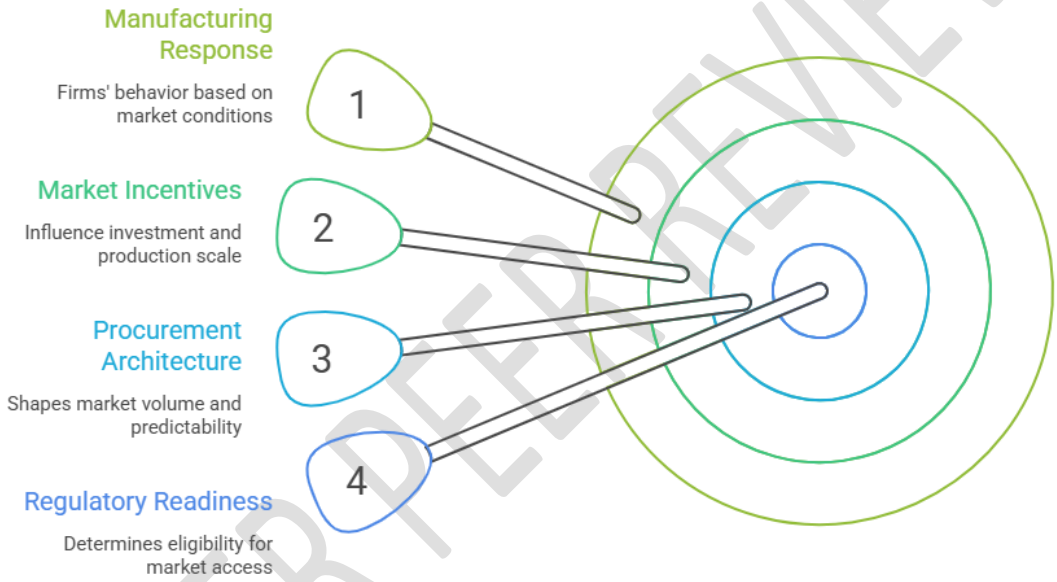

Figure 1: Systems Component for Market Access

Together, these elements illustrate that domestic manufacturing potential will remain unrealized unless procurement systems are reformed to provide stable, structured, and quality-linked market access.

3. METHODS

3.1 Study Area

The study focuses on Nigeria's malaria-commodity manufacturing and procurement ecosystem, covering the full national landscape across federal, state, and donor-funded supply chains. The analysis spans four primary commodity groups; ACTs, APIs, LLINs, and RDTs, and examines their regulatory pathways, procurement channels, installed manufacturing capacity, and market-access constraints. All documents reviewed were developed to support national decision-making under the Presidential Initiative for Unlocking the Healthcare Value Chain (PVAC) and the National Malaria Elimination Programme (NMEP).

3.2 Study Design

This study employed a mixed-methods, multi-source synthesis design that integrates quantitative capacity assessment data, qualitative findings from key informant contributions, and policy/market analysis from seven national technical briefs and one comprehensive readiness assessment report. The approach followed a descriptive, cross-sectional structure, aiming to characterise the current state of market access, procurement pathways, regulatory eligibility, and manufacturing capacity for malaria commodities in Nigeria.

The design is consistent with established methodological approaches for health-system and industrial policy assessments in low- and middle-income countries (Yadav et al., 2021; UNIDO, 2021). It combines documentary analysis, secondary data review, and evidence triangulation to ensure a robust understanding of procurement dynamics and their implications for domestic manufacturing.

3.2 Data Sources

Data for this study were extracted from eight official assessment documents generated under the *Enhancing Local Manufacturing and Supply Chain Management for Malaria Commodities in Nigeria (2024–2025)* initiative, jointly led by the Presidential Initiative for Unlocking the Healthcare Value Chain (PVAC), National Malaria Elimination Programme (NMEP), World Bank IMPACT Project, and implementing partners. The sources are detailed in the schema below. To ensure clarity to readers, the eight official assessment documents are listed using descriptive labels reflecting their content:

Technical Briefs:

- *Brief 1: Manufacturing Capacity Assessment*
- *Brief 2: Regulatory and Quality-Assurance Landscape*
- *Brief 3: Procurement Landscape and Market Fragmentation*
- *Brief 4: Financing Constraints and Investment Pathways*
- *Brief 5: ACT/API Localisation Roadmap*
- *Brief 6: Pooled and Structured Procurement Feasibility*
- *Brief 7: LLIN and RDT Localisation Pathways*

In addition, the Readiness Assessment report (2025); *National Assessment of Local Manufacturing Readiness for Malaria Commodities: Capacity, Regulatory Alignment, and Market Access Constraints* was included as an external evaluative document providing independent verification of issues highlighted in the briefs.

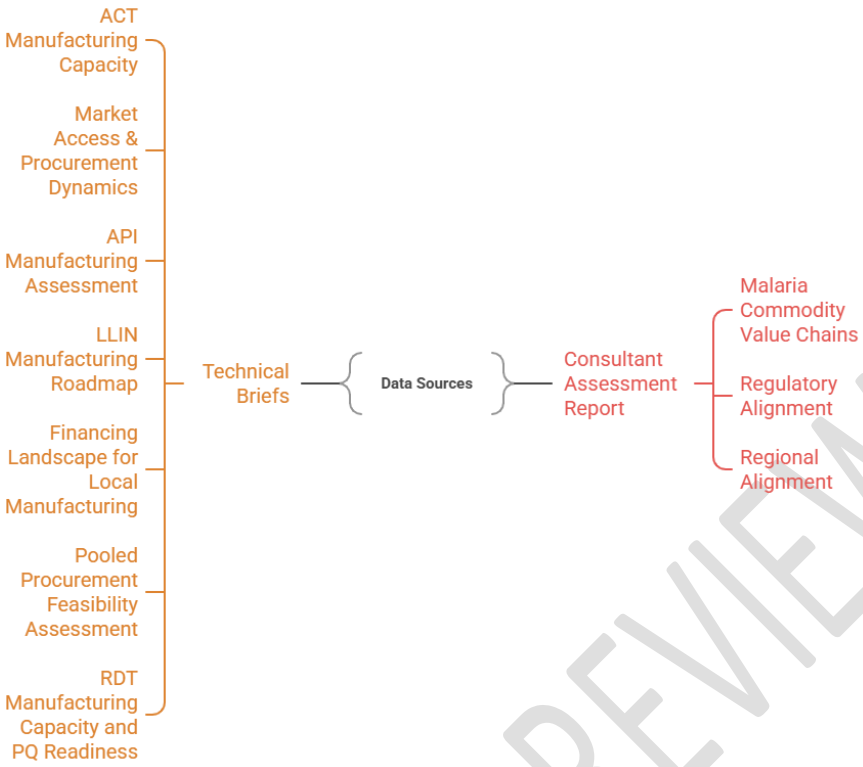

Figure 2: Data Source for Malaria Commodity Study

These documents provided: Installed manufacturing capacity estimates, quality assurance and regulatory status (NAFDAC, ISO 13485, WHO PQ progress), market access constraints and procurement volumes, financial and investment barriers, supply-chain and input dependency patterns, donor procurement rules and Nigerian eligibility, procurement fragmentation across federal, state, and partner levels, harmonisation opportunities and feasibility of pooled procurement. The data span the period 2023–2025 and represent the most current and complete cross-commodity evidence base available in Nigeria.

3.3 Data Extraction and Synthesis

Relevant data were extracted using a structured evidence capture template that enabled comparison across commodity groups and procurement levels. Quantitative data such as installed capacity, utilisation rates, number of manufacturers, certification attainment, procurement volumes, and investment requirements were tabulated and synthesised. Qualitative themes (e.g., procurement fragmentation, donor eligibility bottlenecks, PQ barriers, market unpredictability, investment risk profiles) were analysed using thematic synthesis, adapted from health policy analysis frameworks (Walt & Gilson, 1994). Themes were triangulated across briefs to ensure internal consistency and verify alignment with consultant findings.

3.4 Analytical Approach

The study adopted a four-pillar analytical framework aligned to the conceptual model:

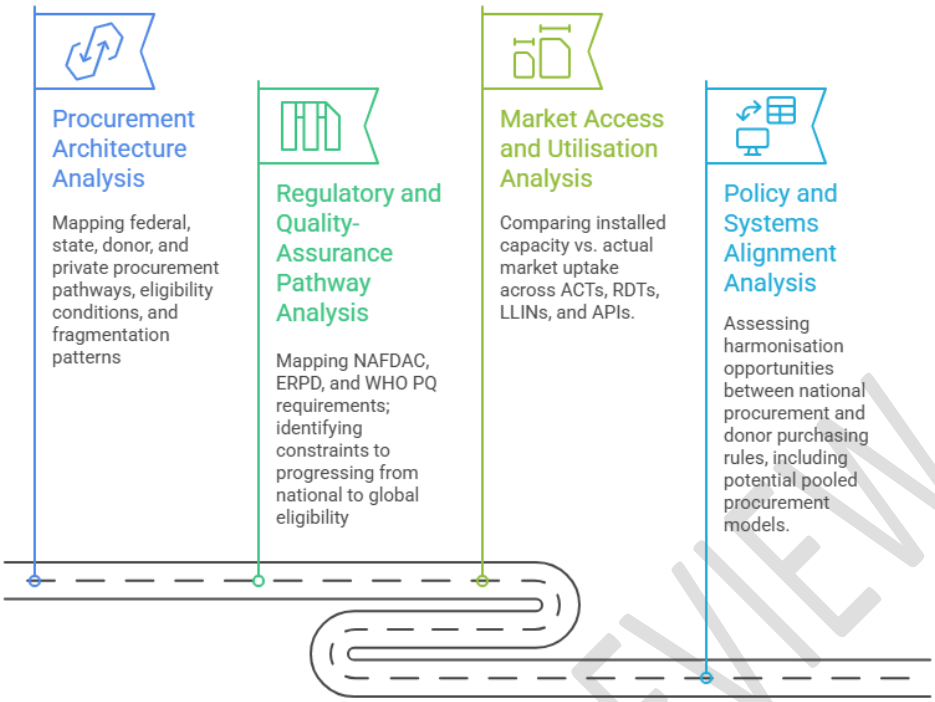

Figure 3: Analytical Framework for Procurement and Market Analysis

Analytical validity was strengthened through cross-document triangulation, consistency checks against global literature (e.g., WHO procurement guidelines, UNIDO industrial policy analyses), and assessment of congruence between manufacturing realities and procurement rules

4. RESULTS

4.1 Procurement Architecture in Nigeria

The findings from the ACT/API Localisation Roadmap, Pooled and Structured Procurement Feasibility Assessment Briefs, and the Readiness Assessment Report reveal that procurement of malaria commodities in Nigeria is characterised by a fragmented architecture comprising donor, federal, state, and private-sector channels (see Table 2). These channels differ widely in volume, eligibility requirements, procurement cycles, and predictability of demand. Donor-funded procurement mechanisms remain the dominant pathway, representing approximately 80–85% of total national malaria commodity purchases. All donor procurement streams; Global Fund, PMI/USAID, UNICEF, and WHO procurement require WHO PQ status, which no Nigerian manufacturer currently holds for ACTs, RDTs, or LLINs. As a result, donor procurement is entirely supplied by international manufacturers.

Federal government procurement, coordinated through the National Malaria Elimination Programme (NMEP) and the Federal Ministry of Health, operates on short annual tender cycles with irregular funding flows and inconsistent procurement volumes. These tenders do not include multi-year offtake commitments and often provide limited lead time, making planning difficult for domestic firms. State-level procurement follows similarly fragmented patterns, with individual states issuing independent tenders that vary widely in timing, specifications, and volume. Across states, procurement volumes were found to be low and unpredictable, representing a small fraction of total national demand.

Private-sector procurement, including retail pharmacies, hospital networks, and distributors is decentralised and highly variable. Demand fluctuates month-to-month, and procurement is driven primarily by price competition rather than long-term supplier relationships. The consultant report confirms that private-sector demand cannot absorb more than a minor proportion of domestic manufacturing capacity.

These findings indicate that the procurement environment is structurally disjointed, with no unified demand signal. This fragmentation limits the ability of Nigerian manufacturers to scale production or achieve stable utilisation rates.

4.2 Donor Dominance and PQ-Driven Market Exclusion

The findings from the ACT/API Localisation Roadmap, Pooled and Structured Procurement Feasibility Assessment Briefs, and the Readiness Assessment show that donor-funded procurement mechanisms constitute the dominant source of malaria commodities in Nigeria (see Table 3). Across ACTs, RDTs, and LLINs, donor agencies collectively supply between 80% and 85% of all commodities distributed through public health channels. All donor procurement streams reviewed including the Global Fund Pooled Procurement Mechanism (PPM), PMI/USAID procurement, UNICEF Supply Division, and WHO procurement require WHO Prequalification (PQ) as a mandatory eligibility condition. No Nigerian manufacturer currently holds PQ status for ACTs, LLINs, or RDTs, and therefore no domestic manufacturer participates in donor-funded procurement.

The briefs indicate that donor-funded procurement is sourced entirely from international manufacturers, primarily located in India (ACTs, APIs), China (RDT components, LLINs), and Vietnam/Cambodia (LLINs). Despite domestic capacity documented for ACTs, RDTs, and upstream LLIN components, donors procured 100% of LLINs, 100% of APIs, approximately 90% of donor-funded RDTs, and more than 80% of donor-funded ACTs from overseas suppliers during the assessment period.

The PQ requirement also affects domestic readiness. Moving from NAFDAC approval to PQ-compliant production requires substantial investment in facility upgrades, bioequivalence studies, stability data, and validation performed in internationally accredited laboratories. The briefs report estimated PQ upgrade costs ranging from USD 500,000 to USD 1 million per product line, with additional recurring PQ maintenance fees. Nigeria currently lacks accredited laboratories to perform PQ-aligned studies, resulting in dependence on foreign analytical facilities.

Collectively, these findings indicate that donor procurement remains entirely externalised and that PQ requirements function as a binding constraint preventing local manufacturers from accessing the primary national demand channel.

The data show that donor procurement fully determines commodity availability for the majority of malaria interventions in Nigeria and that the PQ eligibility requirement excludes all domestic manufacturers from this channel. All ACTs, LLINs, APIs, and the majority of RDTs used in donor-supported programmes were imported during the assessment period. No evidence was found of local manufacturers supplying donor-funded commodities, and no domestic facility has achieved PQ status. Although several Nigerian RDT manufacturers hold ISO 13485 certification and some have undergone pre-PQ audits, none have met full PQ requirements. Furthermore, the absence of PQ-capable laboratories in Nigeria necessitates the export of stability testing and method validation, contributing to high upgrade costs and extended

timelines. These findings confirm donor procurement as a structurally externalised system that operates independently of domestic manufacturing capacity.

4.3 Capacity–Utilisation Gaps Across Commodities

Findings from the assessment indicate a consistent pattern of under-utilisation across all malaria commodity manufacturing sectors reviewed (see Table 4). While installed capacity is substantial, actual production levels remain significantly lower than potential output.

For ACTs, Nigeria has 16 functional manufacturers with a combined installed capacity exceeding 60 million doses per month under a single shift. However, average reported utilisation is approximately 30–35%, driven largely by limited domestic procurement and the absence of access to donor-funded markets. Similar patterns are observed for RDTs. Although emerging RDT manufacturers collectively hold an estimated production capacity of 470 million tests per year (projected for 2026), utilisation remains below 40%, as most donor-funded procurement is sourced from international suppliers.

In the LLIN sector, domestic manufacturers possess upstream textile capabilities including extrusion, knitting, lamination, and finishing yet do not produce WHO-prequalified LLINs. As a result, capacity utilisation is effectively 0% for finished nets, although utilisation of upstream textile processes varies across firms. In the API sector, capacity for industrial-scale synthesis remains negligible, with utilisation close to 0% because no assessed manufacturer produces antimalarial APIs locally; all APIs continue to be imported from India and China.

Collectively, data indicate that capacity exists across several nodes of the malaria commodity value chain, but utilisation rates remain low due to limited procurement uptake.

Across all sectors, installed capacity is consistently higher than actual output. ACT manufacturers operate below 35% of capacity despite the ability to meet national demand. RDT manufacturers have capacity for large-scale production but remain underutilised due to barriers to donor procurement. LLIN and API production remain effectively non-operational for finished products. Evidence across all briefs points toward significant capacity–utilisation gaps driven by limited domestic uptake rather than insufficient manufacturing capability.

4.4 Financing and Working-Capital Constraints Resulting from Procurement Delays

Findings across the assessments indicate that inadequate access to affordable financing and prolonged procurement payment cycles constitute major bottlenecks for domestic manufacturers of ACTs, LLINs, RDTs, and APIs (see Table 5). Manufacturers consistently reported difficulty securing commercial credit due to high interest rates ranging between 25–32%, short repayment tenures, and stringent collateral requirements from Nigerian banks. These financing constraints limit investment in production expansion, quality upgrades, and WHO Prequalification (PQ) processes.

Data from the briefs show that manufacturers rely heavily on internally generated funds to purchase inputs, maintain inventory, and operate production lines. However, procurement delays particularly from government entities create significant working-capital shortages. Several manufacturers reported payment delays extending 6–12 months after commodity delivery, which constrain their ability to procure raw materials for subsequent production cycles.

Donor-funded procurement pathways do not provide advance payments or pre-financing to Nigerian firms, as no domestic manufacturer currently participates in their supply chains due

to PQ requirements. This contributes to a financing gap in which firms must pre-finance 100% of production inputs while experiencing long revenue cycles.

The assessments also highlight that investments required for PQ readiness including facility upgrades, validation studies, and external laboratory testing, typically range between USD 500,000 and USD 1.5 million per product, depending on commodity type. None of the assessed firms reported having access to concessional financing, donor support, or predictable procurement contracts that would justify such capital expenditure. As a result, investment in scale-up remains minimal.

The data show that manufacturers face persistent financing limitations compounded by lengthy procurement payment timelines. These financial constraints directly impede capacity utilisation, restrict investment in quality-assurance upgrades, and contribute to underperformance across all commodity value chains.

4.5 Supply Chain and Input Dependency Patterns

Findings across the commodity assessments indicate that Nigeria's manufacturing ecosystem for malaria commodities remains heavily dependent on imported raw materials, semi-finished components, and specialised chemicals required for production (see Table 6). While installed manufacturing capacity exists across ACTs, RDTs, LLINs, and selected API intermediates, all assessed manufacturers rely on international suppliers for critical inputs, exposing production cycles to foreign exchange volatility, customs delays, and global market fluctuations.

For ACTs, firms reported that 100% of APIs including artemether, lumefantrine, and excipients are sourced primarily from India and China. LLIN manufacturers rely entirely on imported insecticidal formulations and specialised polypropylene resins needed for yarn production. Similar patterns were observed in RDT manufacturing, where firms depend on external suppliers for nitrocellulose membranes, antibodies, enzymes, conjugate pads, and plastic cassettes.

The consultant report further noted that customs clearance delays for critical inputs often extend 4–10 weeks, disrupting production schedules and increasing landed cost of inputs. No manufacturer reported having secondary local suppliers for any specialised input category.

Additionally, most firms lack cold-chain storage capacity, requiring immediate use of temperature-sensitive diagnostic materials (e.g., antibodies and enzymes). This contributes to batch-level wastage and production inefficiencies.

These patterns indicate a structurally vulnerable supply chain in which production continuity relies on external markets and is highly sensitive to forex cycles and logistical disruptions.

Across all commodity groups, production remains dependent on globally sourced inputs with no significant local substitution capacity. Manufacturers reported that input delays and forex exposure are among the most frequent causes of production downtime. The lack of domestic suppliers for specialised materials especially APIs, membranes, antibodies, insecticides, and polypropylene places structural limitations on Nigeria's ability to fully localise production of malaria commodities. The evidence indicates that Nigeria's supply chains remain highly vulnerable to external shocks, with significant implications for cost, production timelines, and long-term sustainability.

5. DISCUSSION

The results of this study reveal that Nigeria's fragmented procurement architecture split across federal agencies, state Drug Management Agencies (DMAs), and donor-funded purchasing pathways creates a highly unpredictable market environment for local manufacturers. Similar patterns have been documented in other LMICs, where decentralised procurement systems undermine economies of scale and generate parallel tendering and quality-verification processes (World Bank, 2020). Comparative studies in East Africa likewise demonstrate that procurement fragmentation contributes to higher unit prices, unstable supplier relationships, and weaker incentives for long-term investment in local production (Makinde et al., 2022; UNCTAD, 2021).

Nigeria's situation, however, is worsened by donor dominance. With over 80% of malaria commodities financed externally, donor tender rules effectively determine market access. This dynamic reflects global findings: donor procurement in LMICs frequently results in market capture by established international suppliers with WHO-prequalified portfolios, leaving domestic manufacturers excluded despite demonstrable capacity (WHO, 2022). The Nigerian evidence aligns strongly with this pattern, particularly the exclusion of local ACT, LLIN, and RDT manufacturers from Global Fund and PMI tenders due to PQ requirements not yet met domestically. While Nigeria's procurement fragmentation is not unique to Nigeria, the combination of extensive donor influence and significant domestic underutilisation (25–35%) place the country at the sharper end of a continental challenge.

Our findings show that the dominance of donor procurement and the centrality of WHO Prequalification (PQ) operate as structural barriers for Nigerian manufacturers. This mirrors trends across sub-Saharan Africa, where the technical and financial burden of PQ ranging from USD 500,000 to 1 million per product, has been identified as the primary bottleneck preventing African firms from entering donor-funded markets (UNIDO, 2021; African Union Commission, 2012). Ethiopia, Tanzania, and Kenya have reported similar constraints, with only a handful of firms achieving PQ across the continent (Makinde et al., 2022).

Nigeria's case is emblematic of this continental bottleneck: despite possessing the largest pharmaceutical manufacturing footprint in West Africa, no Nigerian ACT or RDT manufacturer has obtained PQ status to date. This generates a paradox recognized in global health literature: domestic capacity expands, yet donor procurement patterns remain unchanged, reinforcing import dependence (PAHO, 2022; WHO, 2022). The underutilisation of domestic ACT production despite installed capacity exceeding national demand directly reflects the "capacity-without-market" syndrome described by UNCTAD (2021).

Comparatively, countries like India and Bangladesh benefitted from assured procurement commitments tied to PQ readiness, enabling domestic firms to scale production and eventually dominate global markets (Yadav et al., 2022). The absence of similar procurement guarantees in Nigeria explains the slow trajectory toward PQ, despite the country's capacity advantages.

The study's results showing fragmented procurement systems (federal, state, donor) resonate with broader African evidence. Research from Kenya and Uganda consistently demonstrates that multi-channel procurement reduces bulk-purchasing efficiency and weakens supplier confidence due to unpredictable order volumes (Makinde et al., 2022). In Nigeria's case, fragmentation also creates discrepancies in quality standards; NAFDAC at the national level, variable state-level enforcement, and donor-driven global standards resulting in uneven market signals.

The literature on pooled procurement strongly supports the advantages of consolidation. Examples include the PAHO Strategic Fund and the Gulf Cooperation Council (GCC) joint procurement mechanism, both of which demonstrate savings of 20–40% and improved supplier

reliability through harmonised product specifications (PAHO, 2022). The absence of a similar system in Nigeria contributes directly to higher transaction costs and lower manufacturer participation, confirming the study's findings that procurement fragmentation is a major source of inefficiency.

Our results show that even where domestic technical capacity exists (e.g., RDT manufacturers with ISO 13485 certification), fragmented procurement eliminates pathways to scale. This aligns with WHO's (2022) argument that structured procurement whether pooled, tiered, or framework-based is essential for building viable domestic markets.

The study found that Nigerian manufacturers face high financing costs (18–25% interest rates) and severe working-capital shortages, largely due to delayed government payments and unpredictable tender cycles. Literature from African industrial financing contexts confirms that long payment delays by governments significantly weaken local manufacturers' liquidity positions and discourage investment in technology upgrades (African Development Bank, 2020; UNCTAD, 2021).

Comparative research from Ethiopia and Rwanda demonstrates that predictable, multi-year procurement contracts can dramatically reduce financing costs by improving firms' creditworthiness and enabling them to negotiate better terms with banks (Makinde et al., 2022). Nigeria's lack of multi-year offtake agreements explains why even financially viable firms operate with fragile cash flows and underutilized capacity.

Furthermore, studies on PQ readiness emphasize that manufacturers need long-term, low-cost capital to meet international quality requirements. Without structured procurement guarantees, Nigerian firms must independently shoulder PQ investments, contributing to the slow pace of certification (WHO, 2022). Thus, Nigeria's experience reflects a broader African trend: financing constraints are not purely banking issues, but intertwined with procurement uncertainty and regulatory barriers.

Finally, our results show that Nigerian manufacturers across ACTs, LLINs, and RDTs depend almost entirely on imported inputs; APIs, uncut sheets, membranes, insecticides, and specialized polymers. This aligns with global evidence indicating that African pharmaceutical manufacturers import 70–90% of their raw materials (UNCTAD, 2021). Nigeria's dependency is further exacerbated by foreign exchange scarcity and customs delays, issues that have been reported across African LMICs, particularly during COVID-19 (UNIDO, 2021).

In contrast, India and China overcame similar vulnerabilities by vertically integrating upstream industries (chemical synthesis, textiles, reagents), supported by targeted industrial investment and tariff protections (Yadav et al., 2022). Nigeria's petrochemical capacity gives it a comparative advantage, but the absence of specialized polymer grades for LLIN yarn or antibody production for RDTs limits backward integration.

The findings also support AUDA-NEPAD's argument that regional industrial parks and shared manufacturing platforms are essential for reducing Africa's raw-material dependence (AUDA-NEPAD, 2022). Nigeria's proposed LLIN and API manufacturing parks align with this model, but their success will depend on coordinated procurement, financing, and regulatory reforms.

6. POLICY IMPLICATIONS

The findings of this study present clear and actionable implications for Nigeria's ongoing efforts to expand domestic manufacturing of essential malaria commodities (see Figure 4). While the country possesses substantial installed capacity, strengthened regulatory capabilities, and demonstrated readiness for upstream and downstream industrialisation, the current

procurement architecture, financing landscape, and supply-chain dependencies constrain the translation of this capacity into sustained industrial growth. Addressing these systemic constraints requires coordinated policy action across health, industry, finance, and regional trade domains.

6.1 Consolidating Procurement to Create a Predictable and Investable Market

A central implication is the need to transition from the current fragmented, multi-channel procurement system toward a more harmonised and predictable structure. Global experiences such as the PAHO Strategic Fund, GCC Joint Procurement Mechanism, and pooled commodity purchasing in East Africa show that consolidated procurement enhances price efficiency, reduces transaction costs, and strengthens supplier confidence. For Nigeria, the establishment of a national pooled procurement platform or a structured framework-contract model under the Presidential Initiative for Unlocking the Healthcare Value Chain (PVAC) could: Provide multi-year demand visibility, reduce duplication across federal and state tenders, improve creditworthiness of manufacturers, enable larger, more efficient production runs. Without such consolidation, manufacturers will continue to operate in an environment of uncertainty that discourages investment in PQ upgrades, equipment modernization, and expansion into regional markets.

An emerging policy instrument relevant to this transition is the proposed Medipool platform, a public–private pooled procurement mechanism being designed in collaboration with the Federal Ministry of Finance. Although not covered within the technical briefs that formed the data foundation for this study, Medipool is conceptually aligned with the procurement reforms outlined here. Its purpose, to centralise purchasing across federal and state entities, digitise demand forecasting, negotiate aggregated contracts, and provide more predictable supplier offtake, mirrors global models such as UNICEF's wambo.org and Africa's Axmed procurement portal. Integrating Medipool into Nigeria's health-commodity landscape would provide an institutional vehicle for multi-year framework contracting and harmonised technical specifications, both of which are critical for reducing procurement fragmentation and improving investment confidence among domestic manufacturers.

6.2 Deploying Tiered and Structured Market Access Pathways

The study highlights strong misalignment between national industrial policy aspirations and donor procurement requirements. To resolve this, Nigeria can institutionalize a tiered market access model that links NAFDAC certification, ISO/QMS compliance, ERPD pathways, and eventual WHO PQ readiness. This would allow domestic firms to gradually expand their market share while progressing toward full PQ approval. Such a tiered system should be supported by: Transparent eligibility criteria tied to measurable quality milestones, intermediate procurement windows for manufacturers at ISO 13485 or ERPD level, dedicated domestic tenders reserved for firms on PQ-transition pathways, defined timelines and technical assistance packages for progressing between tiers. This approach is consistent with policy frameworks adopted in Ethiopia and Kenya, where incremental procurement incentives were used to accelerate PQ attainment and strengthen local quality infrastructure.

6.3 Strengthening Regulatory Infrastructure and Testing Capacity

The persistent absence of domestic PQ-accredited laboratories and limited availability of GLP and GMP testing infrastructure present significant bottlenecks for manufacturers attempting to enter international procurement markets. Nigeria's attainment of WHO Maturity Level 3 for NAFDAC creates a strong foundation for addressing these constraints, but coordinated investment is needed to expand: PQ-relevant laboratory infrastructure (analytical chemistry,

bioequivalence centres, vector control testing facilities), National Reference Laboratories aligned with WHO guidelines, and shared testing platforms for SMEs unable to independently finance PQ validation. Such investments have proven transformative in India, Bangladesh, and Brazil, where national regulatory strengthening preceded rapid expansion of domestic and export-oriented manufacturing.

6.4 Aligning Industrial Financing Mechanisms with Manufacturing Needs

The study highlights acute financing constraints driven by credit market conditions, high interest rates, and slow government payment cycles. To correct this, Nigeria can deploy a blended-finance strategy that integrates: Low-interest manufacturing loans supported by development banks, credit guarantees linked to framework contracts, tax incentives for backward integration (polymer resins, insecticide formulation, diagnostic reagents), and dedicated PQ transition funds, as implemented in South Africa's health-industrialization model. In addition, embedding procurement guarantees in financing agreements such as multi-year supply contracts conditioned on quality upgrades—would de-risk private sector investment and accelerate PQ readiness.

6.5 Reducing Raw-Material and Input Dependency Through Regional Value-Chain Development

Input dependency remains a structural vulnerability. Nigeria's petrochemical base and emerging biotechnology capabilities provide opportunities for targeted backward integration. Policy measures to support this include: Incentivizing local production of APIs, diagnostic reagents, and LLIN polymer grades, establishing regional manufacturing parks under ECOWAS and AfCFTA frameworks, implementing tariff differentiation that favors local producers of intermediate goods, and investing in shared upstream industrial platforms (e.g., insecticide synthesis, antibody production).

Regional industrial collaboration is essential, as no single African country can viably produce the entire spectrum of inputs required for pharmaceutical and diagnostic manufacturing. Nigeria is well positioned to anchor West Africa's regional value chain, but this requires deliberate policy alignment under ECOWAS Medicines Regulatory Harmonization and AfCFTA protocols.

6.6 Embedding Market-Shaping Reforms in National Health and Industrial Policy

A key implication of the findings is that procurement reform must be recognized not only as a health-systems issue but as an industrial policy priority. Integrating market-shaping strategies into national frameworks such as the National Malaria Strategic Plan, NIRP, and the Pharmaceutical Manufacturing Transformation Agenda would institutionalize domestic manufacturing as a core mechanism for achieving health security. Priority actions include: Mandating domestic procurement thresholds for selected commodities, embedding PQ transition indicators within donor agreements, establishing domestic price-stabilization mechanisms for strategic health products, ensuring inter-ministerial coordination between Health, Industry, Finance, and Trade. Without explicit policy anchors, the current misalignment between sectoral objectives will persist.

6.7 Implications for Regional Positioning and Export Readiness

Finally, Nigeria's substantial installed capacity particularly for ACTs, RDTs, and LLINs positions it as a potential regional manufacturing hub once PQ is achieved. Alignment with continental frameworks such as the African Union's Pharmaceutical Manufacturing Plan for Africa and the AfCFTA industrial pillar is essential. Achieving PQ status and ensuring stable

domestic offtake would allow Nigeria to: Compete for ECOWAS-wide procurement tenders, expand into donor markets in anglophone and francophone Africa, attract foreign direct investment into upstream supply-chain components. This positions Nigeria not only as a beneficiary of regional market opportunities but as a driver of Africa's broader health-industrialization agenda.

7. LIMITATIONS

First, the analysis is based on secondary data drawn from national technical briefs and a readiness assessment report. While these documents represent the most comprehensive evidence base currently available, the study did not independently collect primary data, and thus findings rely on the accuracy, completeness, and methodological rigor of the underlying reports. Second, the evidence captures market dynamics within a specific time period (2023–2025); given the rapid policy, regulatory, and donor shifts in Nigeria's manufacturing ecosystem, some conditions may evolve beyond what is reflected in the documents. Third, because the analysis focuses on malaria commodities, the generalizability of findings to other health-product categories (e.g., vaccines, oncology products, maternal-health commodities) may be limited. Finally, while the study employed thematic synthesis and cross-document triangulation to strengthen analytical validity, these methods cannot fully eliminate interpretive bias inherent in qualitative policy analysis.

7. CONCLUSION

Nigeria has built meaningful capacity to produce essential malaria commodities, yet this potential remains significantly underutilised due to fragmented procurement, donor dominance, and unmet PQ requirements. The assessment has shown that these challenges can be overcome through coordinated procurement reform, strengthened regulatory infrastructure, and clearer market incentives for quality upgrading. While the efforts of PVAC and NAFDAC's regulatory improvements are well acknowledged, there is need to translate capacity into sustained market uptake through harmonised procurement, expanded regulatory-support systems, and strengthen backward integration for critical inputs. With sustained political commitment and coordinated multi-sectoral action, Nigeria is well positioned to become a regional leader in malaria-commodity manufacturing. Achieving this transition would enhance health security, reduce import dependence, and support broader industrial development goals.

Ethical Approval Statement: Ethical approval was not required for this study as it relied exclusively on secondary data from institutional capacity assessments, manufacturer audits, and policy documents, and did not involve human participants or the collection of personal or sensitive data.

Availability of Data and Materials: All data used in this study were obtained from national technical briefs and a consultant assessment conducted under the PVAC–NMEP–World Bank IMPACT Project. These materials are not publicly archived but may be made available upon reasonable request to the National Malaria Elimination Programme (NMEP) and the Presidential Initiative for Unlocking the Healthcare Value Chain (PVAC).

Contribution to Knowledge

This paper provides the integrated evidence showing that procurement fragmentation and donor-PQ restrictions, rather than manufacturing limitations, are key drivers of underutilisation in Nigeria's malaria commodity sector. It also

introduces a structured, tiered market-access model that links procurement reform to industrial growth and health security in low- and middle-income settings.

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Appendix

Table 2: Procurement Architecture in Nigeria: Volume Share, Requirements, and Characteristics

Procurement Channel	**Share of National Demand**	**Eligibility Requirements**	**Procurement Cycle**	**Predictability**	**Implications for Local Manufacturers**	**Source**
Donor-Funded Procurement (Global Fund, PMI, UNICEF)	80–85% of total malaria commodities	WHO PQ mandatory; international tenders	Multi-year global tenders; Nigeria enters via country allocation	High for donors, but inaccessible to local firms	0% participation; excludes all Nigerian ACT, RDT, LLIN manufacturers	Brief 5: ACT/API Localisation Roadmap Brief 6: Pooled and Structured Procurement Feasibility Readiness Assessment Report
Federal Government (NMEP, FMoH)	10–12%	NAFDAC approval, BPP guidelines	Mostly annual tenders; funding irregular	Low–Moderate	Small volumes; no multi-year guarantees; unpredictable offtake	Brief 6: Pooled and Structured Procurement Feasibility
State Governments	3–5%	State tender boards, price-driven	Uncoordinated, vary by state	Very Low	Fragmented, low-volume demand; high administrative cost	Readiness Assessment Report
Private Sector (Pharmacies, Hospitals,	5–8%	NAFDAC approval	Continuous but decentralized	Very Low	Price-sensitive; cannot absorb significant capacity	Brief 5: ACT/API Localisation Roadmap

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Table 3: Donor Procurement Characteristics, PQ Requirements, and Local Manufacturer Exclusion

Parameter	Global Fund PPM	PMI/USAID	UNICEF Supply Division	WHO Procurement	Evidence from Briefs
Share of Total Malaria Commodities Procured in Nigeria	50–55%	20–25%	5–10%	<5%	ACT/API Localisation Roadmap brief
Eligibility Requirement	WHO PQ mandatory; GMP audited	WHO PQ mandatory	WHO PQ mandatory	WHO PQ mandatory	Pooled and Structured Procurement Feasibility brief
Local Manufacturer Participation	0%	0%	0%	0%	Readiness Assessment Report
ACT Procurement (2024–25)	100% imported	100% imported	Minimal	Minimal	Manufacturing Capacity Assessment brief; ACT/API Localisation Roadmap brief
LLIN Procurement	100% imported (China, Vietnam)	100% imported	100% imported	100% imported	Financing Constraints and Investment Pathways brief
RDT Procurement	85–90% imported (China)	95% imported	Imported	Imported	LLIN and RDT Localisation Pathways brief
API Sourcing	100% imported (India/China)	100% imported	N/A	N/A	Regulatory and Quality-

					Assurance Landscape brief
Estimated PQ Cost per Product	USD 500k–1M	USD 500k–1M	USD 500k–1M	USD 500k–1M	Pooled and Structured Procurement Feasibility brief
Domestic Plants with ISO 13485	Some RDT manufacturers	N/A	N/A	N/A	LLIN and RDT Localisation Pathways brief
Domestic Plants with PQ	None	None	None	None	Readiness Assessment Report
Availability of PQ-Aligned Laboratories in Nigeria	None	None	None	None	Pooled and Structured Procurement Feasibility brief
Dominant International Suppliers	India (ACTs, APIs), China (RDTs, LLINs)	Same as PPM	Same as PPM	Same as PPM	ACT/API Localisation Roadmap brief
Procurement Cycle Type	Multi-year global tenders	Annual–biannual	Multi-year framework	Annual	Pooled and Structured Procurement Feasibility brief
Minimum Lot Size	High-volume batches	High-volume batches	High-volume batches	High-volume batches	Pooled and Structured Procurement Feasibility brief

Table 4: Installed Capacity vs Actual Utilisation Across Commodity Categories

Commodity Category	**Installed Domestic Capacity**	**Actual Utilisation**	**Number of Manufacturers**	**Notes from Briefs**
ACTs (Artemisinin-Based	>60 million doses/month (single shift)	~30–35% utilisation	16 ACT manufacturers	Majority produce Artemether–Lumefantrine; limited

Combination Therapies)				diversification into DHA–PQP, ASAQ (Brief 1)
APIs (Antimalarial Active Pharmaceutical Ingredients)	No operational industrial-scale API synthesis	~0% utilisation	0 active API producers	All APIs imported from India/China; manufacturers lack infrastructure for cGMP-compliant synthesis (Brief 2)
RDTs (Rapid Diagnostic Tests)	~470 million tests/year (projected 2026 capacity)	<40% utilisation	7 emerging manufacturers	Several firms possess ISO 13485; none have WHO PQ; donor purchases remain externalised (Brief 7)
LLINs (Long-Lasting Insecticidal Nets)	Full-net production capacity not established; upstream capacity (extrusion, knitting, lamination, coating) present	~0% utilisation for finished nets	Multiple textile firms with upstream processes	Nigeria imports 100% of WHO-PQ LLINs; domestic firms lack PQ-compliant integrated production lines (Brief 4)
APIs for Non-malaria Essential Drugs	Small-scale pilot capabilities in select private labs	<5% utilisation	Limited private-sector experimental setups	Not used for commercial supply; insufficient QA/QC infrastructure (Brief 2)
Support Inputs (Membranes, Antibodies, Insecticides)	No domestic production	0% utilisation	None	All key inputs imported (Briefs 2, 4, 7)

Table 5: Summary of Financing and Working-Capital Constraints Reported by Manufacturers

Financing Barrier	Evidence from Briefs & Report	Commodity Groups Affected	Quantified Findings
High cost of commercial credit	Manufacturers highlighted interest	ACTs, RDTs, LLINs, APIs	Most firms unable to access loans for

	rates of 25–32% with short tenures		expansion or PQ upgrades
Lack of concessional financing	No blended-finance or subsidised loan mechanisms available	ACTs, RDTs, LLINs	PQ investments remain unfunded; firms rely on internal capital
Delayed government payments	Payment cycles reported as 6–12 months post-delivery	ACTs, RDTs	Creates cash-flow gaps and production interruptions
No donor pre-financing	Donor systems do not offer advance payments or partial guarantees	All commodities	Firms must fully pre-finance inputs despite long revenue delays
High PQ-related investment requirements	Facility upgrades, external validation, and PQ audits cost USD 500k–1.5M	ACTs, RDTs, LLINs	No firm reported securing financing for PQ completion
Working-capital shortages	Firms unable to maintain stock of imported inputs due to cash constraints	RDTs (membranes, antibodies), ACTs (APIs), LLINs (insecticides)	Production disruptions reported across multiple firms
Forex exposure	Input purchases dependent on USD-based transactions	All commodities	Exchange volatility increases cost of procurement cycles
Limited investor confidence	Unpredictable procurement cycles discourage lenders	All commodities	Manufacturers operate below 40% utilisation on average

Table 6: Input Dependency and Supply Chain Vulnerabilities Across Commodity Types

Commodity Group	Critical Inputs Required	Current Source	Level of Import Dependence	Supply Chain Risks Identified	Evidence from Briefs/Reports
ACTs (Artemisinin-based Combination Therapies)	Artemether, lumefantrine, excipients, blister packs, aluminium foil, primary packaging	India, China	100% imported APIs, >80% packaging imported	API price fluctuations, forex exposure, long shipping times,	Manufacturing Capacity Assessment brief; Regulatory and Quality-Assurance

				customs delays	Landscape brief; Readiness Assessment Report
APIs (Local Synthesis Readiness)	Artemisinin, solvents, catalysts, reagents	No domestic suppliers; imports mainly from Asia	Nearly 100% dependence for all intermediates	Lack of local chemical industry linkages; high input cost; inability to stabilise supply	Regulatory and Quality-Assurance Landscape brief; Readiness Assessment Report
RDTs (Rapid Diagnostic Test Kits)	Nitrocellulose membranes, antibodies, enzymes, uncut sheets, conjugate pads, cassettes, buffers	U.S., China, India, Europe	100% imported membranes and antibodies; ~90% of all other components	Long lead times (6–12 weeks); temperature sensitivity; batch variability; high freight cost	LLIN and RDT Localisation Pathways brief
LLINs (Long-Lasting Insecticidal Nets)	Polypropylene resin, insecticides, UV stabilisers, coating chemicals, netting fabric, packaging materials	Asia (India, China), Europe	100% insecticide imports; 80–90% resin imported	Input cost spikes, global pyrethroid shortages, shipping delays	Financing Constraints and Investment Pathways brief
Packaging (all commodities)	Cartons, laminates, film, labels	Domestic and imported	40–60% imported	Price variability; local shortages	Readiness Assessment Report
Machinery and spare parts	Extrusion lines, knitting machines, diagnostic assembly equipment, QC lab equipment	Europe, China	100% imported	Spare part delays; technician shortages; equipment downtime	Multiple briefs

Temperature-sensitive inputs	Antibodies, enzymes, substrates	U.S., Europe	100% imported	Requirement for cold chain; short shelf life; loss risk due to power outages	LLIN and RDT Localisation Pathways brief
Chemicals for QA/QC testing	Reference standards, reagents, calibration kits	Europe, U.S.	100% imported	Inconsistent lab operations; QC delays	Readiness Assessment Report

Table 7: Summary of Recommended Policy Actions, Responsible Ministries/Agencies, and Expected Outcomes

Policy Action	Primary Responsible Entity	Supporting Entities	Key Enablers Required	Expected Outcomes
Establish a national pooled procurement platform for malaria commodities (e.g. Medipool)	Federal Ministry of Health (FMoH); National Malaria Elimination Programme (NMEP); Federal Ministry of Finance (for Medipool PPP coordination)	Bureau of Public Procurement (BPP); PVAC Secretariat; State Ministries of Health; Medipool PPP Consortium *(as applicable once operational)*	Procurement digitisation; Harmonised tender templates; Federal–state MoUs; Operationalisation of the Medipool PPP platform (eligibility criteria, governance structure, and contract aggregation mechanisms)	Reduced fragmentation; Predictable demand for manufacturers; Lower procurement costs; Improved access to aggregated tenders through a unified national procurement interface
Introduce multi-year framework contracts with guaranteed minimum offtake	FMoH; PVAC Secretariat	Ministry of Finance; Development Bank of Nigeria (DBN)	Legal instrument for multi-year contracting, escrow mechanisms	Improved investment confidence; increased capacity utilisation;

				reduced production risk
Implement tiered market access pathways (NAFDAC → ISO/QMS → ERPD → PQ)	NAFDAC	Standards Organisation of Nigeria (SON); FMoH; Development Partners	Defined criteria, transition timelines, regulatory coordination	Gradual expansion of domestic market share; accelerated PQ-readiness
Expand PQ-relevant laboratory and testing infrastructure	NAFDAC; National Agency for Science and Engineering Infrastructure (NASENI)	FMoH; Ministry of Science & Technology	Capital investment, GLP/GMP accreditation, international partnerships	Faster PQ validation, reduced cost of quality testing, increased regulatory credibility
Create a national PQ Transition Fund for manufacturers	Ministry of Finance; DBN	Central Bank of Nigeria (CBN); Industrial Training Fund (ITF); PVAC	Blended finance model, interest buy-down, performance-based disbursement	Increased PQ investment, improved quality standards, market entry into donor procurement
Offer tax incentives and financing for backward integration (API synthesis, LLIN polymer resins, diagnostic reagents)	Federal Ministry of Industry, Trade & Investment (FMITI)	Nigeria Export Processing Zones Authority (NEPZA); Ministry of Petroleum	Tax waivers, import-duty exemptions, special economic zones	Reduced input dependency, lower production costs, higher domestic value addition
Institutionalize domestic procurement thresholds for selected malaria commodities	FMoH; National Council on Health	State Ministries of Health; PVAC Secretariat	Policy directive, compliance monitoring, procurement audits	Increased local sourcing, higher factory utilisation, reduced import reliance
Align donor procurement agreements with Nigeria's industrial policy goals	FMoH; Ministry of Finance	Global Fund, PMI, UNICEF, WHO	Negotiation frameworks, performance indicators, co-financing mechanisms	Reduced policy–practice gap; improved domestic participation in

				donor-funded tenders
Strengthen supply-chain coordination to reduce raw material dependency	FMITI; FMoH	ECOWAS; AfCFTA Secretariat; NASENI	Regional trade agreements, incentives for upstream manufacturers	Development of regional value chains; reduced vulnerability to global shocks
Embed health-industrialisation priorities into major national strategies (NMEP Plan, NIRP, PMTA)	FMoH; FMITI	PVAC Secretariat; Ministry of Budget & Economic Planning	Joint planning committees; policy harmonisation	Improved alignment between health and industrial policy; sustained long-term reform coherence
Establish price-stabilisation mechanisms for essential malaria commodities	FMoH; Ministry of Finance	PVAC Secretariat; DBN; CBN	Stabilisation funds, buffer stock financing	Reduced price volatility; improved manufacturer planning; enhanced market stability
Strengthen regulatory oversight and GMP compliance support programmes	NAFDAC	SON; FMoH; Development Partners	Technical assistance, GMP training programmes	Improved product quality; faster regulatory approvals; enhanced PQ prospects
Promote regional export readiness under ECOWAS & AfCFTA frameworks	FMITI; Ministry of Foreign Affairs	ECOWAS Commission; AfCFTA Secretariat	Trade facilitation, regional certification, export financing	Increased export competitiveness; positioning Nigeria as a regional health manufacturing hub