

## Increasing Research Productivity across Africa

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Empowering scientific innovation, building knowledge management and strengthening research capacity across Africa are fundamental for improving high-level policy decision-making. Such contributions can distinguish the continent as a reputable source of scientific expertise, prepared to manage local and global challenges towards achieving the Sustainable Development Goals (SDGs).

However, lack of robust higher education policies and political commitment in African nations has affected scientific research training and overall knowledge productivity. This factor helps explain Africa's abysmal research productivity, with the continent contributing just 1% of published global research findings.[1] Thus, we observe that while a research project is a minimum criterion for most undergraduate and graduate degrees, results are not reflected in the literature. One key to addressing this is to implement education policies that foster studies leading to dissertations that meet standards worthy of peer-reviewed journals. Even so, this cannot be the only goal of such policies: they must also prioritize those academic studies that address pressing real-world issues at local and national levels.

Concerning health, several factors highlight challenges for the African research community that may hinder scientific advancement and its role in achieving optimal population health in the continent's 54 nations. Indigenous research output as well as consistent national monitoring and evaluation programs are essential for data-driven decisions, which would promote better population health outcomes. [2] Yet, in most African countries, promoting quality higher education programs in science, technology, engineering, and math (STEM), and engaging the academic community, have ranked low on political agendas. Ironically, this community is perhaps the best prepared to propose solutions to the crises topping these very agendas: infectious disease outbreaks, economic disparities, social and health inequities, to name but a few.

The result is a paucity of research scientists and research-trained clinicians, and a depletion in the research workforce. Brain drain is an exacerbating factor in some academic programs, further limiting the pool of local research mentors.

To address these factors, we propose a three-pronged approach to facilitate collective dialogue across STEM disciplines and support sustainable African research initiatives to contribute to population health and other relevant social policy decision-making.

**First, strengthened national data systems** Timely, accurate statistics should be gathered from health and development interventions already under way, to help identify health priorities and improve decision-making. This would contribute to health policy formulation that prioritizes use of empirical data and scientific recommendations, while discarding that based mainly on political inclinations. Government and other stakeholders should be pressed to eliminate bottlenecks and bureaucracy so that researchers can easily access secondary data from international, federal, state, and local government sources.

**Second, investment in research and related training** Scientists across disciplines should be encouraged to participate and present

at national and international professional conferences. Mastering scientific communication skills is essential for promoting quality scientific dialogue. Formal mechanisms should be set up for senior-level researchers to mentor junior-level researchers. Efficient use of current budgets for research, coupled with international collaboration and grants, can mitigate the financial burden implied in this process of change necessary to improve research productivity across the continent. Research grants should be accessible to faculty and graduate students to encourage positive scholarly pursuits and provide funding for coordinated research activities.

African leadership should actively engage scientists and other stakeholders from public and private sectors to fund high-quality, high-impact research projects. If their findings show significant influence on health outcomes, they can be scaled up and later translated into practical strategies to enhance population health, growth, and development. African scientists should also be encouraged to seek leadership positions at national and international health and research institutions to build research capacity and strengthen human capital.

**Third, prioritize research training in higher education** Faculty reviews of curricula and identification of areas for enriching pedagogical methods in classroom and community settings can strengthen their quality and scope. Strict mentorship mandated for undergraduate and graduate research projects can provide students with direct supervision and immediate feedback. Faculty mentors can serve as role models, guiding students to explore basic and applied science disciplines. Visiting professors can be linked with local faculty in related scientific fields, stressing the value of transdisciplinary engagement in One Health research.[2] These networking opportunities can enhance critical analysis and innovation through academic partnerships and co-authored publications.

Against a backdrop of fast-growing populations, African governments must pledge sustainable political commitment and policy development to enhance higher education reforms across all disciplines. Strengthening education systems at all levels and prioritizing support for the academic community towards research for data-driven decisions and policy should be key elements on each national agenda. This will empower citizens to pursue additional academic training, engender research mentorship and transdisciplinary collaborations, and support national and international initiatives to achieve SDG targets. 

### REFERENCES

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