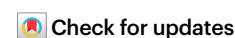


Inspiring, shaping and sustaining an African research & development agenda

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Why Africa needs regional R&D hubs for basic science and translation research to accelerate local manufacturing.

Africa's vulnerability during global health emergencies – from delayed access to COVID-19 vaccines to the absence of diagnostics, therapeutics or vaccines during the 2026 Ebola outbreak – has made one reality unmistakable: without its own end-to-end research and development (R&D) capacity, the continent will remain structurally dependent and dangerously exposed. As international development aid contracts and geopolitical competition reshape global supply chains, incremental expansion of partnership-led research is no longer sufficient.

What Africa requires now is a decisive shift toward continent-led, regionally coordinated R&D hubs that link basic science, translational research, clinical development and local manufacturing. Building on decades of hard-won scientific capacity, this next phase of investment is not about replicating past models, but about enabling Africa to generate, test and produce its own medical countermeasures – at speed, at scale and on its own terms.

Background

For decades, Africa's needs have been met externally, importing 99% of its vaccines and over 90% of its medicines^{1,2}. These global systems repeatedly fail Africa in meeting its healthcare supply and product needs, especially in emerging situations. This was apparent during the COVID-19 pandemic, which disrupted global supply chains, leaving Africa exposed and desperate³.

A similar pattern was evident during the 2014–2016 Ebola virus disease outbreak in West Africa, which resulted in over 11,300 deaths and US\$53 billion in economic losses. Substantial investment in diagnostics, vaccines and therapeutics accelerated only after the epidemic threatened Europe and the USA, triggering fast-tracked clinical trials and emergency-use processes coordinated by the World Health Organization. Subsequent trials in the Democratic Republic of the Congo contributed to the development of effective monoclonal antibody therapies and antivirals, but only after immense human and economic damage had already occurred^{4,5}.

In the aftermath, a coalition of global health agencies, governments and research funders decided to invest in countermeasures for the other two deadly strains of Ebola: Sudan ebolavirus and Bundibugyo ebolavirus. However, these investments did not materialize owing to a lack of coordinated efforts by relevant stakeholders, including funders, governments and industries. As a result, when Sudan

ebolavirus emerged in Uganda in 2022, it resulted in 164 cases and 77 deaths, and there were still no available point-of-care diagnostics, therapeutics or vaccines. The same tragic pattern was repeated in 2026 during the current Bundibugyo outbreak.

Together, these examples emphasize the existing asymmetry in the global public health agenda: investment in biomedical innovation has remained reactive, with scale-up prioritized only once outbreaks threaten high-income countries. They reinforce the case for African-led investment in healthcare R&D capacity.

Previous efforts to stimulate local R&D in Africa have often fallen short, in part because there was no strong continental institution with the technical expertise and leadership needed to carry the agenda forward. What was missing was a public health body with a clear scientific mandate, backed by sufficient human resources and infrastructure, and supported by coordinated political commitment from governments. Without this combination – along with robust systems for setting research priorities, overseeing ethics and regulation, and mapping and developing infrastructure – these initiatives struggled to gain traction^{1,6,7}.

The urgent need to create a supporting environment for R&D in Africa laid the groundwork for a more independent, self-determined strategy. At the same time, years of collaboration with partners in the global north to address shared global challenges – alongside increased government investment in research to tackle issues such as HIV/AIDS, malaria, tuberculosis, noncommunicable diseases, antimicrobial resistance and other emerging infections – have generated strong momentum to strengthen and advance R&D across the continent. This process has progressed through two distinct stages that are driving the current evolution of Africa R&D.

Phase 1, strategic partnerships for research

Across Africa, the evolution of R&D reflects a largely health-driven trajectory shaped by infectious disease epidemics, long-term global partnerships, and gradual domestic investment. In Uganda, decades of research into HIV/AIDS, tuberculosis and malaria catalyzed the development of robust clinical, laboratory and epidemiological capacity, transitioning the country from reliance on externally led studies to a regional hub for implementation science and clinical trials^{8–12}. Its R&D pathway has been anchored in population health, health systems and social science research, led by long-standing institutions such as the Navrongo and Kintampo Health Research Centres and strengthened by the establishment of the Food and Drugs Authority, which enhanced regulatory science and vaccine and clinical trial oversight.

Kenya's experience has also been shaped by early investments in biomedical and vector-borne disease research, combined with strong collaborations with international research agencies, resulting in enhanced capacity for genomic surveillance, vaccine trials and outbreak research. Across the continent, the establishment of national research institutions and regional centres of excellence – including the Institut National de Recherche Biomédicale (INRB) in the Democratic Republic of Congo – have been supported by major international partners and funding initiatives. Pan-African networks such as the H3Africa Consortium have further accelerated this progress by strengthening genomic research capacity and establishing laboratories and biobanks, while fostering collaboration across countries. Collectively, these partnerships have built substantial infrastructure and fostered a new generation of African scientists, creating the momentum needed to transform research and innovation on the continent.

Phase 2, the next level of strategic investment in regional R&D hubs

Phase 2 represents a deliberate shift from episodic, outbreak-driven research activity toward purposeful, market-aware investment in regional R&D hubs. The central imperative is twofold: first, to reverse Africa's structural dependence on external actors during health emergencies; and second, to recognize health R&D not only as a public good, but also as a strategic economic sector with global value. This phase is not simply about expanding research activity, instead, it is about aligning R&D with manufacturing, regulation, financing and market creation to enable sustained local production and innovation.

India provides a powerful analogue for this transition as evidence of what becomes possible when policy, market incentives and institutional capacity are deliberately aligned. India's pharmaceutical sector, which generated approximately US\$57.61 billion in revenue in 2025 and is projected to be US\$79.74 billion by 2031, illustrates how health R&D, when anchored in strong domestic capability and a protected initial market, can evolve into a global industry with strategic leverage¹³.

Africa's case for such investment is arguably stronger. The continent bears nearly 30% of the global disease burden, yet remains heavily dependent on imported vaccines, diagnostics and therapeutics. With a population of 1.5 billion, projected to exceed 2 billion by 2040, Africa represents both a moral and economic imperative for localized R&D and manufacturing. However, without intentional action to build continentally coordinated R&D platforms, local manufacturing will remain commercially fragile and technologically constrained. Local manufacturing in Africa will only be sustainable if it is underpinned by strategic R&D institutions operating at regional scale, supported by predictable financing mechanisms and linked to continental market commitments. Although isolated national efforts are important, they are not sufficient to attract the capital, technology transfer and talent required to compete globally².

Therefore, it is imperative to establish regional R&D hubs with continental mandates that can support product development pipelines, clinical trials, regulatory science and manufacturing innovation. These hubs must be embedded within an enabling financing model to de-risk private sector participation. Only through such intentional architecture can Africa transition from being predominantly a consumer of global health products to a producer and innovator within the global health economy.

Concepts, rationale and guiding principles

Many will ask, is this an attempt to reinvent the wheel, given that initial efforts have already failed? We hope that this is not the case, given an invigorated continental approach for the following reasons.

We are building and operationalizing an African R&D framework to serve as a compass for planning and resource mobilization. We urgently need regionalized R&D centers that will lay the foundations for basic science and translation research to accelerate local manufacturing seamlessly across national borders. This will generate momentum for continental R&D and inform strategic planning, resource mobilization, and investment.

Overall, the Africa Continental R&D Framework is rooted in several existing continental-level guidelines and agreements (i) Africa Health Strategy, (ii) Agenda 2063, (iii) Africa CDC Strategic Plan 2022–2027, and (iv) Africa Health Security and Sovereignty agenda. This framework will be accompanied by several specific actionable plans for its implementation and actualization, including a market security and expansion strategy, and others. The time is now, and African scientists have come together under the ambit of Africa Centres for Disease Control and Prevention (CDC), with strategic partnerships with the European Union, the US National Institutes of Health (NIH) and the Gates Foundation to make this a reality. The success of this aspiration will protect our shared humanity from the constant threats of pandemics and accelerate the achievement of universal health coverage through the manufacturing agenda².

Foreseeable challenges and proposed solutions

The implementation of this strategic R&D framework in Africa could be challenged by several factors. First, failure by African governments, private actors, and the international community to invest sustainably in this effort thus jeopardizing its implementation. Thus, the first solution to the threat of non-investment is for Africa's health R&D to demonstrate its value to investors. Competitiveness in health R&D largely depends on sustained innovation. African governments must be intentional, guided by transformational change and deliberate about investing in their health industry to maintain continental health security.

Second, deliberate sabotage by existing global players, aimed at monopolizing the market, could affect implementation. For instance, the established pharmaceutical industry, like other business enterprises, has historically been characterized by market monopolies and creating barriers for competitors. African countries may need to adopt more deliberate forms of industrial policy to support local manufacturing, as seen in Uganda, where policies that prioritize local production and procurement, and regulatory support, have helped sustain a large pharmaceutical manufacturer of antiretrovirals. The Africa Pooled Procurement Mechanism (APPM) could have a pivotal role in shaping the markets for locally produced medical products.

Third, sociopolitical instability in several parts of the continent diminishes Africa's attractiveness to global investment in high-risk ventures such as biotechnology. Fourth, the increasing frequency of emerging and reemerging infectious disease outbreaks – driven by climate change, antimicrobial resistance and limited health system capacity – may shift government focus toward emergency response efforts, leading to competition for already scarce resources. African governments must deliberately ring-fence investments in biotechnology R&D for posterity and long-term economic relevance.

Conclusion

The historical inequality in R&D, which left Africa trailing far behind, needs to be addressed if the continent is to be sustainably self-reliant,

to manufacture health products locally, to effectively prevent, control and eliminate diseases, and to eventually contribute to global health and economic security. Collaborations with global north like-minded universities and organizations from the global north, alongside demonstrated commitment by some African governments, have substantially contributed to the capacity-building of the continent's R&D infrastructure. Leveraging on these hard-won gains, sustaining the lessons learnt and establishing action-oriented partnerships, it is time to ignite the R&D efforts on the continent.

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Competing interests

The authors declare no competing interests.