Alstonia Impact

Regional Production of Medicines and Vaccines in Africa

Where do we stand and what is the way forward?

January 2026

Agenda

Executive Summary

1. Context and Scope of the Problem
2. Key Challenges in the Ecosystem
3. Ongoing Efforts to Strengthen Regional Production
4. Case studies: Lessons from Successful Countries
5. Recommendations

Authors and Contributors

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Executive summary (1/3): What's the challenge and why it matters?

- **Sub-Saharan Africa (SSA) is heavily dependent on other countries for pharmaceutical products (70% of medicines and 99% of vaccines are imported)**
  - Despite a $20 Bn pharma market, African countries have the lowest pharma manufacturer density among LMIC peers (e.g., vs China, Brazil, Bangladesh, Indonesia)
  - Barring South Africa, 4 of top 5 pharma producing countries in SSA (Nigeria, Kenya, Ethiopia, Ghana) make only ~25-30% of their medicines
  - Except fill & finish facilities for vaccines, Africa has limited capacity in all other categories of drug products and substances, including antigen for vaccines, small molecule drugs and biologics. Capacity for injectables and other more complex drug delivery mechanisms is also very limited. Utilization of existing capacity is low across the board
  - Among top global pharma companies, only a few have manufacturing facilities in Africa. Recently, Chinese and India companies have increased their manufacturing activity in Africa

- **Status quo adversely affects healthcare and economic outcomes in Africa**
  - **Health outcomes**: High import dependence led to a poor response during the Covid-19 pandemic. Further, supply shocks made it difficult for Africa to access imported pharmaceutical products, particularly life-saving antiretroviral drugs for HIV/AIDS treatment. Moreover, the lack of manufacturing hubs in Africa leads to neglect of Africa-specific diseases, including research into novel treatments
  - **Economic outcomes**: Regional manufacturing could add $4 Bn to African GDP and create 12,500 jobs by 2040. Scaling up production from 15–20% to 40–45% can improve trade balances by $150–200 Mn annually for countries like Ethiopia and Nigeria

SOURCE: Team analysis

Executive summary (2/3): Drivers of status quo and ongoing efforts to tackle them

- **Key drivers** of the current situation:
  - **Demand-side barriers contribute heavily** to the situation: Challenges include **small domestic markets without real access to the wider African market** due to varied regulations and lack of pooled procurement. Preference for lowest price goods make Africa-made products less competitive. Exception: cases where GAVI, UNICEF, and Global Fund purchase large volumes, esp. for vaccines, and are considering regionally produced goods
  - **Supply-side barriers could become critical if demand challenges are fixed,** but they already stifle export potential, even within Africa: Challenges include human, infrastructure, and capital limitations that lead to **higher costs of goods**, tariff structures and procedures that favours imports, and regulatory and quality control weaknesses that lower incentives for high quality manufacturing on the continent
- There are already **ongoing efforts** to boost local vaccine and pharmaceutical production across Africa:
  - Some evidence of increasing private investments in several countries (e.g., BioNTech in Rwanda, several Chinese firms in Côte d'Ivoire, Nigeria, Uganda, Ethiopia, Novo Nordisk in South Africa); Indian firms such as Cipla, Aurobindo and Sun Pharma also have presence. Home grown firms such as Dawa (Kenya), Institut Pasteur Dakar, and Biovac have been investing additional resources
  - Pan African bodies such as African Union and Africa CDC set the vision for local manufacturing. Global and African players drive **several types of initiatives** including: **Capacity Building for workforce / regulatory staff and Technology Transfer** (e.g., WHO / MPP mRNA Technology Transfer Programme, Regional Capability and Capacity Networks), **Financing** (e.g., GAVI's African Vaccine Manufacturing Accelerator), **Procurement** (e.g., AU's Africa Pooled Procurement Mechanism), **R&D** (e.g., CEPI's work in Tanzania), **Regulatory** (e.g., harmonization efforts by African Medicines Agency), and **Cross-cutting initiatives** (e.g., EU's € 1 Bn Team Europe Initiative to strengthen local manufacturing). Many initiatives are Africa-wide with South Africa, Nigeria, Kenya and Senegal seeing the most number of country-specific initiatives
- **Common success strategies by 5 LMICs** that significantly increased production in the last decades (Bangladesh, Brazil, Egypt, Ethiopia, South Africa) included: a **national strategy for pharma production, low import tariffs on inputs and machines, tax breaks / incentives, preferred procurement for local, strengthened drug regulation capabilities, and use of patent flexibilities. They also benefited from large domestic markets**

SOURCE: Team analysis

Executive summary (3/3): Our high-level recommendations to drive local production

Fix demand side challenges	▪ **Introduce or expand laws/policies** for preferential procurement from regional providers (time-limited to avoid protectionism) ▪ **Create market transparency**: Clear regional/continental forecasts for products needed for Africa with a focus on Essential Medicines to ensure investments are made in areas with gaps and where there is a clear competitive advantage for African producers. E.g., GAVI publishes areas where there are supplier gaps in its database ▪ **Increase Pooling and common markets**: Intensify regional market pooled procurement and continental/regional free trade agreements. Most successful pharma manufacturing countries have large domestic markets
Tackle regulatory upgrades	▪ **Regulatory harmonization or cross-recognition** ideally to make it cheaper, less complex to get approvals ▪ **Regulatory capacity improvements** will allow producers to access global / regional markets by driving quality (via pre-qualification)
Drive financing and skill building	▪ Actively **attract more FDI, including from China and India**. Ensure that **meaningful technology transfers and upskilling accompany investments** ▪ Use **blended finance** structures to increase leverage of donor capital
Exercise easy policy wins	▪ Use **policy tools that successful countries deployed**: Remove raw material tariffs, provide tax breaks, make active use of TRIPS waivers, build pharma-focused industrial parks, and make exports easier
Prioritize and coordinate product focus	▪ **Prioritize products** carefully to build and use capacity (by country/region): Select products with likelihood of success via differentiation / competitiveness (invest in technologies that can reduce cost of goods produced). Product selection and roadmaps need to be customized by country/region. Production alignment with **regional and national EMLs and domestic reimbursement mechanisms** should be considered, especially in view of reducing donor funding. ▪ **Coordinate within regions to avoid duplication / reduce costs**: e.g., joint procurement of inputs and machinery

SOURCE: Team analysis

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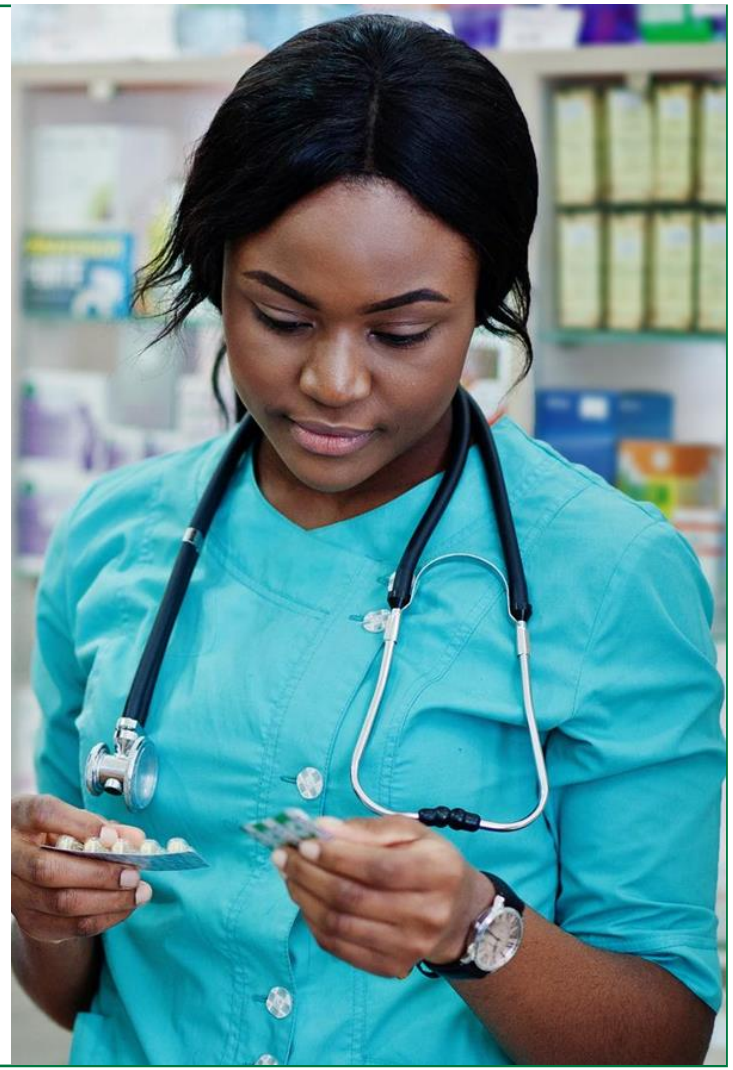
African countries is heavily dependent on other countries for pharmaceutical products and lags several other LMICs

- In Africa, most medical products are imported >>
  - 70% of medicines (22 countries have no manufacturing capacity)
  - 99% of vaccines (only 8 countries having limited production capacity, mostly in packaging and fill-and-finish)
- Most manufacturing is of drug product or only packaging
  - Little to no local manufacturing capacity for active pharmaceutical ingredients (APIs) and vaccine drug substances >>



SOURCE: In-line with text, Team analysis

The absence of pharmaceutical manufacturing adversely affects healthcare and economic outcomes in Africa

	Consequence	Description
HEALTH	**Poor pandemic response**	▪ A critical weakness during the COVID-19 crisis was the absence of local vaccine manufacturing, which severely delayed timely access to vaccines. By May 2021, while high-income countries had administered approximately 60 doses per 100 people, **Africa had administered just 0.8 doses per 100 people** >>
	Vulnerable to global supply chain shocks	▪ Global supply chain disruptions, including container shortages, labour gaps, port congestion and pandemic, made it **difficult for Africa to access imported pharmaceutical products**, particularly life-saving antiretroviral drugs for HIV/AIDS treatment that are primarily sourced from India >> ▪ Climate induced supply chain shocks can also cause disruptions
	Distribution delays	▪ Africa's healthcare systems heavily depend on imported medicines and vaccines, leading to **delays and vaccine distribution** >>
	Neglect of region-specific Diseases	▪ **The lack of pharmaceutical manufacturing hubs in Africa reduces focus on LMIC-specific diseases**, as international R&D prioritizes conditions like cancer and diabetes over African diseases like dengue fever and trypanosomiasis. Without local production, preventable diseases continue to burden LMIC populations due to limited investment in tailored vaccines or cures >>
ECONOMIC	**Limited GDP growth and jobs**	▪ Regional manufacturing could add $4 Bn to African GDP and create 12,500 jobs by 2040 >> ▪ The global pharmaceutical sector is expanding, but **Africa's limited manufacturing capacity restricts direct jobs (e.g., production) and indirect roles (e.g., supply chains)**, missing economic gains; for instance, Nigeria's industry adds $2 Bn annually to the economy, with potential for more jobs through scaled production >> ▪ The lack of employment and insufficient research infrastructure drives **skilled workers to emigrate to industrialized regions**, deepening the continent's pharmaceutical development gap >>
	Trade deficits	▪ Analysis of Africa's trade data shows a heavy reliance on importing mixed drug classes with negligible exports from 1970 to 2020, leading to a pharmaceutical trade deficit of up to $2 Bn in some countries in 2019 >> ▪ Scaling up production from 15–20% to 40–45% can **improve trade balances** by $150–200 Mn annually for countries like Ethiopia and Nigeria >> **In 2024, domestic production saved $53 Mn** in import costs for Ethiopia, signalling growing potential in the sector >>

SOURCE: In-line with text

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This report focuses mostly on medicines and vaccines in Sub-Saharan Africa

Item	What is in	What is out
Healthcare area	✓ Product access	✗ Broader systemic health issues—like financing, primary care expansion, or healthcare workforce distribution—are included only where directly relevant to pharmaceutical production
Products	✓ Focus on critical health products, including ✓ Medicines ✓ Vaccines	✗ Medical devices ✗ Diagnostics
Geographic focus	✓ Sub-Saharan Africa (SSA)	✗ Other LMICs/regions (The study can include cross-learning from other LMIC regions for comparative insights)
Granularity of analysis	✓ Regional level	✗ This report does not provide detailed, national strategies or country-specific implementation roadmaps. However, a few country examples or case studies were used to illustrate broader regional trends or successful models

Agenda

Executive Summary

1. Context and Scope of the Problem

- Problem Statement and Why it Matters
- Scope Definition
- **Current State of African Pharmaceutical Manufacturing**
  - Current state by type of products
  - Key companies manufacturing in Africa

2. Key Challenges in the Ecosystem

3. Ongoing Efforts to Strengthen Regional Production

4. Case studies: Lessons from Successful Countries

5. Recommendations

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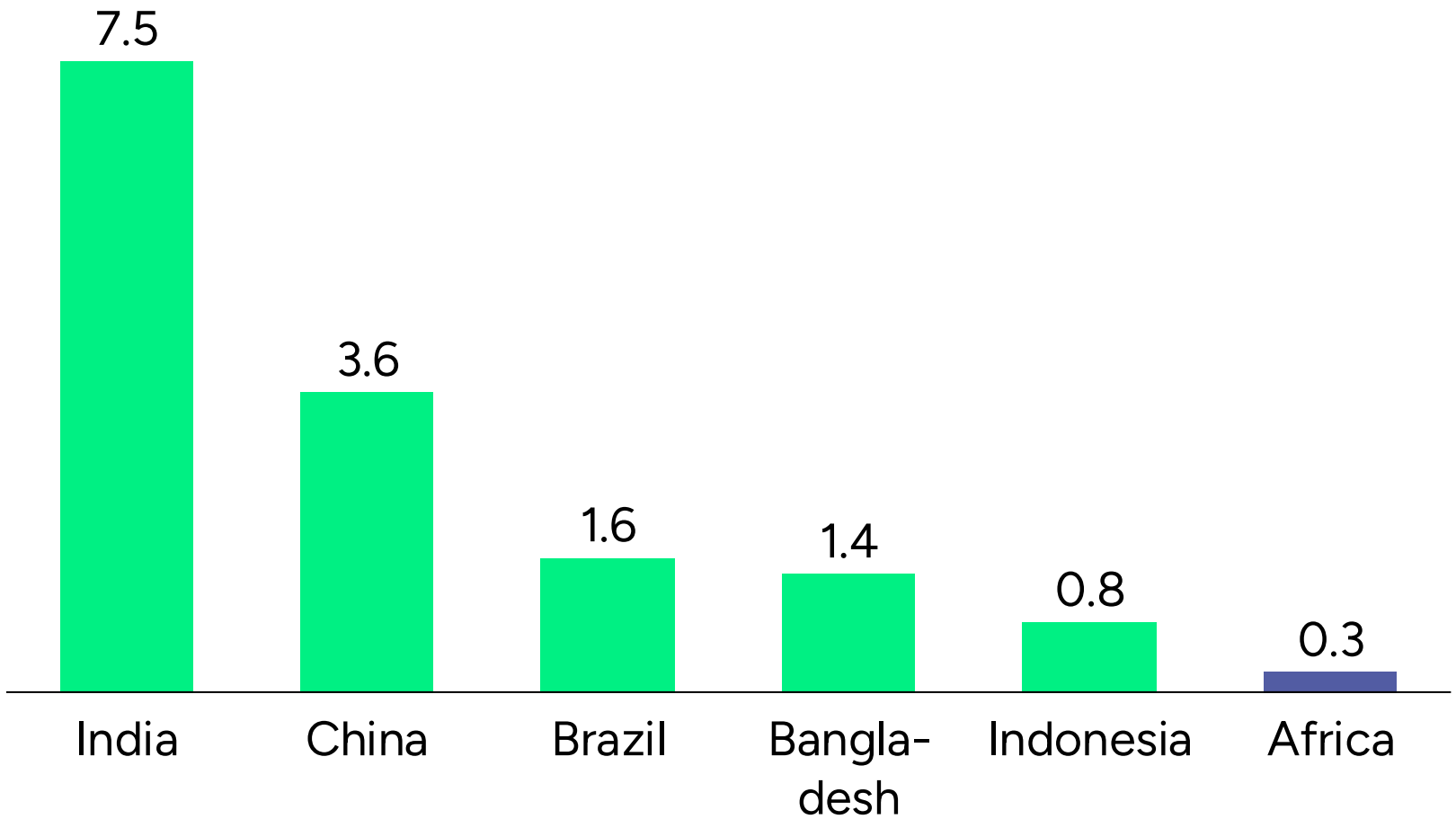
African countries have the lowest pharmaceutical manufacturer density among LMICs

of manufacturers per Mn population – various countries/regions



SOURCE: Data for China and India >>, data for Africa including North Africa >>, Brazil >>, Bangladesh >> and Indonesia >>

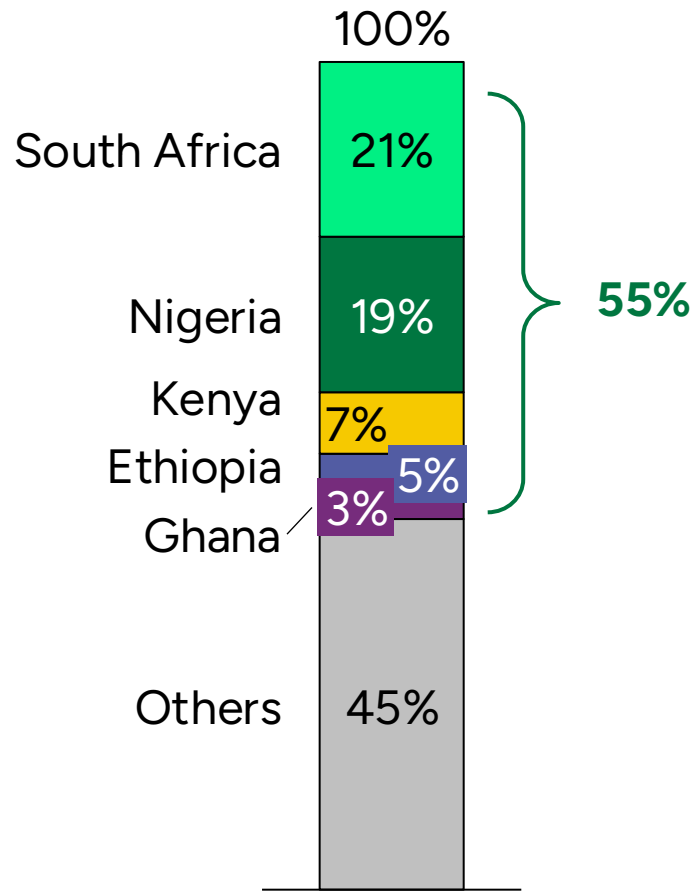
- Africa with the lowest pharma manufacturer density among LMICs. If North Africa is removed from data, the gap becomes even more pronounced
- India and China are pharma powerhouses, but Africa could catch up with nascent manufacturing countries such as Indonesia and Bangladesh

Note: This analysis uses number of manufacturers, and does not distinguish between large and small sized units. A better analysis would be use volume/value of production, but no comparable datasets were found
SOURCE: Team analysis

The combined Sub-Saharan African pharma market is worth $20 Bn; top 5 countries make 55% of total market

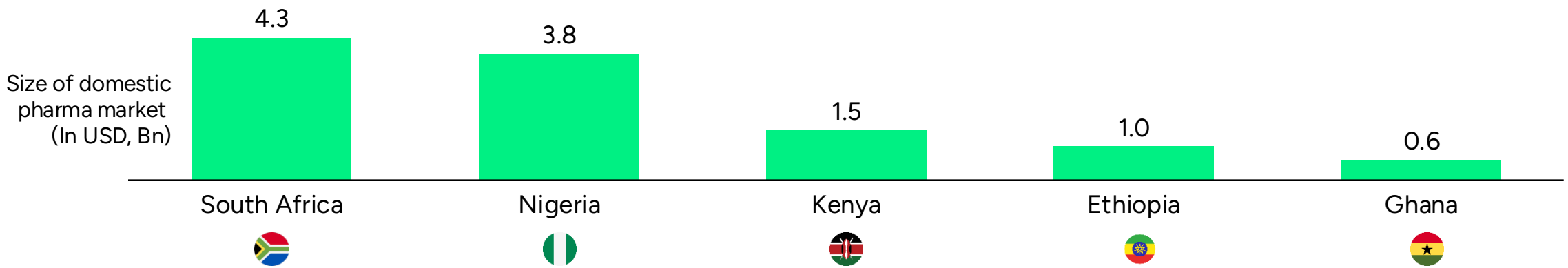
- The Sub-Saharan African pharmaceutical market was valued at **$ 20 Bn** >>
  - Yet, per capita value is low at ~$ 20
- Top 5 countries (South Africa, Nigeria, Kenya, Ethiopia, Ghana) make up 55% of total Sub-Saharan African market
- The African pharmaceutical market is projected to grow at a compound **annual growth rate (CAGR) of 6–8% through 2029,** outpacing the region's overall economic growth, which is expected to average around 4.3% during the same period
- South Africa and Kenya are leading exporters in the region and Nigerian firms largely serve domestic markets

Total Sub-Saharan African pharma market by country, %



SOURCE: Afreximbank Industry Outlook, 2022 >>, Team analysis, additional sources in-line with text

Barring the case of South Africa, local production meets only a fraction of local demand even in large pharma producing countries



Overview Metrics

	South Africa	Nigeria	Kenya	Ethiopia	Ghana
Number of manufacturers[1]	▪ 265 >>	▪ 173 >>	▪ 35 >>	▪ 11 >>	▪ 19 >>
% needs met by local production	▪ **70%** >>	▪ **25%** >>	▪ **30%** >>	▪ **36%** >>	▪ **30%** >>
GDP Per Capita (latest available)	▪ $6,253	▪ $723	▪ $2,206	▪ $1,011	▪ $2,406
Export value	▪ $451 Mn >>	▪ $1 Mn >>	▪ Exported $165 Mn, mostly in COMESA region >>	▪ $2 Mn >>	▪ $14 Mn >>
Employees in sector	▪ N/A	▪ N/A	▪ 3000 >>	▪ 4000 >>	▪ N/A
Key local players	▪ Aspen and Adcock Ingram (45% of market), Biovac (South African govt has a stake)	▪ Fidson, Mecure Industries	▪ Cosmos, Dawa	▪ Ethiopian Pharmaceutical Manufacturing and Addis Pharmaceutical Factory	▪ Dannex Ayrton Starwin, Kina Pharma / DEK vaccines, Atlantic Biotech (vaccines)
Other information	▪ 23 WHO compliant sites >>	▪ Only 40% capacity utilization across manufacturers >>	▪ 67% of the manufacturing capacity is utilized >>	▪ Operates at 41% capacity >>	▪ N/A

1. The term manufacturer in this context refers to a pharma company that produces pharmaceutical products
SOURCE: World Bank Group, web search or mentioned inline

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Vaccines deep-dive: Only 3 countries with commercial level production; strong growth in pipeline of vaccine fill and finish facilities but negligible antigen capacity

Current landscape	▪ 99% vaccines imported; as of 2025, at least 3 countries in SSA have commercial levels of production: South Africa, Senegal, and Ethiopia ▪ Including pipeline efforts: The list increases to 10 countries in SSA: South Africa, Senegal, Ghana, Uganda, Mozambique, Kenya, Ethiopia, Rwanda, Zambia, and Nigeria[1] >>
Product types manufactured	▪ Limited vaccines produced commercially in Africa: Yellow Fever (IPD - Senegal), Hexavalent (Biovac – SA[2]), Covid-19 (Biovac - SA, Aspen - SA), Polio-IPV (Biovac - SA), Rabies (Ethiopian Public Health Institute - Ethiopia), Pneumococcal (Biovac - SA) >> ▪ Currently, African manufacturers rely primarily on inactivated and live attenuated platforms for vaccine production. However, several investments have been made in enabling production of next-generation platforms such as virus-like particles (VLPs) and mRNA >>
Level of manufacturing	▪ **Drug product (commercial production):** Most capacity is **Fill-finish (drug product)**; capacity stands at 1.4 Bn doses projected for 2030, scalable to 2 Bn in emergencies >> ▪ **Drug substance (commercial production):** By contrast, **drug substance capacity remains low** at just 61 Mn doses annually (Biovac, IPD, BioNTech Rwanda – planned, Dei Biopharma) >> ▪ Some organizations produce vaccines including drug substance in small batches for R&D (e.g. Afrigen, Innovative Biotech Ltd – only product) >> ▪ **Plans and ongoing efforts:** Between 2025 and 2030, South Africa and Senegal are expected to achieve WHO prequalification for eight vaccines. >> Significant number of technology transfer discussions are underway with 10 technology transfers have begun and three additional ones have been signed: The African Vaccine Manufacturing Accelerator (AVMA), a financing initiative by GAVI to drive local production, prioritizes antigens such as OCV, MR, YF, PCV13+, Malaria, Rota SD BFS, Hexa wP, and Ebola bi. Technology transfers (TTs) have been completed for most of these, except for Rota SD BFS and Ebola bi. These antigens represent a mix of bacterial, viral, and parasitic vaccines >>
Market drivers	▪ Purchases by Gavi and UNICEF represent large chunks of the market >>
Utilization and Efficiency	▪ African vaccine manufacturing capacity is heavily concentrated on form/fill/finish, with significant additional capacity still planned. If all plans are realized, capacity would more than double projected 2030 demand and drive under-utilization >>

1. North African countries pipeline includes: Egypt and, Morocco, Algeria.
2. Government of South Africa has a stake in Biovac

SOURCE: Team analysis, web search or mentioned inline

Medicines deep-dive: Small molecule production rising from a small base but biotherapeutics are still limited

	Small molecule drugs	Biotherapeutics
Current landscape	▪ SSA remains heavily dependent on imports in general. As of 2022, the region hosted 417 pharmaceutical plants. South Africa and Nigeria together represent the largest share with over 270 plants, enabling broader therapeutic coverage and some export activity. Alongside Kenya, Ethiopia, Ghana, Uganda, and Tanzania, these countries form primary manufacturing base >>	▪ Biotherapeutics i.e., drugs based on biologics remain a small share of Africa's pharmaceutical market. South Africa and Egypt lead, though Africa accounts for only a small proportion of global biopharma production, contributing only 3% to global drug manufacturing >>
Product types manu-factured	▪ African local production predominantly focuses on simple, off-patent drugs like painkillers, antibiotics, antimalarials, and vitamins >> ▪ Antibiotics are an emerging area of strength, with evidence from Kenya and Ethiopia showing that locally manufactured antibiotics are both more available and competitively priced compared to imports >>	▪ Biosimilar production in Africa is primarily concentrated on autoimmune diseases (such as rheumatoid arthritis), oncology (notably metastatic colorectal cancer), and haematology (leukaemia) due to high patient demand >>
Level of manu-facturing	▪ Various types of pharmaceutical formulations include tablets, liquids, capsules, creams, ointments, and injectables are manufactured in Africa >> ▪ Capacity for sterile injectables is lower >>	▪ Biotherapeutics manufacturing in Africa remains largely focused on drug product (fill-finish) using imported drug substance, with only three manufacturers having advanced drug substance production projects since 2023 >>
Market Drivers	▪ HIV/TB/Malaria markets driven by donors; other markets more locally and private sector driven ▪ Large populations (Nigeria, Ethiopia) create demand that supports industrial growth, while mid-sized economies (Kenya, Ghana, Uganda) leverage policy instruments such as preferential procurement or exclusive tenders to sustain local producers. >> ▪ Two distinct models are shaping SSA's pharmaceutical trajectory: a) Domestic-led growth, where local companies dominate (e.g., Kenya, Ghana), often supported by targeted government incentives. b) FDI-driven growth, where international JVs and partnerships drive (e.g., Ethiopia, Uganda), enabling tech transfer + higher-quality production >>	▪ Overall, small but growing market for Biotherapeutics >> – From 2003–2016, South Africa tendered 2,198 medicines, but only 63 were biologics, showing limited public procurement of biologics in Africa >>
Utilization and Efficiency	▪ Despite investment, capacity utilization is often low (typically 40-60% in smaller markets like Uganda), reflecting limited economies of scale and fragmented demand. This leads to high production costs compared to imports from Asia. Studies suggest local generics can be 5-15% cheaper than imports if production reaches sufficient scale and utilization. TRIPS flexibilities and the absence of patent filings in many African countries create further opportunities for generic expansion >>	▪ *No information available*

SOURCE: Team analysis, web search or mentioned inline

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Top 5 African companies are locally owned

Organization/ Profile	aspen HOLDINGS	adcock ingram	FIDSON	Acil	dawa life sciences
Headquarters	▪ South Africa	▪ South Africa	▪ Nigeria	▪ Uganda	▪ Kenya
Other country presence	▪ Ghana, Kenya, and Tanzania	▪ India	▪ N/A	▪ India	▪ Uganda, Rwanda, Burundi, Zambia, Malawi, Ivory Coast, DR Congo, South Sudan
Types of products manufactured	▪ Medicines (resp. health, hypertension, reproductive health) ▪ Vaccines (Vaccines for communicable diseases)	▪ Medicines (Paracetamol-based pain relief, Probiotics, Intravenous fluids)	▪ Medicines (Antibiotics & Anti-Infectives, Cardiovascular, Ophthalmic, Gastrointestinal)	▪ Medicines (HIV/AIDS, Malaria, Tuberculosis, Anti-Infectives)	▪ Medicines (Cardiovascular, Iron Deficiency, Pain & Inflammation, Gastroenterology)
Capacity	▪ 23 manufacturing facilities spread across 15 sites >>	▪ 4 manufacturing facilities in South Africa and India >>	▪ N/A	▪ 1 manufacturing facility in Uganda >>	▪ 1 manufacturing facility in Kenya
Revenue in $ (latest)	▪ $2.5 Bn	▪ $510 Mn	▪ $44 Mn	▪ $71 Mn	▪ $69 Mn
# of employees	▪ 9,100	▪ 2,400	▪ 476	▪ 500	▪ 750
Key Partnerships	▪ Serum Institute of India (Vaccines) ▪ Johnson & Johnson, USA (Covid-19 vaccines)	▪ Medreich Limited, India (CMO business)	▪ Jiangsu Aidea Pharma, China (New plant in Lekki, Nigeria)	▪ Cipla, India (Anti-Retroviral manufacturing plant)	▪ Gypto Pharma, eGypt (Reinforce Egyptian Production)
Other information	▪ Aspen also manufactures APIs	▪ Supplies medicines to over 20 African countries	▪ Exports to West African countries ▪ Distributes imported products	▪ Manufactures some APIs ▪ Adding a second production line in 2025 >>	▪ Planning on entering into diabetes and weight loss market

SOURCE: Company website, Revenue and Employee info from ZoomInfo or mentioned inline

Some of the leading global pharmaceutical companies have very limited manufacturing footprint in Africa[1]; most of this limited activity in South Africa

NOT EXHAUSTIVE

xx: minor or no SSA manufacturing

Company	Local Manufacturing in SSA	Type	Country
Pfizer	Via **Biovac Institute** (South Africa): COVID-19 vaccine fill-and-finish >>	Partnered fill-and-finish	South Africa
Novartis	Owns a manufacturing plant in **Johannesburg**; also licenses products via Aspen >>	Direct ownership & licensing	South Africa
Johnson & Johnson	Licensed COVID-19 vaccine fill-and-finish to **Aspen Pharmacare** >>	Local partner fill-and-finish	South Africa
Sanofi	Sanofi expanded access to medicines and vaccines across Africa through strategic partnerships and innovation. E.g. Polio vaccine with **Biovac** >>	Regional manufacturing partnerships	South Africa
GSK	Partnered with **Aspen Pharmacare** (vaccines, essential meds) >>	Partnered manufacturing	South Africa
Gilead Sciences	Licensed HIV drugs to **Mylan / Viatris** for local SSA manufacturing >>	Licensing to local producers	South Africa
Viatris	Viatris has manufacturing operations in South Africa and Zambia, with partner facilities in Mozambique and Kenya. Eg ARVs with **Fábrica Nacional de Medicamentos (FNM)** >>	Direct ownership & licensing	South Africa, Zambia, Mozambique and Kenya
Roche	No SSA plant; local secondary packaging reported in partnership in South Africa >>	Minor partnered packaging	South Africa (limited)
Merck & Co.	Distribution and R&D activities; no manufacturing, but active partnerships with local programs >>	No manufacturing	—
AbbVie	No known local manufacturing partnerships in SSA >>	No manufacturing	—
Bristol Myers Squibb	No known local manufacturing partnerships in SSA >>	No manufacturing	—
Takeda	Distribution presence only in South Africa; no known manufacturing or licensing operations >>	No manufacturing	—
Amgen	No SSA manufacturing or known partnerships >>	No manufacturing	—
AstraZeneca	Partnered COVID-19 vaccine fill-and-finish with **Serum Institute**(India), intended for SSA via AVATT/COVAX >>	No direct SSA manufacturing	—
Bayer	Owns manufacturing plant (non-pharma/healthcare) in South Africa; limited local pharma production >>	Minor pharma-related production	South Africa
Boehringer Ingelheim	No current local manufacturing; involved in R&D and health system partnerships >>	No local manufacturing	—

1. Some companies have exited direct operations in some African nations in recent years largely due to macroeconomic reasons. E.g.., currency devaluation in Nigeria

SOURCE: Web search or mentioned inline

A large number of partnerships with Indian and Chinese pharmaceuticals are driving manufacturing growth and innovation in Africa

Country[1]	Company / Plant name	Partner Country	Owner / JV partner	Main activities / dosage forms	Year / status
Côte d'Ivoire	Fosun Pharma - Abidjan pharmaceutical production facility / park >>		Shanghai Fosun Pharmaceutical - project led by Fosun subsidiaries with IFC financing	Oral solid dosage (antimalarials), antibacterial medicines	2023
Ethiopia	Sansheng Pharmaceuticals (Chinese investor) >>		Sansheng (China) - plant built with Chinese capital/technology	Tablets, capsules, ampoules, parenterals, infusions	2018
Kenya	Universal Corporation Limited (UCL) - now part of Strides >>		Strides Pharma (India) - acquired controlling stake (2016)	Tablets, capsules, liquids, dry syrups, semisolids	2004/2016
Kenya	China–Kenya vaccine & pharma hub >>		Chinese govt / firms (unnamed tech partners) with Kenyan govt	Vaccine production (COVID, other vaccines) + pharma manufacturing	Announced June 2025
Nigeria	Fidson Healthcare Plc - JV with Chinese firms >>		Jiangsu Aidea Pharma, Nanjing Pharmablock / CADFund (China)	Essential medicines (HIV treatment, other generics)	Announced 2024
Nigeria	Ranbaxy Nigeria Limited (now part of Sun Pharma group) >>		Sun Pharma (owns Ranbaxy Nigeria operations)	Oral solid dosages and liquid formulations	2015
South Africa	Sun Pharmaceutical Industries - Roodepoort facility >>		Sun Pharma (Indian multinational)	Tablets, capsules, liquids, creams, ointments, OTC lines	1996
South Africa	Cipla Medpro (Cipla Africa) - Mobeni manufacturing >>		Cipla (Indian multinational) - Cipla Africa operations	Finished dosage forms (tablets, creams, etc.)	2013
South Africa	Pharma Dynamics (Lupin subsidiary) >>		Lupin Ltd (Indian multinational) - Pharma Dynamics is a Lupin subsidiary	Finished dosage manufacturing & distribution for South Africa (generics)	2008
South Africa	Aurobindo Pharma (local manufacturing reported) >>		Aurobindo Pharma (Indian multinational)	Local manufacture of ARV TLD and other finished dosage forms	2017
Uganda	Quality Chemical Industries Ltd (formerly CiplaQCIL) >>		Originally Cipla (India) JV; Cipla sold majority in 2023 (now QCIL/Africa Capitalworks ownership)	Tablets, capsules; ARVs (TLD), antimalarials, other generics	2007
Zambia	Jijia International Medical Technology - Cholera vaccine plant >>		Jijia International Medical Technology Corporation (China) with Zambia IDC; invested $ 37 Mn	Cholera vaccine production (3+ Mn doses annually in first phase)	2024

1. Expert input: Related topics such as depth of technology transfer, local value addition, skills development, and long-term upgrading along the pharmaceutical value chain warrant more systematic analysis. This was beyond the scope of this report.

SOURCE: Web search or mentioned inline

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Demand-side constraints include small domestic markets without real access to the wider African market due to varied regulations and lack of pooled procurement

	Key factor	Details
DEMAND SIDE CHALLENGES	**Relatively small domestic markets**	▪ **Sub-Saharan Africa's median per capita healthcare expenditure stands at $85**, which is comparable to Indonesia ($127), and India ($79), above Bangladesh ($61), but significantly lower than Brazil ($849) and China ($672) >> – Within region, per capita spending varies: South Africa ($570), Nigeria ($91), Ghana ($82) and Kenya ($90)
	The large sub-Saharan market is not a reality for most producers	▪ **49 separate markets with needs to register in each market:** The Sub-Saharan African **(SSA) pharmaceutical market is fragmented across numerous countries**, each with its own regulatory framework and quality standards, making regional market access complex and costly. Additionally, the **absence of consolidated data across the region hinders a clear understanding of overall demand**, limiting effective planning for manufacturers. Strong differences between regions, and between Anglophone and Francophone regions. ▪ **Absence of Regional Procurement and Pooled Purchasing**: **The lack of regional procurement mechanisms and pooled purchasing strategies** in Africa impedes local pharmaceutical manufacturing growth by limiting economies of scale, and restricting access to affordable, quality-assured medicines >>. Preference to national players increasing, but limited preference given to regional players, who often compete as "international" suppliers even in neighbouring countries. In some cases, no health officials at land ports forces companies to air-ship vs ship via road (Expert input) ▪ **Regional economic communities** such as EAC, COMESA, and SADB **promising but still with limited impact**
	Dominant customers are unpredictable and can lead to distortions	▪ **Primary customer (government) is an inconsistent buyer:** In many African markets, the **government is the primary purchaser of pharmaceutical products** (excluding vaccines – *see below*), but **inconsistent procurement patterns**, stemming from fluctuating public budgets and a lack of prioritization of local manufacturers create uncertain demand signals >> ▪ In most countries, **lowest price** is still the criteria for procurement ▪ **Donor induced distortions**: Legacy of donations as well as preference for lowest price pre-qualified products (often from Asia) may have weakened local firms (Source: Expert input from Unitaid)

Exception: Cases where GAVI, UNICEF, and Global Fund purchase large volumes, especially for vaccines, and are considering regionally produced goods

SOURCE: Team analysis, web search or mentioned inline

Supply-side constraints like infrastructure, policy, and regulatory weaknesses limit high-quality pharmaceutical manufacturing in Sub-Saharan Africa (1/2)

	Key factor	Details
SUPPLY SIDE CHALLENGES	**Human and infrastructure limitations lead to higher costs of goods sold for Africa made products**	▪ **Inadequate Infrastructure: Sub-Saharan Africa (SSA) scores 0.39 on the Global Quality Infrastructure Index (GQII),** below the global average of 0.547 and LMICs like China (0.9912) and India (0.9356). Poor roads, limited storage, and unreliable electricity delay medicine and API supply, while fragmented networks and funding shortages weaken digital tools and cross-border distribution. >> This increases costs as operators need to often need to invest in alternative power sources, water supply systems, and effluent treatment plants. (Expert input) ▪ **Skilled Workforce Shortages and Low Productivity**: In SSA, **88% of stakeholders value a skilled workforce**, but shortages, brain drain limit production. **Productivity scores 50** (vs. global median of 100, China 102, India 51, Brazil 78), with high labour costs causing negative cash flows. Weak talent pipelines and lack of MSME support for global standards further constrain growth >> ▪ **Limited number of technology transfers**, which are especially needed for vaccines and biotherapeutics >> >> ▪ **Smaller average plant size with limited utilization raises cost of goods sold:** Most pharmaceutical **plants in Sub-Saharan Africa are small and operate below optimal capacity,** preventing them from achieving economies of scale. Despite potential cost advantages, low production volume, makes local manufacturing less competitive than imports. For example, tablet **plants must produce around 500 Mn tablets annually to match import prices**; smaller plants, even at full utilization, struggle to stay viable >>
	Regulatory and quality control weaknesses lower incentives for high quality manufacturing	▪ According to the WHO's Global Benchmarking Tool (GBT), which assesses regulatory systems across 84 countries, only **7 out of 41 Sub-Saharan African (SSA) nations**, i.e. Ghana, Nigeria, Rwanda, Senegal, South Africa, Tanzania, and Zimbabwe-have achieved **Maturity Level 3 (ML3) or 4 (ML4)** for medicines regulation. Among these seven, five do not currently produce vaccines, but their National Regulatory Authorities (NRAs) are considered sufficiently mature to regulate imported vaccines and are positioned to support future local vaccine production. >>. **Only 7% of Africa's NMRAs meet core functions**, lagging India/China. In Uganda, under-resourced agencies like UIRI and NDA limit firm support. **SSA has 10 WHO-prequalified Quality Control Laboratories (QCLs) (5 in South Africa, Kenya)** vs. 20 in the EU and 6 in India. >> This limits export potential of African made drugs and vaccines ▪ **High Prevalence of Substandard Medicines**: **SSA's 19% sub-standard medicine rate** exceeds the LMIC average (14%), Asia (14%), and India (2%). **WHO notes 42% of global reports of counterfeit/substandard medicine come from Africa** eroding trust >>

SOURCE: Team analysis, web search or mentioned inline

Supply-side constraints like infrastructure, policy, and regulatory weaknesses limit high-quality pharmaceutical manufacturing in Sub-Saharan Africa (2/2)

	Key factor	Details
SUPPLY SIDE CHALLENGES	**Low base of industrialization / financial constraints limit # of local players**	▪ **Low manufacturing base due to colonial history**: Africa's low industrialization across sectors is partly rooted in colonial-era policies that prioritized resource extraction over local manufacturing and value addition ▪ **Limited availability of capital**: High capital requirements needed combined with, limited access to affordable financing hinder manufacturing growth. **FDI net inflow in Sub-Saharan Africa (SSA) has stagnated at $41 Bn** annually since 2013 (China: $51 Bn and India: $28 Bn in 2023); the **pharmaceutical sector is not a major receiver of FDI** >>
	Trade policy and governance challenges favours imports	▪ **Low import tariffs for finished products**: SSA's average Most Favoured Nation (MFN) **pharmaceutical tariff is 0.39%,** far below the 2–9.4% in India, China, Indonesia, and Brazil, offering less local protection. **The global average is 2.1%** >>. In Tanzania, low-cost imports and 50–100% higher input costs (vs. India/China) due to tariffs and limited sourcing hinder competitiveness >> ▪ **Higher import tariffs for API:** Sub-Saharan African (SSA) countries impose relatively high import tariffs on Active Pharmaceutical Ingredients (APIs), **averaging around 3.6%.** Coupled with limited local API production, these tariffs drive up the cost of medicines and hinder the ability of local manufacturers to produce competitively priced pharmaceutical products >> ▪ **Intra-African Trade Barriers favours imports from outside Africa**: High import times within Africa: import and export procedures can be complex. Logistics operations between African countries are limited / expensive. (Expert input) ▪ **Corruption often favours incumbents: SSA's Corruption Perceptions Index (CPI) score of 32.5** is worse than India (38), China (43), Brazil (34), and Indonesia (37). **Corruption costs $148 Bn annually across industries**, favouring incumbents (often, but not always, foreign companies) and deterring investment >>
	Weak industry representation	▪ **Limited, fragmented African industry organizations**: This hampers ability to advocate for African industry concerns nationally, regionally, and in global forums (source: Expert Input)
	Lack of Africa-specific product pipeline	▪ **Limited R&D for conditions that affect Africans disproportionately:** Africa contributes <1% to global biomedical R&D >> Research towards conditions disproportionately affecting African funded in a limited way by public funds from the global north >>

SOURCE: Team analysis, web search or mentioned inline. Expert input from Consell Health and Unitaid

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Diverse stakeholders and organizations collaborate to enhance pharmaceutical and health initiatives across Africa

Category	Sub-category	Role	Key organizations
African governments and government bodies	Africa-level bodies	▪ Visioning, continent level initiatives e.g. harmonization	▪ African Union, Africa CDC, PPRI Africa Secretariat, AfCFTA Secretariat, African Union Development Agency -NEPAD, African Medicines Agency
	Regional	▪ Common markets	▪ Regional economic communities such as East African Community, COMESA
	National	▪ Procurement, incentives, taxes	▪ Various including those of South Africa, Uganda, Ivory Coast, Nigeria, Senegal, Kenya, Rwanda, Ghana
	Regulators	▪ Regulation at nat. level	▪ ARP Senegal, SAHPRA, Pharmacy and Poisons Board (PPB), Gambia MCA, Ethiopian FDA, etc.
Global health stakeholders	African non-profits	▪ Advocacy and technical expertise	▪ African Pharmaceutical Technology Foundation, kENUP Foundation, Ifakara Health Institute, University of Witwatersrand, Bloom Public Health, API For Africa
	Funders incl. bilaterals	▪ Fund initiatives without expectation of fin. returns	▪ Unitaid, Gates Foundation, UKAID, USAID (formerly), CEPI, EU, European Commission/EIB, Germany - various ministries and bodies, Government of France
	UN-bodies	▪ Norm setting, knowledge work	▪ WHO, UNECA, UNIDO, WTO
	Non-profits	▪ Run initiatives	▪ Medicines Patent Pool, Medicines for Malaria Venture (MMV), MedAccess, DNDi
	Technical experts	▪ Provide technical expertise around production / markets	▪ CHAI, Path, US Pharmacopeia, Unizima
	Pooled procurers	▪ Procurement at regional / continental levels	▪ GAVI, Global Fund
Alliances	n/a	▪ Advocacy, capacity building	▪ Regionalized Vaccine Manufacturing Collaborative (RVMC), Federation of African Pharmaceutical Manufacturers Associations, Developing Countries Vaccine Manufacturers Network, PAVM
Financing	n/a	▪ Financing for sub-market returns	▪ Afreximbank, IFC, AfDB, World Bank, DFC, China-Africa Development Fund
Pharma companies	African	▪ Manufacturers	▪ Afrigen, EMZOR Pharmaceutical Industries Ltd, Fidson Healthcare, Dawa Ltd., UCL (Kenya), Biovac, Aspen Pharmacare, Institut Pasteur Dakar, NantAfrica. Some government investments in firms
	Global north	▪ Invest in plants / collab.	▪ BioNTech, Quantoom Biosciences, SK Bioscience (South Korea), Novo Nordisk, Moderna, Eli Lilly
	India/China	▪ Invest in plants / collab.	▪ Sansheng Pharmaceuticals Plc, Aidea Pharma, Rena Exports (India), Dei BioPharma Ltd, Fosun Pharma

Source: Alstonia Impact database of regional production activities in SSA

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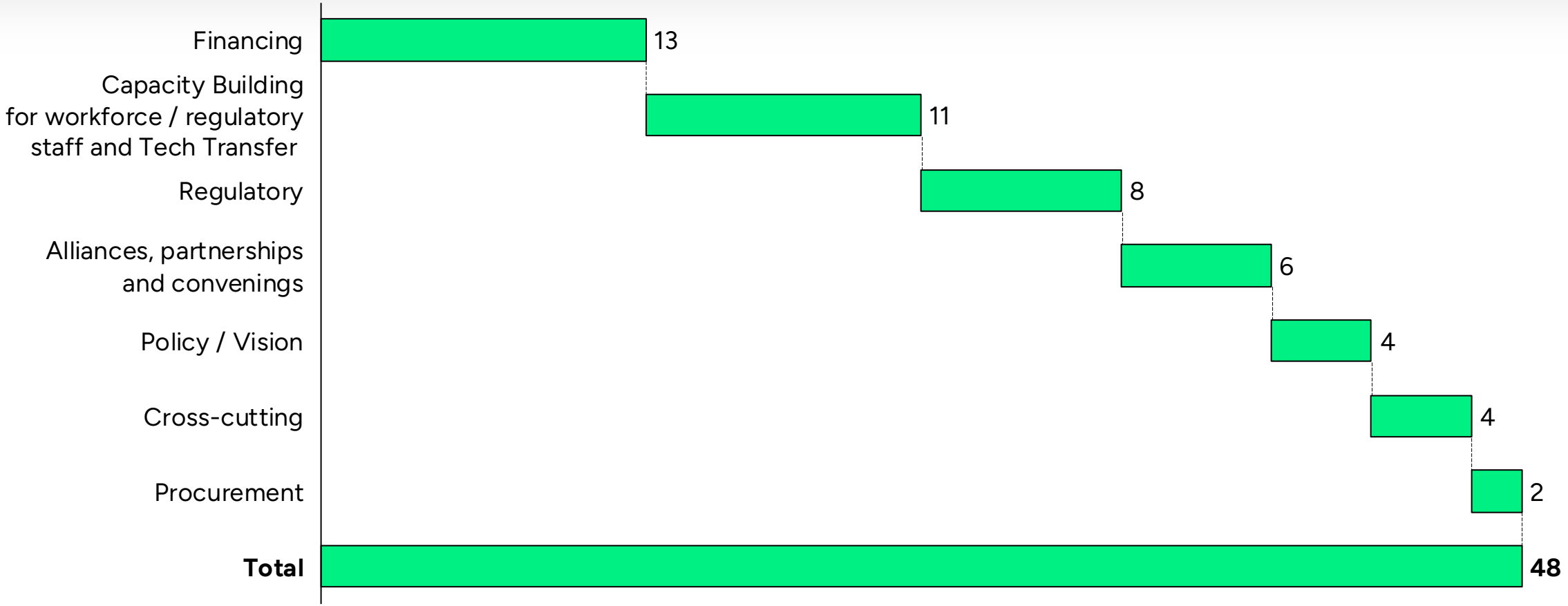
In our database of initiatives to stimulate local manufacturing in SSA, capacity building, financing, and regulatory improvement initiatives dominate

NOT EXHAUSTIVE

Types of initiatives, #



NOTE: Full list of initiatives available in Annexures
SOURCE: Team analysis based on Alstonia Impact database of 45 initiatives.

Initiatives (1/2): Several initiatives address multiple gaps at once while others focus on capacity building for production and regulatory staff along with tech-transfer

Category	Examples	Description
Cross-cutting initiatives	▪ Team Europe Initiative (MAV+) >>	▪ Launched in 2021, the Team Europe Initiative (MAV+), led by the European Commission and European Investment Bank with EU member states, the African Union, Africa CDC, and PAVM, provides €1 Bn Africa-wide support to strengthen local manufacturing and access to vaccines, medicines, and health technologies through financing, tech transfer, regulatory strengthening, R&D, and skills development
	▪ Health Products Manufacturing Support Platform (HMSP) >>	▪ Launched in 2023/24 by Unitaid to enhance technical capacity for African manufacturers by providing assistance in technology, management, operational skills, capital access, and regulatory compliance, addressing 79% of pharmaceutical imports
	▪ CEPI–AU Africa R&D & Manufacturing MoU >>	▪ In 2021, CEPI, the African Union, and Africa CDC signed an MoU to strengthen vaccine R&D, enable technology transfer, and expand local manufacturing capacity across Africa. The Africa-wide initiative targets diseases such as Lassa fever, Ebola, and Rift Valley fever while addressing gaps in R&D, innovation access, pandemic preparedness, and skilled workforce training
Alliances, partnerships and convenings	▪ Developing Countries Vaccine Manufacturers Network >>	▪ Global alliance of manufacturers in developing countries advocating vaccine equity & coordination. They also provide training modules for members
	▪ Africa's Access to Advanced Healthcare Coalition >>	▪ In 2022, the South African government launched the Africa's Access to Advanced Healthcare Coalition, bringing together biotech and pharmaceutical companies, government agencies, non-profits, and academia to advance pandemic preparedness and skilled workforce training in South Africa
Capacity Building for workforce / regulatory staff and Technology Transfer	▪ US Pharmacopoeia's Access to Quality Standards >>	▪ In June 2024, USP, AUDA-NEPAD, Africa CDC, AAU, and FAPMA launched an Africa-wide initiative providing free access to USP-NF pharmacopeial monographs and educational resources to strengthen regulatory capacity, address quality standards gaps, and build skills for drugs and vaccines across disease areas
	▪ WHO / MPP mRNA Technology Transfer Programme >>	▪ Launched in 2021, the WHO–MPP mRNA Technology Transfer Programme, led by WHO with partners including the Medicines Patent Pool, Afrigen, Biovac, SA Medical Research Council, and Africa CDC, aims to build sustainable mRNA vaccine and therapeutics manufacturing capacity across LMICs. Covering Africa-wide and global partners, the programme (2026–2030 phase) focuses on tech transfer, R&D for regional diseases, and skilled workforce development
	▪ Regional Capability and Capacity Networks (RCCNs) >>	▪ In 2024, Africa CDC launched the Africa-wide Regional Capability and Capacity Networks (RCCNs) with regional partners including Institut Pasteur du Maroc, UPA Egypt, Africa Biomanufacturing Institute Rwanda, Institut Pasteur de Dakar, and CSIR South Africa. The initiative aims to address Africa's biomanufacturing skills gap through workforce training, R&D networks, and collaboration across vaccine and health product manufacturing
	▪ African Pharmaceutical Academy >>	▪ In 2023, Bloom Public Health and the Biotech Training Facility (Netherlands) launched the African Pharmaceutical Academy in Nigeria to train professionals across Africa in GMP, regulatory compliance, and vaccine manufacturing skills through blended learning

NOTE: Full list of initiatives available in Annexures
SOURCE: Team analysis, web search or mentioned inline.

Initiatives (2/2): Other initiatives focus on financing, setting vision, procurement, stimulating R&D, and improving regulatory efficiency

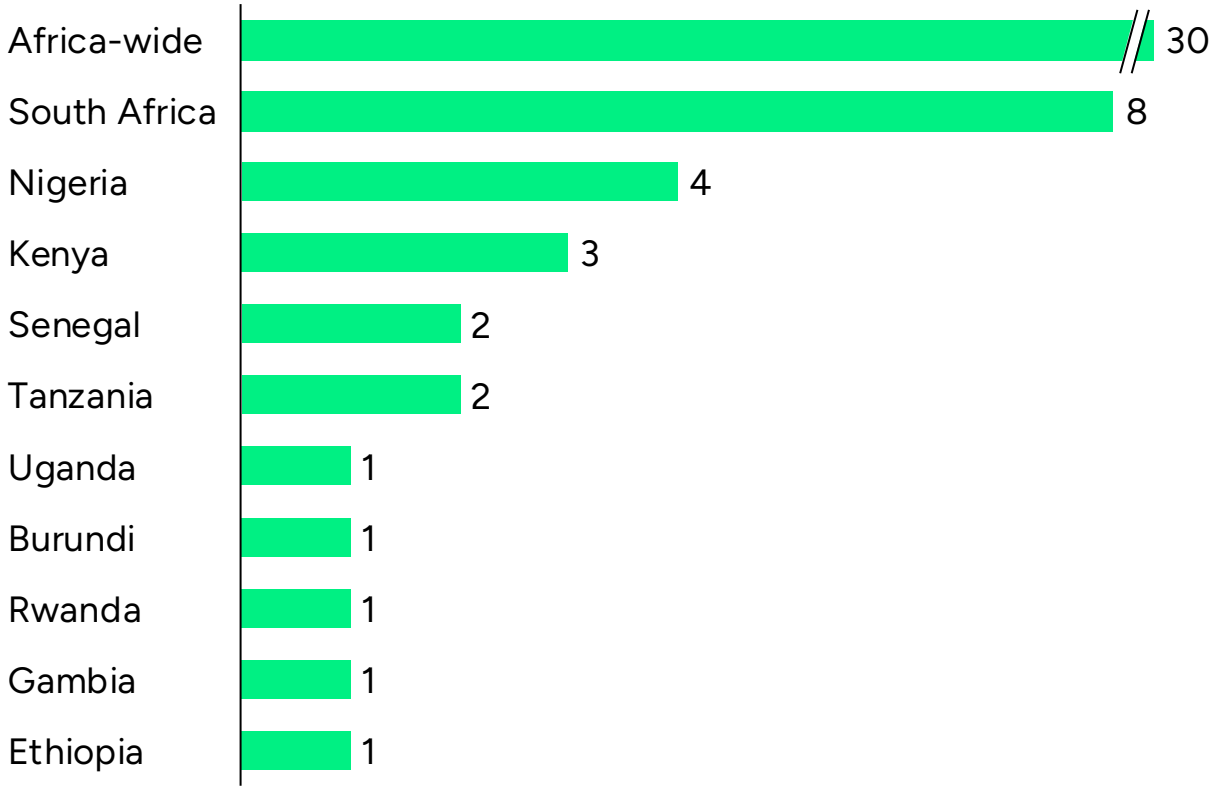
Category	Examples	Description
Financing	▪ African Vaccine Manufacturing Accelerator (AVMA) >>	▪ In 2024, Gavi, the African Union, Africa CDC, RVMC, donors, and African manufacturers launched the African Vaccine Manufacturing Accelerator (AVMA), a US $1.2 Bn Africa-wide incentive program to boost investment in priority vaccine production and technology transfers. Upon reaching milestones, manufactures can avail assured success payments
	▪ EIB-APIFA Active Pharmaceutical Ingredients (API) Facility >>	▪ €50 M European Investment Bank initiative to finance API manufacturing facilities and supply chain resilience across Africa. As part of it $12M project supporting the first API manufacturing facility in Nigeria (Emzor), focused on antimalarial drugs, to reduce import dependence and enhance supply chain resilience
	▪ Gates Foundation mRNA development support >>	▪ $40 M to develop mRNA vaccine capacity at Institut Pasteur Dakar in Senegal and Biovac in South Africa for regional diseases
	▪ Accelerating Human Development (HDX) >>	▪ Up to €750 M EIB and Gates Foundation guarantee to strengthen health systems and biopharma manufacturing across Sub-Saharan Africa, Asia, and Latin America. It provides loans and guarantees to de-risk investments in supply chains, primary healthcare, and R&D
	▪ German DEG & KfW expansion support for IPD/Biovac/Aspen >>	▪ German Development Bank financing to expand fill-finish operations at Aspen (South Africa), Institut Pasteur Dakar, Biovac
Policy / Vision	▪ Pharmaceutical Manufacturing Plan for Africa (PMPA) >>	▪ In June 2005, the African Union, with UNIDO and WHO, launched the Pharmaceutical Manufacturing Plan for Africa (PMPA), an Africa-wide roadmap to boost local pharmaceutical production through policy, investment, and technology transfer
	▪ Partnerships for African Vaccine Manufacturing (PAVM) >>	▪ Outlines eight programs to achieve 60% local vaccine production by 2040, including procurement pooling, regulatory strengthening, technology transfer, and R&D coordination. Platform for Harmonized African Health Prod. Mfg (PHAHM): Expanded successor to PAVM, broadening mandate beyond vaccines to all health products; aims regulatory & procurement harmonization
Procurement	▪ Africa Pooled Procurement Mechanism (PPM) >>	▪ In 2024, the African Union, Afreximbank, UNECA, and national governments launched the Africa Pooled Procurement Mechanism (APPM), an Africa-wide initiative to consolidate medical supply purchases, improve affordability, and strengthen demand for locally produced drugs and vaccines ▪ Several countries offer preferred treatment for domestic providers *(see next slide for deep dive)*
R&D	▪ CEPI-UC Davis RVF Vaccine Trials in Tanzania >>	▪ In 2023, CEPI, with EU Horizon Europe support, partnered with UC Davis, Ifakara Health Institute, and Colorado State University to launch Phase I–II trials of the DDVax Rift Valley Fever vaccine in Tanzania, including tech transfer, regulatory engagement, and One Health studies
Regulatory	▪ African Medicines Agency (AMA) >>	▪ Established in 2019, the African Medicines Agency (AMA), led by the African Union, works Africa-wide to harmonize medicine and vaccine regulations, speeding approvals and supporting local manufacturing

SOURCE: Team analysis, web search or mentioned inline

In our database of initiatives, most have an Africa-wide coverage with South Africa featuring prominently; higher focus on vaccines vs. medicines

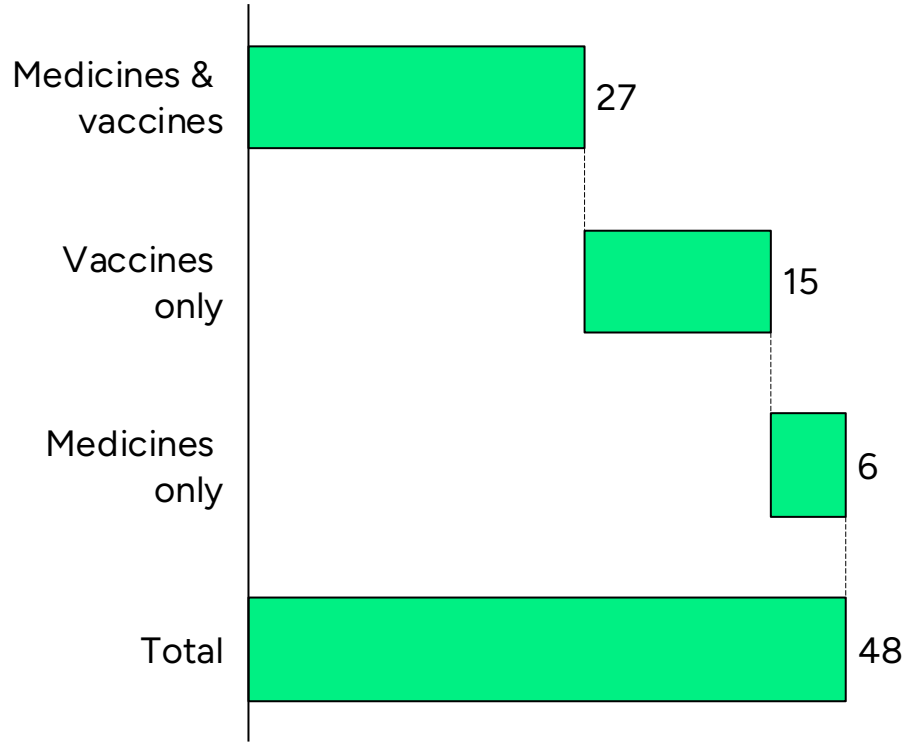
Most initiatives are Africa-wide, South Africa, Nigeria and Kenya see most initiatives

Place of initiatives, #[1]



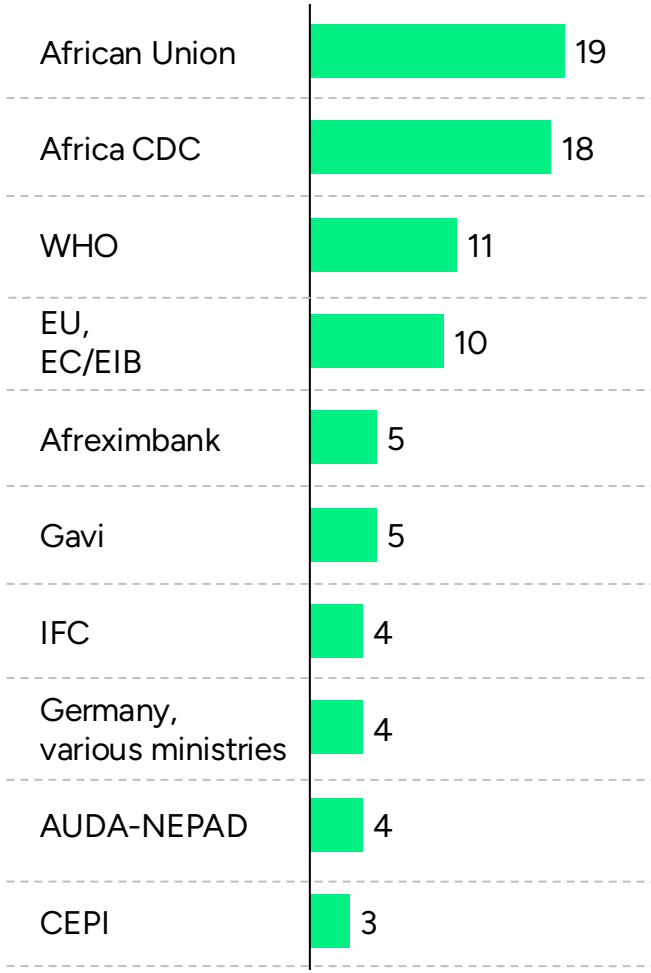
Vaccines and medicines are both well-represented with higher focus on vaccines

Focus on initiatives, % of total



1. Number of countries add up to over 48 since several initiatives cover more than one country
SOURCE: Team analysis based on Alstonia Impact database of 48 initiatives.

The organizations that show up more prominently on Alstonia Impact's database are the African Union, Africa CDC, WHO, EC/EIB



Notable initiatives

- Continental body that also includes African Medicines Agency (AMA) - specialized agency of the African Union (AU) aimed at harmonizing drug regulations >> *Info about AU Development Agency below*
- Africa Centre for Disease Control and Prevention's (CDC) Regional Capability & Capacity Networks established to strengthen Africa's capacity to produce own vaccines and health products >>
- WHO / MPP mRNA Technology Transfer Programme - build sustainable regional production of mRNA-based health products >> WHO's Local Production Unit plays a major role in providing TA>>
- Manufacturing and Access to Vaccines, Medicines and Health Technologies (MAV+) - Initiative focused on boosting local manufacturing and strengthening pharmaceutical systems in Africa >>
- The African Vaccine Acquisition Trust (AVAT), launched by the African Union, aims to secure COVID-19 vaccines for Africa, with Afreximbank providing financial support >>
- African Vaccine Manufacturing Accelerator (AVMA) - $ 1.2 Bn mechanism to boost vaccine production in Africa >>
- IFC – Fosun Project – (IFC) funding Shanghai Fosun Pharmaceutical to construct a pharmaceutical manufacturing facility in Côte d'Ivoire >>
- German expansion support for vaccine manufacturers IPD/Biovac/Aspen >>
- AUDA-NEPAD, the development agency of AU, launched Programme for Investment & Financing in Africa's Health Sector (PIFAH) to attract private investment and diversify health sector financing>>
- Coalition for Epidemic Preparedness Innovations (CEPI) and AU MoU to boost R&D & Manufacturing >>

Source: Alstonia Impact database of regional production activities in SSA. Does not include pharma companies that receive support, or African national government initiatives

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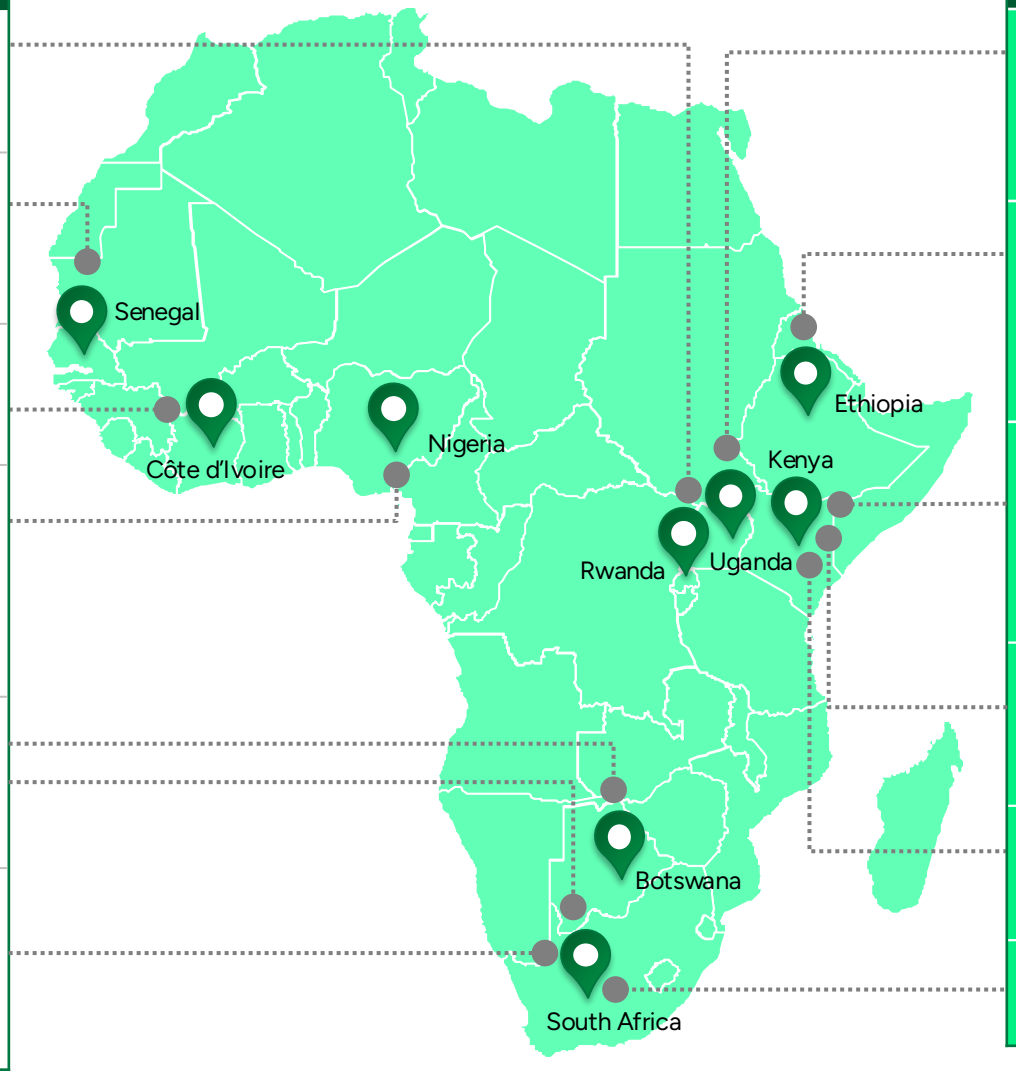
Growing investments and partnerships boost local vaccine and pharmaceutical production across Africa

Initiatives	Description
BioNTech mRNA vaccine plant (Rwanda) >>	Kigali site to produce mRNA vaccines (e.g. malaria, mpox, TB) with CEPI funds (2024)
MADIBA Project (Institut Pasteur Dakar) >>	A new high-tech vaccine plant is being built in Senegal, capable of making up to 300 Mn doses of various vaccines each year with support from IFC, DFC, AfDB (2022)
IFC–Fosun (China) project in Côte d'Ivoire >>	This project will set up a factory in Côte d'Ivoire to make antibacterial and antimalarial tablets, with a capacity of around 5 Bn tablets a year (2023)
Fidson–China Strategic JV >>	Fidson Healthcare in Nigeria has partnered with Jiangsu Aidea Pharma, Nanjing PharmaBlock, and the China-Africa Development Fund to build a pharmaceutical plant in the Lekki Free Trade Zone, focused on producing HIV medicines for the region (2024)
Nant-South Africa Vaccine Manufacturing Campus >>	Establishing protein-based vaccine manufacturing plants in Botswana and South Africa covering 14,000–18,600 m^2, with advanced production platforms (2022)
Insulin Local Production Partnership with Novo Nordisk >>	Novo Nordisk, in partnership with Aspen Pharmacare, is establishing local production of affordable human insulin in South Africa. The initiative aims to reach 4.1 Mn people in Africa by 2026 and strengthen local supply chains (2023)



Initiatives	Description
Dei BioPharma (China) Uganda facility >>	Dei BioPharma has built a large vaccine and medicine plant in Uganda that can make up to 1 Bn mRNA doses per year. It will also produce cancer and insulin medicines. The facility aims to meet US FDA and WHO standards. (2021)
Sansheng Pharmaceuticals (China) Local Production in Ethiopia >>	Chinese firm Sansheng Pharmaceuticals launched a $85 Mn production plant near Addis Ababa with a capacity of 5B solid doses, 300M ampoules, and 10M large volume parenterals, aiming to reduce import dependence and support Ethiopia's pharma sector. (2018)
Dawa Ltd. Nairobi Plant Expansion >>	Dawa Ltd. is investing KSh3bn (US$290 Mn) to expand its Nairobi plant with cutting-edge machinery and a new production line targeting lifestyle diseases. The project will boost regional distribution and increase exports to African markets like Tanzania. (2020)
Moderna–Kenya mRNA vaccine plant MoU >>	Moderna signed an agreement to build an mRNA vaccine factory in Kenya. Initially, Moderna will run the plant and later transfer the technology (2023). On hold
Smart Vaccine Facility : Kenya & SK Bioscience (Kenya) >>	A study is being done to see if a "smart" vaccine factory can be set up at Konza Technopolis in Kenya, led by South Korea's SK Bioscience (2024)
Biovac-IFC >>	Investment & advisory to scale Biovac output from ~150 M to ~560 M doses/year, incl. mRNA plants (2023)

Note: This list only includes initiatives with commercial or semi-commercial funding such as from development banks. Pure grants are included in list of initiatives.

SOURCE: Team analysis, web search or mentioned inline

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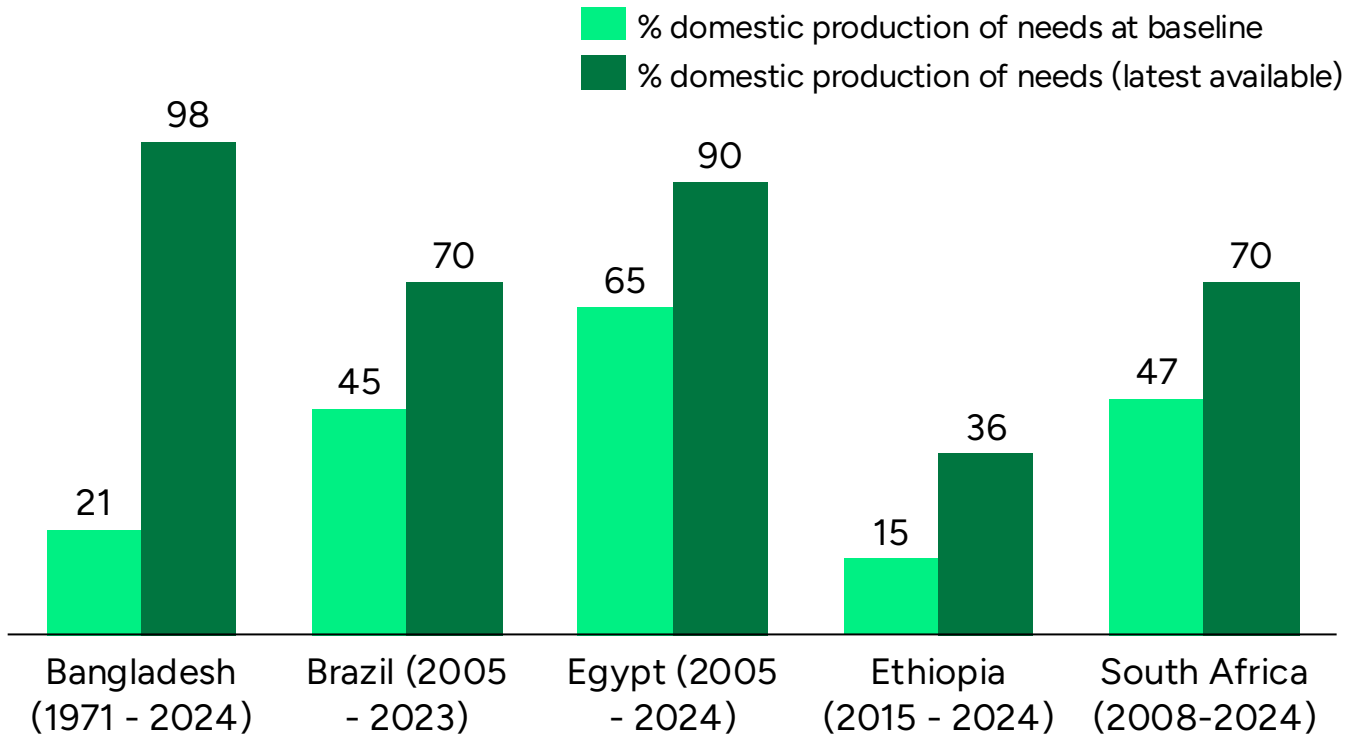
To learn from success stories, we selected 5 LMICs which have increased domestic production significantly over the last decades

All selected countries have increased local production to increasingly meet domestic needs

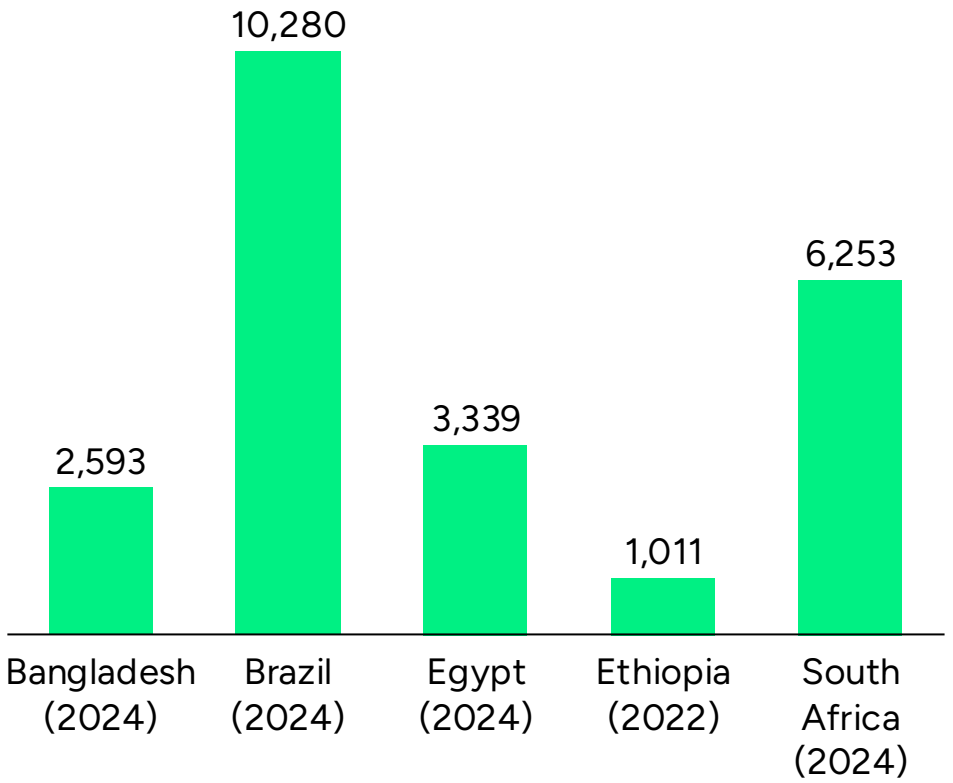
% of domestic needs met by local production, in % of total



Source: Bangladesh 1971 >> 2024 >>; Brazil 2005 >> 2023 >>; Egypt 2005 >> 2024 >>; Ethiopia 2015 >> 2024 >>; South Africa 2008[1] >> 2024 >>

Varying levels of GDP/ capita in our selection

GDP per capita (latest available)



Source: World Bank Group >>

1. In 2008, 47% of South Africa's public-sector pharmaceutical procurement was sourced from domestic production, which does not fully reflect overall national production levels.

Common success tactics adopted included: a national strategy, low import tariffs on inputs, tax breaks / incentives, preferred procurement, strengthened drug regulation capabilities, and use of patent flexibilities

- China and India are typically analysed to study pharma champions. Many lessons can indeed be learnt from them. However, given their large sizes and unique factors, we also found it more useful to look 5 somewhat smaller LMICs, among them 2 from Sub-Saharan Africa: **Bangladesh, Brazil, Egypt, Ethiopia, South Africa**
- In the selection, **Brazil, South Africa, and Egypt are more sophisticated with research talent and vaccine production capabilities**. Bangladesh has emerged as a pharma champion more recently. **Ethiopia** is making **smart early moves** to becoming a pharma champion
- **All countries have large domestic markets (>$500 Mn)** and most production goes towards servicing domestic needs. Exports are lucrative, but relatively small
- **Common elements among countries**: **presence of national strategy, low import tariffs on inputs** such as APIs**, tax breaks and incentives** for local manufacturers**, preferred procurement** from local manufacturers**, strengthened drug regulation capabilities,** and **effective use of patent flexibilities offered by WTO for LMICs** (where applicable)
- **Other elements may be particular** to some countries
  - Both Brazil and Egypt used **significant public sector manufacturing**, while others relied on the private sector
  - Brazil, South Africa, and Egypt, now have a significant capabilities in vaccines and biologics. These countries have **developed strong R&D capabilities**
  - Only South Africa and Brazil have significant global including Indian/Chinese pharma presence
- While there are many efforts towards API self-sufficiency, **all these countries rely on imports for APIs**. In fact, **barring China, no country anywhere in the world is likely API self-reliant**

SOURCE: Team analysis of findings from next slides

Countries have used a mix of tactics to increase the size of their pharma industry

✓ Tactic adopted/implemented by the country

✓ Limited or recent attention

Tactic	Bangladesh	Brazil	Egypt	Ethiopia	South Africa
Dedicated national strategy	✓	✓	✓	✓	✓
Significant state owned production or investments/JV		✓	✓	N/A	N/A
Usage of TRIPS waivers	✓	✓	N/A	Not part of WTO	✓
Attention on vaccines and biotherapeutics	✓	✓	✓	✓	✓
Tax breaks for manufacturers	✓	✓	✓	✓	✓
High import tariffs on finished goods	✓	✓			
Low import tariffs on raw material	✓	✓	✓		✓
Preferred procurement for local	✓	✓	✓	✓	✓
Regulatory maturity (>ML3 for vaccines, medicines or similar)	✓	✓	✓		✓
R&D focus		✓	✓		✓
Export focus	✓	✓	✓		✓

Detailed case studies in Annexures

SOURCE: Team analysis. Details on dedicated slides

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Recommendations include making demand visible and pooling, tackling regulatory upgrades, driving creative financing, exercising easy policy changes, and a focused and coordinated selection of products

Fix demand side challenges	▪ **Market transparency**: Clear regional/continental forecasts for products needed for Africa, especially essential medicines, to ensure investments are made in areas with gaps and where there is a clear competitive advantage for African producers. E.g. GAVI publishes areas where there are supplier gaps in its database ▪ **Pooling and common markets**[1]: Intensify regional market pooled procurement and continental/regional free trade agreements. Most successful pharma manufacturing countries grew on the back of large domestic markets ▪ **Introduce or expand laws/policies** for preferential procurement from regional providers (time-limited to avoid protectionism). Preferential procurement for non-national, but African companies, is currently underleveraged
Tackle regulatory upgrades	▪ **Regulatory harmonization or cross-recognition** ideally to make it cheaper, less complex to get approvals ▪ **Regulatory capacity improvements** will allow producers to access global / regional markets by driving quality (via pre-qualification)
Drive financing and skill building	▪ Actively attract **more FDI, including from China and India**. Ensure that meaningful technology transfers accompany investments ▪ Use **blended finance** structures to increase leverage of donor capital
Exercise easy policy wins	▪ Remove raw material tariffs, provide tax breaks, make active use of TRIPS waivers, build pharma-focused industrial parks, and make exports and African imports (e.g. via road ports for health goods) easier. Nigeria's pharma executive order of 2024 offers a good example
Prioritize and coordinate product focus	▪ **Prioritize products** carefully to install capacity (by country/region): Select products with economic likelihood of success./ *See next page for details* ▪ **Coordinate within regions to avoid duplication / reduce costs**: e.g., joint procurement of inputs, machinery etc

1. The role of private and faith-based procurement channels (e.g. https://www.epnetwork.org/) can be significant in many countries. Bringing them on board to the regional manufacturing agenda may offer additional leverage for local manufacturers. (Input from expert)

SOURCE: Team analysis

Additional considerations: Production roadmaps should be adjusted by product and region/country with a focus on essential medicines

- **Prioritize products relevant for regions** (typically essential and high-burden medicines e.g. antimalarials, HIV drugs, antibiotics, oxytocin, hypertension, diabetes drugs) and where others are not investing (e.g. paediatric formulations not a focus area for large pharma companies). This can build on AUDA-NEPAD's 24 Priority Medical Products for the continent. >>. Production alignment with **regional and national Essential Medicine Lists and domestic reimbursement mechanisms** should be considered, especially in view of reducing donor funding. (Expert input)
- Cross-country/regional hubs with **differentiated product focus**[1] should be considered
  - For instance, countries with more sophisticated industries such as South Africa and Senegal could prioritize vaccines and biologics, including expanding antigen and biosimilar production to move beyond fill and finish. Even here, product selection should be done carefully to avoid areas with very high competition (e.g. many commoditized vaccines)
  - Countries such as Nigeria and Kenya could initially focus on small molecule drugs with large markets. They could also increase their focus on exporting, especially in their regions. They can also upgrade their ability to manufacture advanced formulations of drugs (E.g. sterile injectables)
  - Drive differentiation vs. global south vendors: Leverage locational advantages by offering differentiated products[2] and services, including flexible batch sizing, shorter lead times, and integrated distribution or last-mile delivery solutions. This can support a shift in procurement frameworks from lowest-unit-price evaluation toward total cost of ownership and value-based procurement models, incorporating factors such as supply reliability, responsiveness, inventory holding costs, and system-level efficiencies. (Expert input)
- **Most pharma producing countries are not API self-sufficient, and it may not be wise to aim for it in the initial phase** (due to very large capital investments needed). Countries can pursue selective API investments in select areas where the APIs are deemed critical for the African market
- **Invest in R&D** of diseases where African populations are disproportionately affected and the global north does not have incentives e.g., important neglected tropical diseases; less expensive R&D via new platforms such as mRNA could be gamechangers

1. This focuses on end products. However, countries may also specialize in specific raw materials and intermediaries.
2. Experts pointed to products tailored to local challenges e.g. snakebite antidote catering to prevent snake population.

SOURCE: Team analysis. Expert input from contributors

Additional guidance for donors and bilaterals

- In the context of reduced funds for global health from the US and other Global North donors, **efficiency of spending** has become more important. **Avoid duplication and spend on initiatives** that (eventually) have a **likely business case**: Good examples are supporting demand transparency, supporting regulatory harmonization and regulators, and building incentives for local manufacturing (e.g., AVMA), meaningful technology transfers, especially those that can work cross-products. Focus on **regions / countries that can reach economies of scale:** identify niches by country
- Focus on spending which **supports a new world order of reduced donor dependence**. For example, getting collaborations off the ground between Africa and other pharma manufacturing LMICs e.g. India/China/Bangladesh could be meaningful. Further, programs that support African manufacturers to diversify across public, private, and retail channels will improve competitiveness.
- Where possible, consider **funding across the value chain**: policy, R&D[1], manufacturing including GMP and market access (e.g. EU, France, Germany efforts have been holistic in their approach). If not possible, look at the whole picture before making investments
- Don't ignore **fundamental inputs :** Enable universities and other multipliers to relevant skills for pharma manufacturing and R&D, support academic-industry collaborations to develop long-term skills needed
- Look for **leapfrogging opportunities**: can new technologies/process make drug development or manufacturing more accessible in Africa? Can biopharma industries (vaccines, biotherapeutics) be catalysed at least in some countries?
- Invest in projects that have **sponsorship from the top executives in the country /region** given multiple departments such as industry development and health are needed to increase local manufacturing. This is not a health-only world
- Finally, no **need to reinvent the wheel**. Organizations such as Gavi, Unitaid, WHO, MPP and others have excellent initiatives that can absorb additional funding. USAID was funding excellent work in this domain, especially around quality of production, prior to 2025 changes. Africa organization, esp. African Union and Africa CDC are leading on many efforts and should be supported

1. R&D does not only mean new product development: It also includes bringing novel processes and manufacturing technologies that bring down the cost of goods manufactured in Africa
SOURCE: Team analysis, Expert input

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- This work was inspired by a project completed for the **Medicines Patent Pool** (link) in 2025
- We are grateful for comments provided by the following experts. Their comments enriched the findings of the report
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  - **Dr. Jessica Pourraz (Sociologist, Independent Consultant for Medicines for Malaria Venture)**
  - **Jijo Jose (Aurobindo Pharma)**
  - **Japneet Kaur (Alstonia Impact)**
  - **Mae Shieh (Drugs for Neglected Diseases initiative)**
  - **Dr. Mrunal Shetye (UNICEF)**
  - **Pierre Hugo (Medicines for Malaria Venture)**
  - **Steve Kretschmer (Desire Line)**
  - **Veronica Denti (Global expert on vaccines' demand and Founder, VEDA Global Health)**
  - **Wesley Kreft (Consell)**
- All reviewers reviewed the report in their personal capacity, and this review does not imply organizational endorsement of the findings

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Alstonia Impact is a global impact-focused consulting firm

About Alstonia Impact

- Set-up in 2018, headquartered in New Delhi by professionals with previous donor-side experience
- Multi-sectoral + global expertise: health, education, climate, and gender
- Three verticals:
  1. **Strategy consulting and landscaping services** for philanthropic foundations and impact investors, and their portfolio organizations: Building investment/ organizational strategies, market expansion and sector building, identification of blended finance opportunities
     - Example clients: Gates Foundation, Omidyar Network
  2. **Quantitative/Qualitative research**: Performing quantitative and qualitative research and market advisory services as well as creating and measuring impact pathways
     - Example clients: Prevail/One Acre Fund, Gates Foundation, World Bank, Medicines Patent Pool
  3. **Operational excellence**: Support on setting up and improving indigenous production and supply chain in LMICs through our network of partners
     - Example clients: Medicines Patent Pool, Sanofi
- Lean core team with a network of experts

Our network

Our clients ...

Gates Foundation · The World Bank · UN · unicef · jhpiego · qure.ai · medicines patent pool · World Health Organization · Pfizer

... and where we come from

Gates Foundation · McKinsey & Company · Johns Hopkins Bloomberg School of Public Health · Oxford Policy Management · Siemens · sanofi · INSEAD The Business School for the World®

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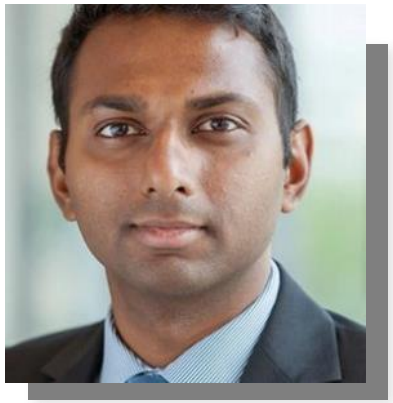

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Thank you!

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Framework for consolidating considerations from primary and secondary research (1/2)

Dimensions of the framework			
Level 1	**Level 2**	**Level 3**	**Details**
Supply side challenges	**Historical factors: Low base of manufacturing across sectors, due to exploitative colonial economies**		
	Limited push from government and others in form of industrial development for pharma products	**Import tariffs may be low to encourage import (or lack of incentives for local producers)**	
		Limited incentives for local manufacturers	
	High capital need but only limited or expensive capital available	**Limited capital across sectors (risk/return continuum seen as unfavourable) – see also business environment**	▪ Manufacturing growth in SSA is constrained by high capital needs and limited affordable financing. Pharmaceuticals attracting less investment compared to renewable energy, software, and business services.
		Limited capital for manufacturing of pharma goods (high capital needed)	
	Limited skills	**Limited number of entrepreneurs with required skill set**	
		Lack of skills and expertise to manufacture (technical skills)	
		Lack of R&D capabilities for product / process improvements	
	Limited integration with global supply chains/ players	**Lack of partnerships for bilateral or other types of technology transfers and other support**	▪ Tech transfer programs remain limited leaving the region reliant on fragmented, ad-hoc initiatives.
		Limited access to global export markets	

SOURCE: Team analysis of findings from next slides

Framework for consolidating considerations from primary and secondary research (2/2)

Dimensions of the framework			
Level 1	**Level 2**	**Level 3**	**Details**
Supply side challenges *(contd.)*	**Poor regulatory environment and support**	**Inconsistent quality standards and regulatory compliance;**	
		Weak NRAs with limited harmonization across region (Discourages smaller players from expanding to other markets)	
		Lack of incentives for local pharma to scale	
		Corruption that supports incumbents	
	Poor basic infrastructure (electricity, roads, digital infra, security)		
	Limited availability of inputs or inputs are expensive	**Poor lab and related infra**	
		Access to raw materials (APIs)	
		Etc.	
	Lack of tailored product pipeline for African markets	**Lack of research / product development for uniquely African conditions**	
Demand side challenges	**Low demand due to small domestic markets / inability to access regional markets**		
	Lack of clear understanding of demand		
	Procurement favours international players	**Price sensitive procurement from national governments and pooled procurers prioritizes foreign companies (e.g. those from India)**	▪ Lack of regional procurement and pooled purchasing limits scale and bargaining power, raising costs and reliance on foreign suppliers while weakening local pharma resilience.
		Some customers may prefer international brands to African brands	

SOURCE: Team analysis of findings from next slides

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Annexure: Full set of initiatives in our database (1/6)

Primary category of initiative	Name of initiative	Description	Organizations involved	Geography	Year initiated	Disease area	Focus: Drugs/ vaccines/both
Alliances, partnerships and convenings	EVA Pharma – DNA Script / Quantoom / Unizima mRNA platform >>	Collaboration to build the first digital-to-biologics (mRNA) end-to-end development and manufacturing platform in Egypt.	EVA Pharma (lead), DNA Script, Quantoom Biosciences, Unizima	Egypt	2025	Across Disease Areas	Vaccines
	Biogeneric & Afrigen mRNA development collaboration >>	Addendum to MoU to jointly develop mRNA platform technology between Egyptian and South African manufacturers.	Gavi, African Union, Africa CDC	South Africa, Egypt	2025	Across Disease Areas	Vaccines
	Africa's Access to Advanced Healthcare Coalition >>	The establishment of Africa's Access to Advanced Healthcare Coalition is a bold step to unite biotechnology and pharmaceutical companies, government agencies, non-profit organisations and academia.	South African Govt	South Africa	2022	Across Disease Areas	Vaccines
	Africa CDC Vaccines & Health Products Manufacturing Forum (2nd Forum) >>	Annual forum convening AU member states, industry, donors to coordinate manufacturing policy, regulation and financing	Africa CDC, African Union, Gavi, RVMC, national regulators	Africa-wide	2025	Across Disease Areas	Drugs and vaccines
	Developing Countries Vaccine Manufacturers Network (DCVMN) >>	Global alliance of manufacturers in developing countries advocating vaccine equity & coordination	DCVMN, 48-member manufacturers across Africa, Asia, Latin America	Africa-wide, Global	2000	Rotavirus, JE, Pertussis, Haemophilus influenzae, Hepatitis B/E, Meningitis A, Cholera, Poliovirus, HPV, Dengue, Chikungunya	Vaccines
	WHO / Africa CDC private-sector engagement forum (June 2024 Nairobi) >>	Platform to convene manufacturers, financiers, regulators to foster partnerships, investment, tech-transfer, and off-take commitments for local production.	WHO Local Production Unit, Africa CDC, EC International Partnerships, DFIs, private vaccine & pharma firms	Africa-wide	2024	Across Disease Areas	Drugs and vaccines
Capacity Building (Workforce, Regulatory, Tech Transfer)	BfArM PharmTrain2 regulatory workshop (Gambia) >>	German GHPP-led regulatory training to elevate The Gambia's medicines regulation, bio-equivalence and assessment capacity.	German BfArM, GHPP PharmTrain2, Gambia Medicines Control Agency	Gambia	2025	Across Disease Areas	Drugs and vaccines

SOURCE: Team analysis, web search or mentioned inline

Annexure: Full set of initiatives in our database (2/6)

Primary category of initiative	Name of initiative	Description	Organizations involved	Geography	Year initiated	Disease area	Focus: Drugs/ vaccines/both
Capacity Building (Workforce, Regulatory, Tech Transfer) *(contd.)*	USP–AUDA-NEPAD free access to Quality Standards >>	Provides free access to USP-NF pharmacopeial monographs and education library to regulatory authorities, labs and manufacturers across Africa.	United States Pharmacopeia (USP), AUDA-NEPAD, Africa CDC, AAU, FAPMA	Africa-wide	2024	Across Disease Areas	Drugs and vaccines
	WHO / MPP mRNA Technology Transfer WHO-MPP mRNA Technology Transfer Programme Phase 2.0 >>	Establish mRNA vaccine tech-transfer programme to build sustainable capability for COVID-19 & beyond Scale commercially-viable mRNA vaccines & therapeutics manufacturing across LMIC partners (2026-2030) Afrigen.	WHO (lead), Medicines Patent Pool, Afrigen, Biovac, SAMRC, Africa CDC, funding governments, WHO, Medicines Patent Pool, Afrigen, participating LMIC manufacturers, donor governments	Africa-wide, Global	2021	Across Disease Areas	Drugs and vaccines
	Africa CDC Regional Capability & Capacity Networks (RCCNs) >>	Workforce training, R&D networks to build skills across vaccine and health product manufacturing.	Africa CDC (lead), national/regional training partners, universities Africa CDC	Africa-wide	2024	Across Disease Areas	Drugs and vaccines
	ALIVE (African Leadership in Vaccinology Expertise) >>	Master's-level vaccinology training and leadership development to boost regional vaccine R&D and advocacy.	University of Witwatersrand, DST/NRF South Africa (lead), Gates Foundation	South Africa	2019	HIV	Vaccines
	African Pharmaceutical Academy (via AVA) >>	Training academy for biopharma quality assurance, regulatory compliance, GMP and vaccine tech skills via blended learning.	Bloom Public Health, Biotech Training Facility (Netherlands)	Nigeria	2023	Across Disease Areas	Drugs and vaccines
	WHO Prequalification (PQ) Support for Nigerian Pharma Manufacturers >>	Under a World Bank–funded program, Bloom Public Health and NIPRD will support Nigerian pharmaceutical manufacturers through the WHO PQ process. Support includes gap analysis, technical upgrades, and quality system improvements. This aims to improve international market access and regulatory alignment.	NIPRD, Bloom Public Health, World Bank	Nigeria	2023	Across Disease Areas	Drugs and vaccines
	Lilly-EVA Pharma Insulin Access Collaboration >>	Lilly will provide insulin API at a reduced price and pro-bono technical support to EVA Pharma to enable local production and distribution of insulin to 1M+ people annually in LMICs, primarily in Africa.	Eli Lilly, EVA Pharma	Africa-wide	2022	Diabetes	Drugs
	African Antimalarial Manufacturing (MMV & Africa CDC initiative) >>	MMV and Africa CDC aim to double the number of WHO-prequalified antimalarial manufacturers in Africa (from 3 to 7 by 2030). The program strengthens local production and regulatory compliance, increasing access to quality-assured malaria prevention drugs like SP and SPAQ for vulnerable populations.	Medicines for Malaria Venture (MMV), Africa CDC, Unitaid, WHO, UCL (Kenya), Emzor & Swipha (Nigeria), Rena Exports (India)	Kenya, Nigeria	2020 (Nigeria), 2022 (Kenya prequal.), 2024 (Africa-wide push)	Malaria	Drugs

SOURCE: Team analysis, web search or mentioned inline

Annexure: Full set of initiatives in our database (3/6)

Primary category of initiative	Name of initiative	Description	Organizations involved	Geography	Year initiated	Disease area	Focus: Drugs/ vaccines/both
Capacity Building (Workforce, Regulatory, Tech Transfer) *(contd.)*	USP–PVAC MOU Initiative for Unlocking the Healthcare Value Chain (PVAC) >>	Collaboration to strengthen Nigeria's domestic pharmaceutical manufacturing by supporting international quality standards, building API and bioequivalence capabilities, and enhancing export readiness, workforce skills, and industrial ecosystem development.	USP, Federal Government of Nigeria (PVAC), USAID (via PQM+ program), Coordinating Ministry of Health and Social Welfare	Nigeria	2024	Across Disease Areas	Drugs
	CEPI-UC Davis RVF Vaccine Trials in Tanzania >>	CEPI is investing $28.5M (with EU support) to fund Phase I & II trials of the DDVax RVF vaccine in Tanzania. Trials include tech transfer, regulatory engagement, and One Health studies to prepare for vaccine licensure and outbreak management.	CEPI, UC Davis One Health Institute, Ifakara Health Institute, European Commission (Horizon Europe), Colorado State University	Tanzania	2023	Rift Valley Fever (Rvf)	Vaccines
Cross-cutting	CEPI–AU Africa R&D & Manufacturing MoU >>	Memorandum to boost vaccine R&D, tech-transfer, and local manufacturing in Africa.	CEPI, African Union, Africa CDC	Africa-wide	2021	Lassa Fever, Ebola, Rift Valley Fever	Vaccines
	Team Europe Initiative (MAV+) >>	€1 Bn EU-backed support across supply, demand, regulation, financing, tech-transfer and R&D.	European Commission/EIB (lead), EU member states, AU, Africa CDC, PAVM integration International Partnerships	Africa-wide	2021	Across Disease Areas	Drugs and vaccines
	African Pharmaceutical Technology Foundation (APTF) >>	APTF aims to enhance Africa's pharmaceutical sector by enabling access to technology, supporting local production, and facilitating partnerships between public-private actors globally.	African Development Bank Group, Government of Rwanda, European Investment Bank, WHO, WTO, German Federal Ministry for Economic Cooperation and Development, African pharmaceutical and research institutions	Africa-wide	2024	Across Disease Areas	Drugs and vaccines
	Health Products Manufacturing Support Platform (HMSP) >>	Launched in 2023 to enhance technical capacity for African manufacturers by providing assistance in technology, management, operational skills, capital access, and regulatory compliance, addressing 79% of pharmaceutical imports.	Unitaid, AUDA-NEPAD, WHO Local Production and Assistance Unit	Africa-wide	2023	Across Disease Areas	Drugs and vaccines
Financing	EU-South Africa Global Gateway vaccine investment package >>	€4.7 Bn investment package includes support for vaccine manufacturing infrastructure and skills development in South Africa.	European Commission/EIB, South African govt	South Africa	2025	Across Disease Areas	Drugs and vaccines
	Programme for Investment & Financing in Africa's Health Sector (PIFAH) >>	AUDA-NEPAD-led investment mobilization platform aligned with AU pharma industrialization strategy and continental regulatory harmonization goals.	AUDA-NEPAD, AU, Africa CDC, Afreximbank, financiers	Africa-wide	2024	Across Disease Areas	Drugs and vaccines

SOURCE: Team analysis, web search or mentioned inline

Annexure: Full set of initiatives in our database (4/6)

Primary category of initiative	Name of initiative	Description	Organizations involved	Geography	Year initiated	Disease area	Focus: Drugs/ vaccines/both
Financing *(contd.)*	African Vaccine Manufacturing Accelerator (AVMA) >>	Incentives (US $1.2 Bn) to encourage African manufacturers to invest in priority vaccines/platforms.	Gavi (lead), AU, Africa CDC, RVMC, donors, participating African manufacturers GaviLe Monde.frAfrica CDC	Africa-wide	2024	Cholera, Malaria, Measles, Rubella, Hexavalent, Yellow Fever, Ebola, Pneumo-coccal	Vaccines
	MedAccess–Gavi Advanced Financing Mechanism >>	Partnership to explore the development of a financing mechanism to address a shortage in risk tolerant financing faced by vaccine manufacturing projects on the African continent. Under the financing mechanism, MedAccess will provide guarantee-based finance to manufacturers seeking to participate in AVMA of up to US$50 Mn, subject to structuring and required approvals.	MedAccess, Gavi, manufacturing partners (forthcoming) medaccess.org	Africa-wide	2025	Across Disease Areas	Vaccines
	Gates Foundation mRNA development support >>	$40 Mn to develop mRNA vaccine capacity in Senegal (IPD) and Biovac in South Africa for regional diseases.	Gates Foundation, Institut Pasteur Dakar, Biovac, Quantoom Biosciences	South Africa, Senegal	2023	Measles, Rubella	Vaccines
	Accelerating Human Development (HDX) >>	Up to €750 M EIB and Gates Foundation guarantee to strengthen health systems and biopharma manufacturing. Provides loans and guarantees to de-risk investments in supply chains, primary healthcare, and R&D	EIB, Bill & Melinda Gates Foundation	Sub-Saharan Africa	2023	Across Disease Areas	Both
	Transform Health Fund (THF) >>	$111 M debt/mezzanine fund to scale high-impact health enterprises in supply chain, care delivery, and digital innovation. Provides loans ($2M–$15M) to build resilience in the African healthcare ecosystem	AfricInvest, Health Finance Coalition (HFC)	Africa-wide	2023	Across Disease Areas	Both
	Pharmaceutical Industry Investment Clinics (PIC) >>	African Development Bank initiative to mobilise investment and strengthen local pharmaceutical and vaccine manufacturing capacity across Africa under its 2030 continental vision	African Development Bank (AfDB), Egyptian African Businessmen Association (EABA), Pharmaceutical Export Council, Banque Misr, National Bank of Egypt	Egypt(initial focus), Africa-wide scope	2023	Across Disease Areas	Both
	German DEG & KfW expansion support for IPD/Biovac/Aspen >>	German Development Bank financing to expand fill-finish operations at Aspen (South Africa), Institut Pasteur Dakar, Biovac.	DEG (Germany), KfW, World Bank IFC, IPD, Aspen, Biovac	South Africa, Senegal	2021	Yellow Fever, Malaria, HIV	Vaccines

SOURCE: Team analysis, web search or mentioned inline

Annexure: Full set of initiatives in our database (5/6)

Primary category of initiative	Name of initiative	Description	Organizations involved	Geography	Year initiated	Disease area	Focus: Drugs/ vaccines/both
Financing *(contd.)*	South Africa Pharma Incentive Schemes (THRIP, SIP, CIP) >>	The government supports pharma via The Technology and Human Resources for Industry Programme-THRIP (R&D grants for industry-academia collaboration), The Strategic Industrial Projects-SIP (tax incentives for investment), and Critical Infrastructure Programme- CIP (infrastructure development for manufacturing).	Department of Trade, Industry and Competition (DTIC), South African Government	South Africa		Across Disease Areas	Drugs and vaccines
	EIB-APIFA Active Pharmaceutical Ingredients (API) Facility >>	€50 m European Investment Bank initiative to finance API manufacturing facilities and supply chain resilience across Africa. As part of it $12 Mn project supporting the first API manufacturing facility in Nigeria (Emzor), focused on antimalarial drugs, to reduce import dependence and enhance supply chain resilience.	European Investment Bank, WHO, EDCTP, APIFA, kENUP Foundation	Africa-wide	2020	Across Disease Areas	Drugs
	Paris Vaccine Innovation Summit (2024) >>	€1 Bn+ pledge including €10 Mn to Biovac for cholera vaccine line and support for AVMA financing.	French gov't, Biovac, AU, Gavi, EU & global donors	Africa-wide	2024	Cholera	Vaccines
	African Vaccine Acquisition Task Team / Trust (AVATT / AVAT) >>	Secures and finances vaccine purchases for AU countries using pooled acquisition and Afreximbank's advance procurement commitments.	Africa CDC, African Union, Afreximbank	Africa-wide	2020	Across Disease Areas	Vaccines
Policy / Vision	AU Member States Vaccine Offtake Commitment >>	At WHA 2024, AU Member States committed to prioritize African-made vaccines in selection decisions to ensure demand offtake, supporting 60% local production by 2040.	Africa CDC, African Union, AU Member States	Africa-wide	2024	Across Disease Areas	Vaccines
	Partnerships for African Vaccine Manufacturing (PAVM) Framework for Action >>	Outlines eight programs to achieve 60% local vaccine production by 2040, including procurement pooling, regulatory strengthening, technology transfer, and R&D coordination. Platform for Harmonized African Health Prod. Mfg (PHAHM): Expanded successor to PAVM, broadening mandate beyond vaccines to all health products; aims regulatory & procurement harmonization.	Africa CDC, African Union, PAVM Task Force, National Regulatory Authorities, Donors PHAHM: African Union (lead), Africa CDC, Afreximbank, UNECA, national NRAs	Africa-wide	2021	Across Disease Areas	Vaccines
	Pharmaceutical Manufacturing Plan for Africa (PMPA) >>	Provides a roadmap to catalyse local pharmaceutical production through policy, investment, and technology transfer.	African Union, UNIDO, WHO	Africa-wide	2012	Across Disease Areas	Drugs and vaccines
	AfCFTA (Health/Product Implications) >>	Reduces trade barriers to improve economics of local manufacturing and enable cross-border procurement.	African Union, AfCFTA Secretariat	Africa-wide	2021	Across Disease Areas	Drugs and vaccines

SOURCE: Team analysis, web search or mentioned inline

Annexure: Full set of initiatives in our database (6/6)

Primary category of initiative	Name of initiative	Description	Organizations involved	Geography	Year initiated	Disease area	Focus: Drugs/ vaccines/both
Regulatory	African Medicines Agency (AMA) >>	Harmonizes medicine & vaccine regulation across AU to accelerate local production approvals.	African Union (lead), REC regulatory bodies, Africa CDC	Africa-wide	2019	Across Disease Areas	Drugs and vaccines
	Africa Medical Supplies Platform (AMSP) >>	Launched during COVID-19 to aggregate orders across AU states via an online procurement marketplace with vetted suppliers.	Africa CDC, African Union, Afreximbank	Africa-wide	2020	Across Disease Areas	Drugs and vaccines
	African Pooled Procurement Mechanism (APPM) >>	Establishes continental pooled procurement for health products, building on AMSP, with offtake guarantees (approved 2024).	Africa CDC, African Union, Afreximbank, UNECA	Africa-wide	2024	Across Disease Areas	Drugs and vaccines
	EAC's AMRH joint inspection & mutual recognition >>	East African Community MRH mechanism enabling cross-border inspections, common registration and regulatory confidence.	EAC, NEPAD, WHO, National Regulatory Authorities in EAC states	Eastern African countries	2017	HIV/AIDS, Tuberculosis, Malaria	Drugs and vaccines
	Joint continental evaluation pilot (AMRH-EMA) >>	EMA and AU-led pilot to test joint continental assessment of priority medicines, enabling reliance and faster access.	AUDA-NEPAD's AMRH, African Medicines Regulatory Harmonization, EMA, Gates Foundation	Africa-wide	2024	Across Disease Areas	Drugs and vaccines
	EFDA GMP Re-inspection Reform >>	Ethiopia's EFDA revised GMP re-inspection timelines from 5 to 3 years to enhance pharmaceutical oversight and align with global standards.	Ethiopian Food and Drug Authority (EFDA)	Ethiopia	2025	Across Disease Areas	Drugs and vaccines
	Kenya PvERS Mandate for Safety Reports >>	From 15 April 2025, Kenya's PPB requires all aggregate safety reports (PBRERs/PSURs) and ICSRs in E2B format to be submitted via the PvERS platform, enhancing electronic pharmacovigilance and standardizing data exchange.	Pharmacy and Poisons Board (PPB)	Kenya	2025	Across Disease Areas	Drugs and vaccines
	African Information Network on Pricing and Reimbursement of Pharmaceutical Products (ARP Network) >>	A regional initiative launched in Senegal to enhance cooperation on pharmaceutical pricing and reimbursement practices across Africa, aiming to improve equitable access to medicines.	ARP Senegal, Senegal MoH, WHO, EU MAV+ Project, PPRI Africa Secretariat, Representatives from 11 African countries	Africa-wide	2025	Across Disease Areas	Drugs
	SADC Medicines Regulatory Harmonization (ZAZIBONA) >>	Promotes regulatory convergence across SADC member states through joint dossier reviews, inspections, and reliance mechanisms to speed medicine approvals and support regional manufacturing.	SADC Secretariat, (NMRAs) of member states, WHO and AUDA-NEPAD	Southern African countries	2013	Across Disease Areas	Drugs
	WHO AFRO Regional Guidance & Frameworks >>	Offers technical guidance to support pooled procurement, regulatory harmonization, and local manufacturing.	WHO African Region	Africa-wide	2020	Across Disease Areas	Drugs and vaccines

SOURCE: Team analysis, web search or mentioned inline

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Annexures: Private investments

Initiatives	Description	Organizations involved	Geography	Year initiated	Focus area	Disease area
BioNTech mRNA vaccine plant (Rwanda) >>	Kigali site to produce mRNA vaccines (e.g. malaria, mpox, TB) with CEPI funds.	BioNTech (lead), CEPI, Rwanda govt, AU/Africa CDC support	Rwanda	2024	Vaccines	Malaria, Mpox, Tuberculosis
Biovac-IFC >>	Investment & advisory to scale Biovac output from ~150 M to ~560 M doses/year, incl. mRNA plants.	IFC (lead), Biovac (South Africa) ifc.org	South Africa	2023	Vaccines	HPV, Meningococcal Disease, Cholera, Various Paediatric Vaccines
Dawa Ltd. Nairobi Plant Expansion >>	Dawa Ltd. is investing KSh3bn (US$290 Mn) to expand its Nairobi plant with cutting-edge machinery and a new production line targeting lifestyle diseases. The project will boost regional distribution and increase exports to African markets like Tanzania.	Dawa Ltd.	Kenya	2020	Drugs	Across Disease Areas
Dei BioPharma Uganda facility >>	Dei BioPharma has built a large vaccine and medicine plant in Uganda that can make up to 1 Bn mRNA doses per year. It will also produce cancer and insulin medicines. The facility aims to meet US FDA and WHO standards.	Dei BioPharma Ltd, NDA Uganda, Ugandan govt	Uganda	2021	Drugs and vaccines	Across disease areas
Fidson–China Strategic JV >>	Fidson Healthcare in Nigeria has partnered with Jiangsu Aidea Pharma, Nanjing PharmaBlock, and the China-Africa Development Fund to build a pharmaceutical plant in the Lekki Free Trade Zone, focused on producing HIV medicines for the region.	Fidson Healthcare, Aidea Pharma, PharmaBlock, China-Africa Development Fund	Nigeria	2024	Drugs	HIV/AIDS
IFC–Fosun project in Côte d'Ivoire >>	This project will set up a factory in Côte d'Ivoire to make antibacterial and antimalarial tablets, with a capacity of around 5 Bn tablets a year.	IFC, Fosun Pharma, Ivorian government	Côte d'Ivoire	2023	Drugs	Malaria, Anti-Bacterial Medicines
Insulin Local Production Partnership (Novo Nordisk(iCARE) >>	Novo Nordisk, in partnership with Aspen Pharmacare, is establishing local production of affordable human insulin in South Africa. The initiative aims to reach 4.1 Mn people in Africa by 2026 and strengthen local supply chains.	Novo Nordisk, Aspen SA Operations, Aspen Pharmacare, AU	South Africa	2023	Drugs	Diabetes
MADIBA Project (Institut Pasteur Dakar) >>	A new high-tech vaccine plant is being built in Senegal, capable of making up to 300 Mn doses of various vaccines each year.	Institut Pasteur de Dakar / VaxSen (lead), IFC, DFC, AfDB	Senegal	2022	Vaccines	Across Disease Areas
Moderna–Kenya mRNA vaccine plant MoU >>	Moderna signed an agreement to build an mRNA vaccine factory in Kenya. Initially, Moderna will run the plant and later transfer the technology.	Moderna (lead), Kenyan government, US partners	Kenya	2023	Drugs and vaccines	HIV, Zika, Ebola, Tuberculosis, Malaria
Nant-South Africa Vaccine Manufacturing Campus >>	Establishing protein-based vaccine manufacturing plants in Botswana and South Africa covering 150,000–200,000 sq ft, with advanced production platforms.	Nant Africa, Baylor University, IDRI	South Africa	2022	Vaccines	Across Disease Areas
Sansheng Pharmaceuticals Local Production in Ethiopia >>	Chinese firm Sansheng Pharmaceuticals launched a $85 Mn production plant near Addis Ababa with a capacity of 5B solid doses, 300M ampoules, and 10M large volume parenterals, aiming to reduce import dependence and support Ethiopia's pharma sector.	Sansheng Pharmaceuticals Plc	Ethiopia	2018	Drugs	Across Disease Areas
Smart Vaccine Facility Feasibility: Kenya & SK Bioscience >>	A study is being done to see if a "smart" vaccine factory can be set up at Konza Technopolis in Kenya, led by South Korea's SK Bioscience.	SK Bioscience (South Korea), Kenyan govt, Konza Technopolis planners	Kenya	2024	Vaccines	Across Disease Areas

SOURCE: Team analysis, web search or mentioned inline

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3. Ongoing Efforts to Strengthen Regional Production
4. Case studies: Lessons from Successful Countries
5. Recommendations

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- 5. Other slides related to LMIC peers

Case study: Bangladesh

Context and Baseline

- Population: 175 Mn
- Region: South Asia
- Baseline
  - In 2015, the domestic pharmaceutical market stood at $1.4 Bn >>, already a significant rise from $25 Mn in 1982 >> (The 1982 National Drug Policy was a turning point, curbing foreign dominance, and restricting MNCs from marketing contract-manufactured drugs if they lacked local production facilities)
  - The GDP per capita of Bangladesh in the year 2015 was $1224, placing it in the World Bank's Low-middle-income category.
  - In 2015, pharmaceutical exports were valued at $72 Mn >>

What was done?

- **Key policy changes**
  - The 2016 update to the National Drug Policy focused on affordability, GMP compliance, and export-readiness. >>
  - Bangladesh has benefited from a **WTO TRIPS waiver** (extended until 2033). A 2008 notification suspended examination of product patent applications in pharmaceuticals, **enabling domestic pharmaceutical firms to produce generic versions of patented drugs** >>. For example, the hepatitis C drug was made available at $10 per tablet (vs $1,000 in the U.S.). >>
- **Product Focus**
  - Bangladesh's pharmaceutical sector has focused on branded generics and finished formulations, meeting 98% of domestic demand and producing over 450 generics under 5,300 brands as of 2019. >>
  - Firms are expanding into high-tech areas such as biosimilars, vaccines, and oncology drugs, with the biologics market valued at$80 Mn in 2019. >>
- **API dependence and initiatives**
  - In 2024, Bangladesh imported over 85% of its APIs, costing $1.3 Bn>>. Bangladesh **prioritized building domestic API manufacturing capacity building on a 2018 API policy** >>
- **Regulatory strength**
  - Bangladesh is working towards achieving Maturity Level 3 (ML3) for its NRA[1]. The Directorate General of Drug Administration is being expanded with more qualified staff and infrastructure to achieve WHO recognition and PIC/S membership, ensuring global-standard drug safety and quality.
- **Capacity building**
  - The National Drug Policy 2016 mandates employing and regularly training skilled staff to implement Good Manufacturing Practices (GMP), while Directorate General of Drug Administration (DGDA) provides continuous training for professionals in manufacturing, quality control, and exports. >>
- **R&D orientation**
  - Bangladesh's pharma R&D has focused on reverse engineering, with firms spending only 3.4% of annual expenditure—and in 2018–19, Square and Beximco investing just 0.27% and 1.25% of revenue. As of 2024, only 14% engage in NCE or NDDS research, though a niche high-tech segment in biosimilars, vaccines, and oncology drugs is emerging. With LDC graduation in 2026 and the TRIPS waiver ending in 2033, 83% of firms plan to rely on licensing over costly in-house innovation. >>
- **Financial Incentives**
  - To promote domestic API production, the government **provided tax holidays** (100% for 5–15 years), **VAT waivers** (15% until 2025), **cash incentives** (20% for value-added APIs), and **duty exemptions on raw materials and specialized medical inputs** (customs duties on key pharma components were reduced from 25% to 15%.) Payment periods for raw material and machinery imports were extended to improve liquidity. >>
  - Approved in 2008, the 200-acre Munshiganj park with 42 plots (27 firms) aimed to start production by 2022, create 25,000 jobs, and cut raw material import costs by 70%. Two more parks are being built in Bagerhat and Khulna. >>
- **Export orientation**
  - Bangladeshi pharmaceutical firms are increasingly **investing** to meet global demand and comply with stringent standards, including those of the EU. **Over 70% of companies collaborate with international partners to enhance affordability and access to complex medicines**. WTO TRIPS waivers (extended to 2033) allow Bangladesh to produce patented drugs as generics for export without patent restrictions. >>
- **Public vs. Private sector manufacturing**
  - In Bangladesh's pharmaceutical manufacturing sector, private companies dominate the market. >>
  - However, two public sector manufacturers, Active Fine Chemicals Ltd and Essential Drugs Co. Ltd, each hold roughly 2% of the market share in 2024.

Impact

- **The domestic pharmaceutical market has reached $3.5 Bn in 2022, contributing 1.8% to GDP**. The sector has grown at a CAGR of 16% since 2021 >>
- Bangladesh **meets 98% of its national medicine demand** through local production since 2019, compared to ~20% during the time of independence in 1971. The country **hosts over 150 formulation manufacturers, with local companies holding 90–92% market share** due to the 1982 National Drug Policy. >>
- Manufacturers **produce over 450 generic molecules and 5,300+ brands** across therapeutic areas. High-tech products include insulin, hormones, anti-cancer drugs, biosimilars, and vaccines. >>
- **Bangladesh exports medicines to over 150 countries** including the US, UK, EU, and Australia. Export revenues reached **$205 Mn in FY24**. >>

1. The Directorate General of Drug Administration (DGDA), under the MoH, serves as Bangladesh's national drug regulatory authority. Its National Drug Control Laboratory (NDCL) has gained global recognition from the American National Standards Institute (ANSI). However, the DGDA has historically been under-resourced, with limited inspectors and budget, resulting in infrequent inspections often seen as "courtesy visits."
2. Bangladesh meets 98% of its local pharmaceutical demand through both domestic and international companies, with 90–92% of this demand supplied by domestic companies

Case study: Brazil

Context and Baseline

- Population: 213 Mn
- Region: South America
- Baseline
  - In 2005, the **Brazilian pharmaceutical market had a market size of $8.1 Bn**, and imported over $2 Bn (55%) of its required pharma needs >>
  - Brazil's GDP per capita was $4,828 in 2005, placing it in the World Bank's Lower-middle-income category.

What was done?

- **Key policy changes**
  - Brazil has taken a comprehensive, **state-led approach** to building a resilient pharmaceutical industry by combining industrial strategy, targeted regulations and financial incentives.
  - Brazil also incorporated several **TRIPS flexibilities** into its patent law, including compulsory licensing (used notably for HIV/AIDS treatments), early working exceptions, and parallel imports post-compulsory license.
  - The **1999 Generics Law and 2010 regulation for biosimilars** provided a structured legal foundation for generics and biologics. >>
- **Product Focus**
  - Strategically, Brazil **prioritized the promotion of generic drugs**, introduced officially in 2001, to expand medicine access and reduce dependence on patented drugs >>
  - In the early 2000s, **Brazil expanded its scope to include biosimilars**, encouraging local development through technology transfer agreements, especially in oncology and infectious diseases, key therapeutic areas for national investment. >>
- **API dependence and initiatives**
  - **Private manufacturers** dependent on imports for about **90% of APIs**. >>
- **Regulatory strength**
  - Regulatory efficiency has improved under ANVISA (Brazil's National Health Surveillance Agency) established in 1999, Brazil's drug regulator, which joined the Pharmaceutical Inspection Cooperation Scheme in 2020, signalling alignment with global quality standards. >>
- **Capacity Building**
  - Efforts to reduce import dependency, especially for APIs, led to the development of the National Health Industrial Complex (CIS), which **promotes regional specialization in manufacturing and R&D**. >>
- **R&D orientation**
  - **Brazil also supports early-stage biotech innovation, with local firms like Recepta and Biomm advancing clinical trials**
  - Firms such as EMS, Aché, Eurofarma, and Hypermarcas have invested heavily in R&D, up **171% between 2006 and 2017** >>
- **Financial Incentives**
  - Government incentives include **public procurement preferences, allowing a 25% price margin for domestic suppliers in public tenders**. >>
  - Financing is channelled through Brazilian National Development Bank and FINEP (Brazilian Innovation Agency), with tax incentives, including 50% Excise tax reductions and import exemptions for R&D inputs. Regional tax holidays in zones like Manaus further support manufacturing. >>
- **Export orientation**
  - Brazil's export support includes the nationwide Drawback Program, allowing tariff suspension, exemption, or reimbursement on imports for re-export, streamlined via Siscomex. Proex and BNDES Exim provide financing and interest rate harmonization, while 2010 incentives added reduced financing costs, a 50% tax credit refund within 30 days, and a Guarantor Fund for External Trade. >>.
- **Public vs. Private sector manufacturing**
  - Public laboratories, including **Fiocruz** and **Instituto Butantan**, focusing on essential medicines, vaccines, and neglected diseases for the **Unified Health System (SUS),** often where these is not sustainable private market. Since 2008, they have expanded biopharmaceutical production, notably contributing to local COVID-19 vaccine manufacturing. >>

Impact

- Brazil ranks among the **top 10 global pharmaceutical markets, valued at $33 Bn (2024)** >>
- Brazil imports $11 Bn worth of pharma products in 2023 accounting for roughly **30% of its domestic market** >>
- In 2022, of the **341 pharma companies**, 72% are Brazilian-owned. >>
- **Exports reached $1.2 Bn in 2023**, with growth driven by biologics and increasing global regulatory alignment. >>
- In 2024 the industry **provides 91,000 direct jobs and generates 800,000 indirect jobs**. >>

SOURCE: Team analysis, web search or mentioned inline

Case study: Egypt

Context and Baseline

- Population: 118 Mn
- Region: North Africa
- Baseline
  - In 2014, the **Egyptian pharmaceutical market had a market size of $1.7 Bn.** >>
  - The local pharma industry covers around 82 % of the needs of the market >>
  - The GDP per capita of Egypt in the year 2014 was $3,133, placing it in the World Bank's Lower-middle Income category

What was done?

- **Key policy changes**
  - The Universal Health Insurance System (UHIS), formalized in 2018, aims for 100% healthcare coverage by 2030. Its phased rollout across governorates is creating **steady demand for locally produced medicines and healthcare services**. >>
  - Key bodies recently strengthened: Universal Health Insurance Authority (UHIA), which **oversees drug pricing and reimbursements**; the General Authority for Healthcare Accreditation and Regulation (GAHAR) for **quality standards**; and the United Procurement Agency (UPA) for centralized procurement. >>
  - Egypt's strategic location, robust trade agreements, and population growth drive pharmaceutical demand. **Egypt has full TRIPS obligations since 2005, with limited use of compulsory licensing to date**. >>
- **Product Focus**
  - **Strong emphasis on generic drugs**, which make up over 70% of the market in 2025. >>
  - The country is also advancing in biopharmaceutical R&D, including monoclonal antibodies, oncology drugs, and vaccines. **Strategic focus areas include personalized medicine, digital transformation, and the localization of APIs,** notably insulin glargine, and over 180 antibiotics. >>
- **API dependence and initiatives**
  - Around 90% of the raw materials used in Egypt's pharmaceutical industry are imported, making the sector heavily reliant on foreign supplies. >>
  - Localization of 129 active ingredients >>
- **Regulatory strength**
  - The government strengthened key regulatory bodies: the Egyptian Drug Authority (EDA), which **accelerated drug approvals** >>
  - The WHO ranks Egypt's EDA at Maturity Level 3, the highest in Africa
- **Capacity building**
  - The private sector expanded production capacity and R&D investments in 2022, including the establishment of specialized facilities such as EIPICO's biosimilars plant and Gennecs' multi-vaccine manufacturing unit. >>
  - **Industry bodies (e.g., Federation of Egyptian Industries) and research institutions support regulatory and policy engagement**.
  - Global organizations like UNFPA and WHO assist with technical partnerships and advocacy. >>
  - Egypt is prioritising local pharma procurement by boosting domestic production and working with the Egyptian Authority for Unified Procurement to cut import reliance >>
- **R&D orientation**
  - **Local companies developed over 50 local alternatives to imported drugs and localized production of insulin glargine and most COVID-19 treatments**. >>
  - Egypt's pharmaceutical R&D ecosystem is expanding: Recent R&D initiatives include EVA Pharma's 2025 mRNA vaccine platform partnerships, personalized oncology drug development by EIPICO, and gene therapy exploration by Pharco >>
- **Financial Incentives**
  - The government **offers tax incentives, subsidies, and simplified licensing processes for local drug manufacturers**. Major government investments include Gypto Pharma in 2021, one of the largest regional pharmaceutical production and export hub. Tariff and trade facilitation policies also support growth. >>
- **Export orientation**
  - Egypt is boosting pharmaceutical exports through tax breaks, subsidies, and faster approvals under the Egyptian Drug Authority
  - Localization of 180 antibiotics, major projects like Gypto Pharma and the upcoming GennVax vaccine facility, along with trade pacts such as AfCFTA and WHO Maturity Level 3 status, enhance capacity and global market access.
- **Public vs. Private sector manufacturing**
  - Egypt's private sector produces 93% of pharmaceuticals with over 179 factories and 40 more in development. Major investments include EIPICO's $100M biosimilars plant and Gennecs' GennVax, the largest vaccine facility in MENA. >>
  - In the public sector, Gypto Pharma, launched in 2021, produces 100 Mn packs annually with a target of 200 Mn by 2025, while VACSERA has capacity for 700 Mn vaccine doses per year. >>
  - Egypt is investing in vaccine manufacturing positioning itself as a hub for the MENA region.

Impact

- Egypt's pharma market **valued at $4 Bn (2021)** >>
- **Pharmaceutical exports rose by 66%, from $270 Mn (2019) to $447 Mn (2024),** reaching 147+ markets globally. Egypt's strategic location and African trade agreements. >>
- Egypt now meets **90% of its pharmaceutical needs through local production** >>
- **The government has localized insulin glargine and COVID-19 treatments, saving $182 Mn/year**, and is working to replace **$633 Mn** worth of imported antibiotics and APIs. >>

SOURCE: Team analysis, web search or mentioned inline

Case study: Ethiopia

Context and Baseline

- Population: 135 Mn
- Region: Sub-Saharan Africa
- Baseline
  - In 2015, the **Ethiopia pharmaceutical market had a market size of $450 Mn.** >>
  - **~85% import dependence** in 2015
  - The GDP per capita of Ethiopia in the year 2015 was $621, placing it in the World Bank's Low-income category.

What was done?

- **Key policy changes**
  - Ethiopia launched a comprehensive **10-year National Strategy and Plan of Action for Pharmaceutical Manufacturing Development** (NSPA-Pharma) in 2015 to enhance local pharmaceutical production, reduce import dependency, and meet essential medicine needs. >>
  - **Import substitution became a top priority** post-COVID-19 to ensure medicine security.
  - Ethiopia has **aligned its policies with the African Union's Pharmaceutical Manufacturing Plan for Africa**, being the first country to implement it domestically. >>
- **Product Focus**
  - Ethiopia **prioritizes production of essential medicines, vaccines, and diagnostics,** particularly those targeting TB, malaria, and neglected tropical diseases
- **API**
  - Ethiopia currently does not have any local manufacturers of APIs. The country 100% relies on imports for APIs >>
- **Regulatory strength**
  - Ethiopian Food and Drug Authority (EFDA) established in 2009. The national drug policy emphasizes compliance, quality assurance, and counterfeit control. Regulatory frameworks **increasingly focus on harmonization with global standards, facilitating trade and investment** >>
  - According to WHO, EFDA is classified under the ML2/ML1
- **Capacity Building**
  - The American International Health Alliance (AIHA), with funding from Gates Foundation, launched a two-year project to strengthen the Ethiopian Pharmaceutical Supply Service's human resource capacity and improve pharmaceutical supply chain management in 2023 >>
- **R&D orientation**
  - A 2021 study of 7 of Ethiopia's 11 pharma firms found R&D capacity very weak, limited to formulation work, with no companies in advanced (Level 5) R&D between 2015–2020. >>
  - Ethiopia also has begun focusing on developing R&D capabilities, human capital, and APIs >>
- **Financial Incentives**
  - To attract investment, **the government offers fiscal incentives like income tax holidays, customs duty exemptions, and VAT refunds,** especially for companies operating within industrial parks. >>
  - **Non-fiscal incentives include a 25% price preference and 30% advance payments to local producers** through the Ethiopian Pharmaceutical Supply Agency (EPSA). The Ethiopian Investment Commission (EIC) provides support across investment stages. >>
  - In 2025, the Kilinto Pharmaceutical Industrial Park serves as a flagship initiative, providing ready-made factory spaces, advanced infrastructure, and tailored services to pharmaceutical firms, significantly reducing startup costs and operational barriers. Provides low-cost, serviced land with full infrastructure, regulatory fast-tracking, and one-stop-shop government services. >>
- **Public vs. Private sector manufacturing**
  - The **private sector is central to Ethiopia's strategy. Cadila Pharmaceuticals and over 110 other local firms have invested in cGMP-compliant manufacturing**. The Local Pharmaceutical Industry Development Forum (LoPID), including 11 non-governmental stakeholders, was formed to **coordinate public-private collaboration and promote innovation.** >>
- **Export orientation**: Limited, export went from $0.8 Mn in 2015 to $1.4 Mn in 2023

Impact

- The pharmaceutical market, valued at **US $1 Bn (2021), has grown at 15% annually** and is projected to reach $4 Bn by 2030, driven by population growth and increased healthcare access. >>
- Import dependence has reduced to 64% down from just 85% in 2015 >>
- **Over 110 local pharmaceutical firms recently participated in a domestic innovation expo in 2024**, up from just 9 manufacturers a few years ago, indicating a sharp rise in industry participation. >> WHO-cGMP compliant facilities, like Cadila's plant in Addis Ababa, **mark improvements in manufacturing quality and readiness for global markets.** >>
- Although current pharmaceutical exports are limited, Ethiopia's strategic geographic position, extensive air connectivity to 116 global destinations, and participation in the African Continental Free Trade Area (AfCFTA), a $3.4 trillion market spanning 55 countries >>

SOURCE: Team analysis, web search or mentioned inline

Case study: South Africa

Context and Baseline

- Population: 65 Mn
- Region: Sub-Saharan Africa
- Baseline
  - In 2018, the **South Africa pharmaceutical market had a market size of $3.5 Bn.**
  - 53% of public-sector pharmaceutical procurement came from imports in 2008 >>
  - ~85% of the pharmaceutical supply including API and medicines in South Africa is imported in 2017
  - The GDP per capita of South Africa in the year 2018 was $6,914, placing it in the World Bank's upper-middle-income category.

What was done?

- **Key policy changes**
  - 1997 Medicines Act enabled local generic antiretrovirals (ARVs) production. >>
  - The **Intellectual Property (IP) reforms** under the 2018 National IP Policy Phase 1 introduced stricter patentability standards and substantive examination to reduce evergreening and **promote generic competition**. South Africa has **leveraged TRIPS flexibilities** >>
  - South Africa supports the Pharmaceutical Manufacturing Plan for Africa (PMPA), signalling commitment to regional pharmaceutical self-reliance in 2012 and the COVID-19 pandemic in 2021–2022 further reinforced this need, accelerating domestic production efforts >>
- **Product focus**
  - **Generics the backbone of its market** >>
  - **South Africa also prioritized vaccine production** and was selected by WHO to host the global mRNA vaccine tech transfer hub
  - The country is also investing in moving up the value chain through its **National Bioeconomy Strategy**, targeting a 25% increase in locally patented biologics by 2030. >>
- **API**
  - Recognizing a 70–98% reliance on imported APIs in 2023, the government prioritized local API production. >>
- **Regulatory Strength**
  - The regulatory landscape was also modernized with the creation of **SAHPRA** in 2018, replacing the MCC, to **streamline drug approvals using reliance pathways aligned with global agencies** (e.g., EMA, FDA). SAHPRA operates at ML3 for vaccines >>
- **Capacity Building**
  - The Council for Scientific and Industrial Research (CSIR) collaborates with universities and industry for research and biologics manufacturing training, notably through the GIZ SAVax program, aiming to train 250 GMP professionals by 2025.
- **R&D orientation**
  - Between 2016 and 2021, innovative multinational pharmaceutical companies invested about $155 Mn in clinical research in South Africa, with a further $52 Mn planned for upcoming and ongoing trials. Alongside Egypt and Nigeria, South Africa accounts for roughly 66% of Africa's total pharmaceutical R&D expenditure. >>
  - **Leading clinical trial hub**, benefiting from cost advantages, and globally aligned standards.
- **Financial Incentive**
  - To stimulate local production, the government offers **150% tax deductions** for approved R&D, **invested $250 Mn via the National Bioeconomy Strategy for biomanufacturing, and implemented policies like mandatory generic substitution** and the **Single Exit Price (SEP)** to promote affordability. >>
  - **Special Economic Zones (SEZs)**, like the pharmaceutical cluster at Dube Trade Port, and **preferential procurement** policies are designed to anchor local manufacturing. South Africa is advancing its pharmaceutical sector through industry clusters like the Western Cape Medical Device Cluster and Dube Trade Port, enhancing competitiveness with integrated infrastructure >>
  - The national pharma industry can receive up to a 15% price preference in public drug tenders if they meet State Tender Board rules >>
- **Public vs. Private sector manufacturing**
  - Private companies such as **Aspen Pharmacare and Adcock Ingram** lead in generics and ARVs, while **global MNCs are forming partnerships for tech transfer** in biologics and vaccines. >>
  - The Biologicals and Vaccines Institute of Southern Africa (BiVSA) is a public entity focused on developing and manufacturing biological products and vaccines >>
- **Export orientation**: Exports went from $426 Mn in 2018 to $450 Mn in 2023

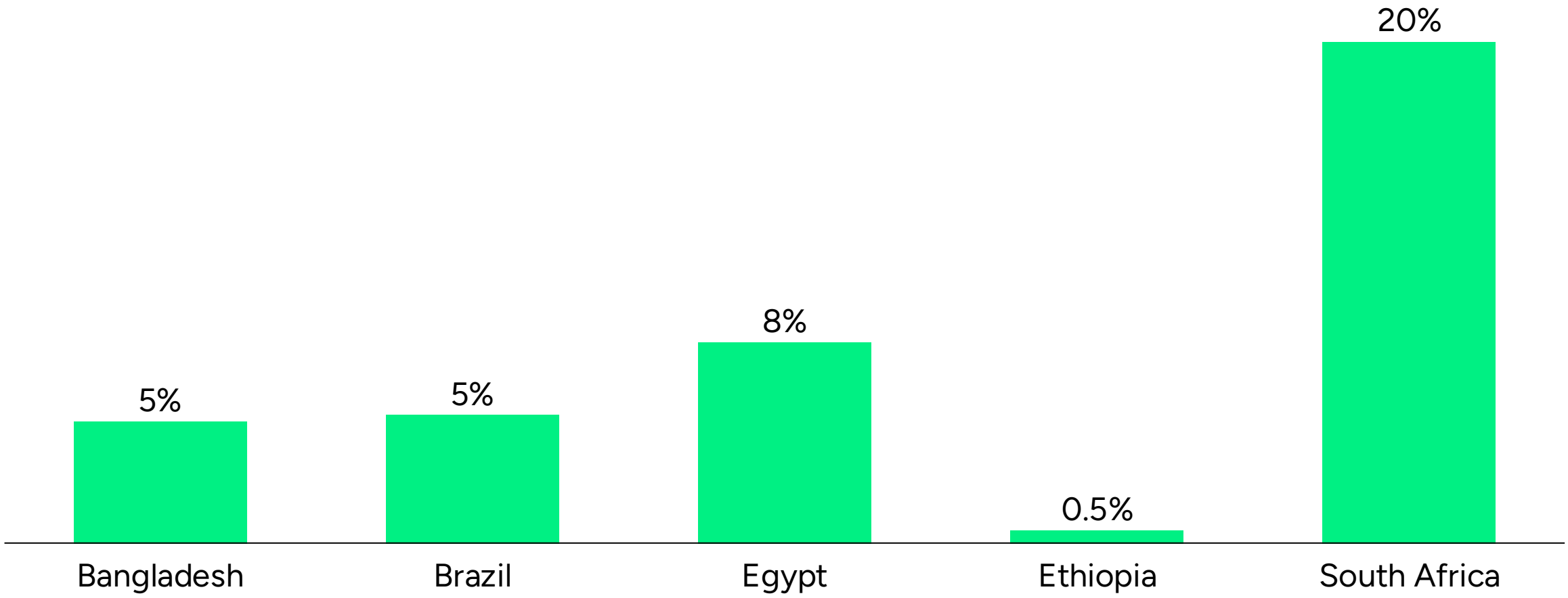
Impact

- The pharmaceutical market, currently valued at **US$4.3 Bn (2021)** >>
- **South Africa hosts over 200 licensed pharmaceutical firms and 23 WHO-GMP certified sites,** SA accounts for **20% of global ARV production**, led by Aspen Pharmacare. >>
- South Africa now meets **60-70% of its needs through local production.** >>
- **South Africa** contributed **50% of intra-African pharma exports in 2022**, mainly to Namibia, Botswana, and Eswatini. >>

SOURCE: Team analysis, web search or mentioned inline

Level of exports are still relatively low among countries studied, barring South Africa

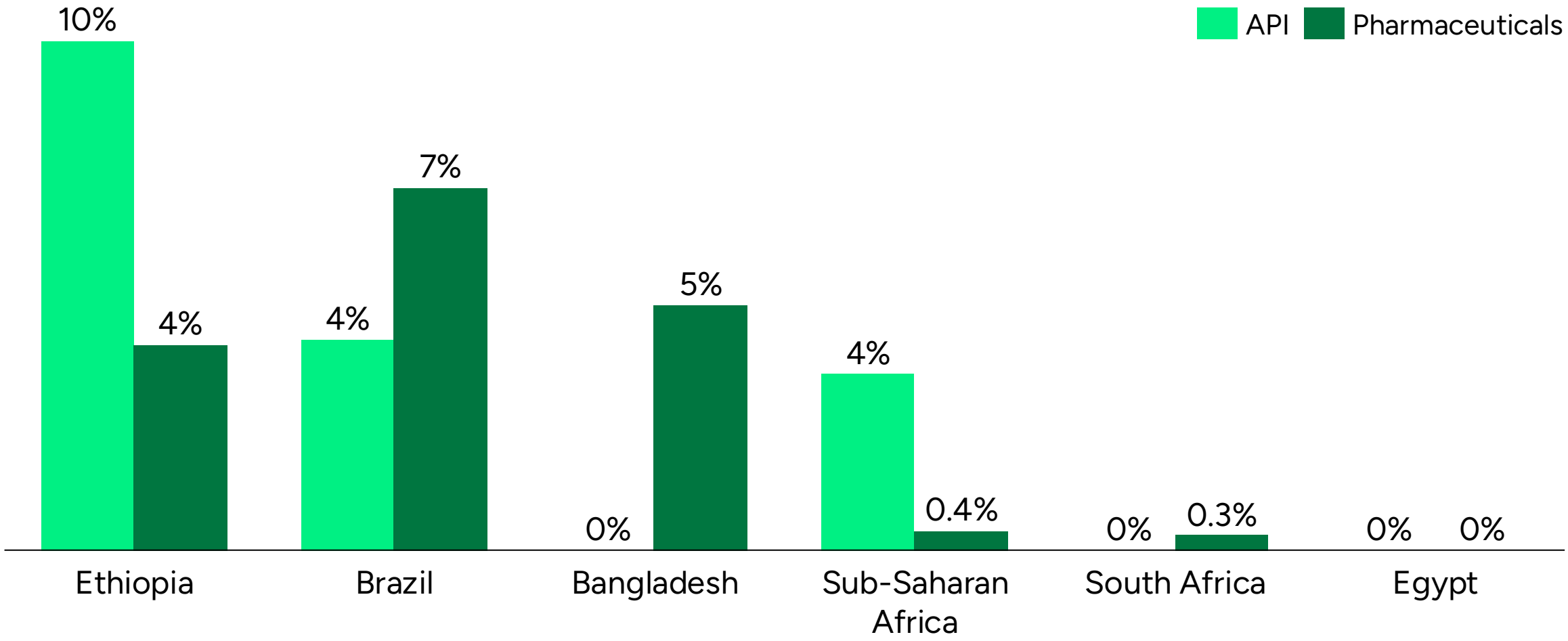
Ratio of value of exports to total production



SOURCE: Export Data - Trend Economy >>; Market Size - Bangladesh>>, Brazil >>, Egypt>>, Ethiopia>>, South Africa>>; %of domestic needs met by local production is given in the above graph

Sub-Saharan Africa Maintains Among the Highest Import Tariffs on APIs

Applied import tariffs by countries for API and Pharmaceuticals



SOURCE: Ethiopia>>, Brazil >>, Bangladesh >>, South Africa>>, Egypt >>, Sub-Saharan Africa >>

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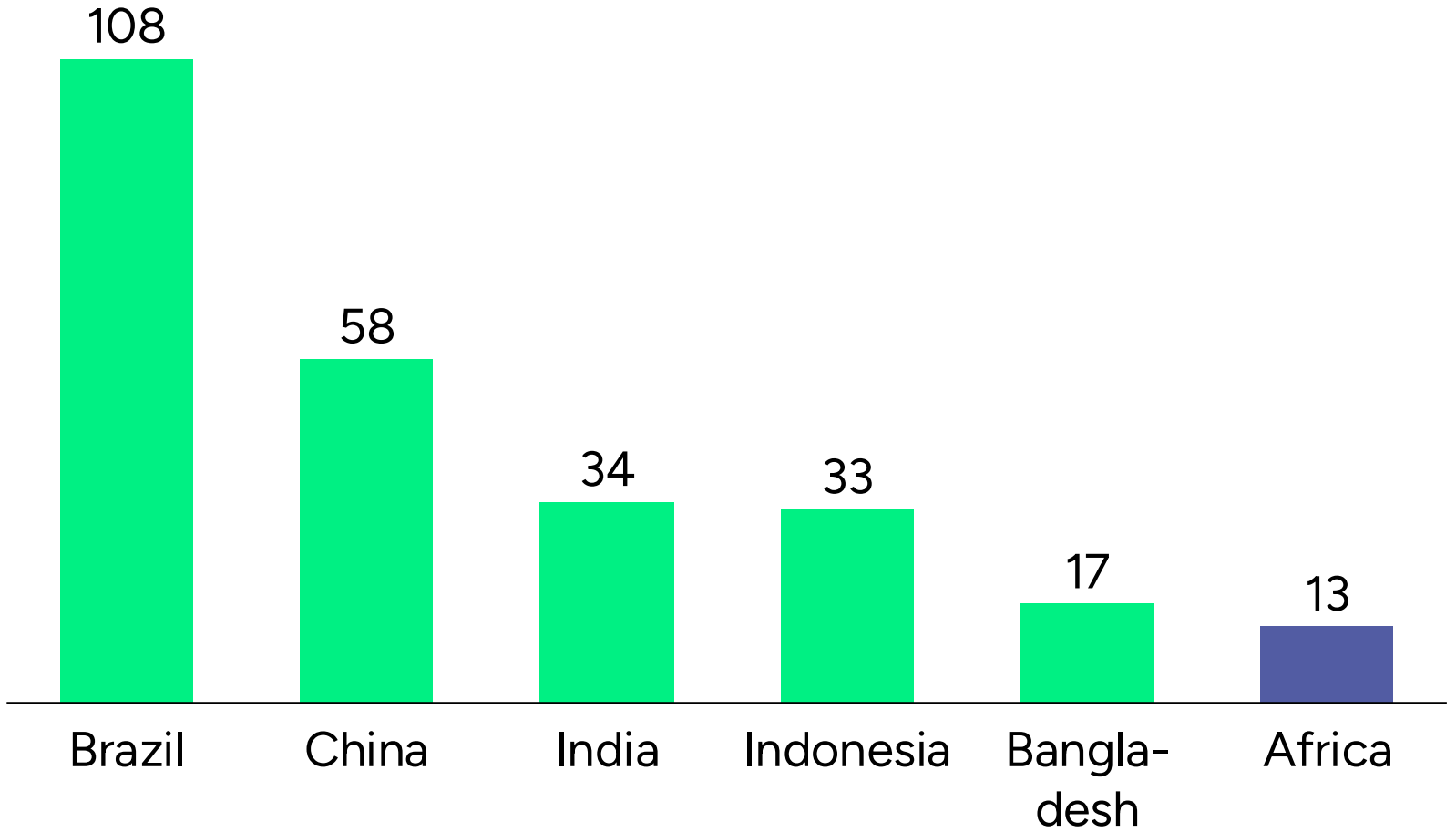
Peer benchmarking: To compare with other LMICs, we selected 5 countries from Asia and Latin America which have significant pharma industries

Country	Region	GDP Per Capita ($)	Rationale for selection
Sub-Saharan Africa Countries	Sub-Saharan Africa	1,550	Focus of analysis
India	South Asia	2,697	Largest producer by volume globally
China	North Asia	13,303	2nd largest by volume globally
Bangladesh	South Asia	2,593	Upcoming in region, top 10 producer by volume
Indonesia	South-East Asia	4,925	Largest in region
Brazil	Latin America	10,280	Largest in region

SOURCE: GDP data from World Bank

African countries have the lowest pharmaceutical production value per capita among LMICs

Pharmaceutical production value per capita– various countries/regions



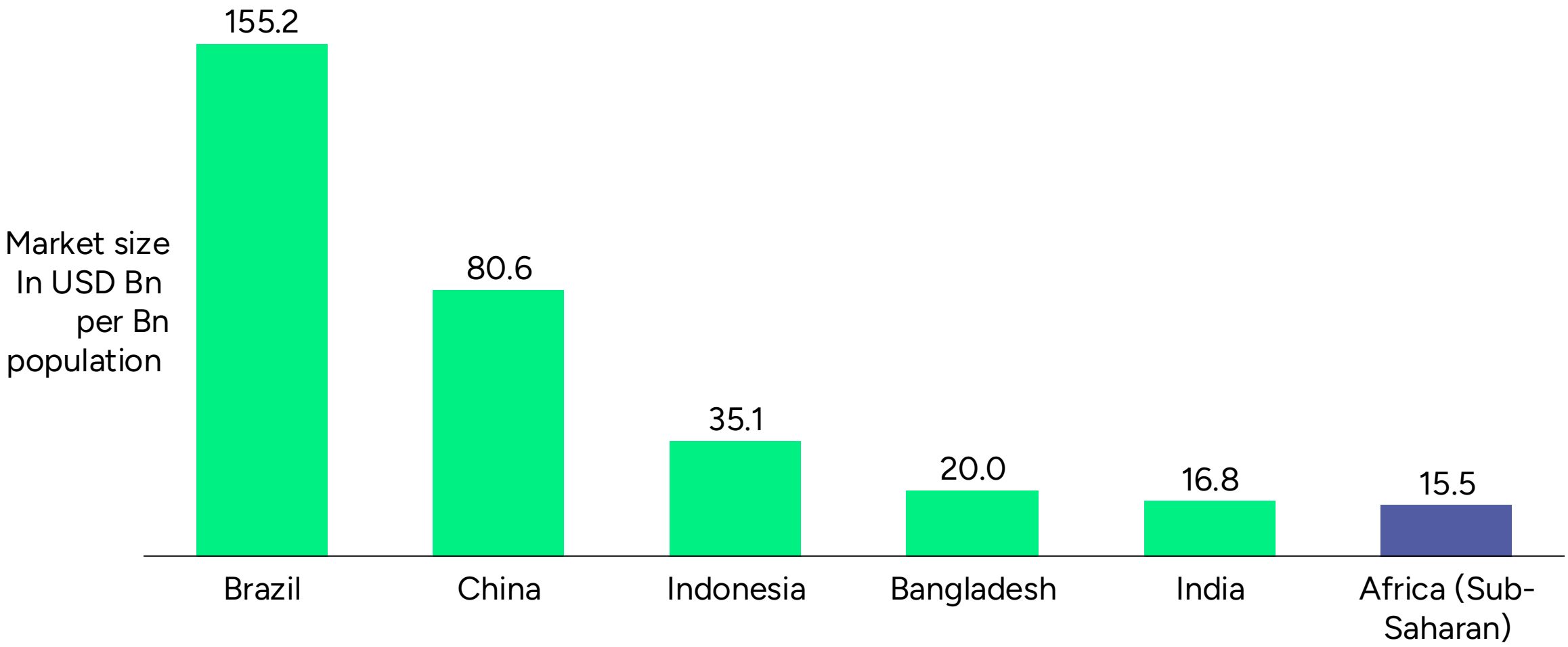
SOURCE: Market size: (Brazil, China) >>, Indonesia >>, Bangladesh >>, India >>, and Africa >>; Export Data: (Brazil, China, Indonesia) >>, Bangladesh>>, India>> and Africa >>; Import Data: (Brazil, China, India, Indonesia)>>, Bangladesh>> AND Africa>>

- Africa with the lowest pharma manufacturing density by value among LMIC peers. If North Africa is removed from data, the gap becomes even more pronounced
- Brazil, China and India are pharma powerhouses, but a Africa needs to catch up even with nascent manufacturing countries such as Indonesia and Bangladesh

NOTE: Pharmaceutical production value is calculated as the sum of market size and net exports (exports minus imports)
African export and import data include only trade with global markets and exclude transactions between African countries.
SOURCE: Team analysis, sources in-line

Size of African pharma markets (normalized by population) similar to India and Bangladesh; determined by country spend on health

The African market is smaller than several other LMICs



SOURCE: Market Size data from IQVIA (Brazil, China) >>, Asian Insider (Indonesia) >>, Invest Bangladesh (Bangladesh) >>, Ministry of Chemicals and Fertilizers (India) >>, and Afreximbank (Africa) >>, Population data from the World Bank >>,

Several African countries have preference for local / regional manufacturing

Country / Region	Key Incentives to support local / regional manufacturing
Mozambique	▪ 15% local price preference; API duty exemptions; emergency procurement priority >>
Tanzania	▪ 15% domestic preference for Medical Stores Department procurement >>
Kenya (EAC regionally)	▪ Preference based on local ownership; regional procurement harmonization >>
South Africa	▪ Up to 15% preference; 10 tender points; local manufacturer designation >>
Ethiopia	▪ Up to 25% margin; support for export-ready production >>
Uganda	▪ 15% price preference for locally made medicines in public procurement and allocated UGX 60 Mn ($16.2 Mn) to procure locally manufactured Artemisinin-based Combination Therapies and Anti-retroviral drugs >>
Rwanda	▪ Local preference up to 10% may be given to Rwandan-registered companies, nationals, or bidders >>
Nigeria	▪ Nigeria's 2007 Public Procurement Act provides a 7.5% margin for domestic goods including pharmaceuticals under its preference policy >> ▪ Nigeria's “Five-Plus-Five-Year Validity” policy requires foreign drug manufacturers to migrate to local production or partner with Nigerian firms >>
Ghana	▪ 15% price preference for local manufacturers in public procurement >>

SOURCE: Web search or mentioned inline