

We expect that reading the full report might be helpful for:

- Those interested in a starting point to understand the current state of scientific capacity in sub-Saharan Africa (SSA)
- Those interested in understanding ways to increase scientific capacity in SSA

Context

In April 2022, Open Philanthropy commissioned Rethink Priorities to conduct a [shallow investigation](#) on scientific capacity in SSA. The main aim of this project was to understand whether it could be a high-impact grantmaking area for Open Philanthropy.

Research process

Over the course of roughly five weeks, we conducted:

- A literature review on the current volume and quality of scientific research in SSA, capacity gaps, and benefits to increasing capacity
- A discussion of approaches to increase scientific capacity
- Interviews with five experts, including academics and professionals involved in research capacity-strengthening

Final report and key takeaways

The volume of scientific publications in SSA has substantially increased over the last two decades, but growth was slower relative to other low- and middle-income regions, is highly driven by international cooperation, and remains disproportionately low relative to its population share and underrepresented in highly cited global science. Furthermore, research output is highly unequal across countries, institutions, and scientific fields.

Many benefits of strengthening scientific capacity in SSA are mentioned in the literature, but with relatively little evidence. We found the most convincing:

- Case studies on Ebola and COVID-19 show that lab capacity for local testing and diagnostics can be set up and adapted for other diseases quickly, and help speed up disease response.
- Several experts suggested that locally driven research is more aligned with local priorities. In line with this are examples of poorer countries' problems being ignored by the scientific community unless richer countries were themselves affected, e.g., Ebola and malaria.
- The quality of higher education at African universities has deteriorated, as resources have not kept pace with the soaring student numbers. We find it plausible that increasing research capacity can help the teaching and training of students.
- Some empirical evidence suggests that locally led research has more policy impact, but is impeded by barriers such as inaccessibility of research evidence.

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- There seems to be consensus in the literature that research capacity is a prerequisite for economic development, but we have not seen conclusive evidence.
- Examples of “reverse innovation” show that research and innovation from poorer countries can also benefit richer countries, e.g., a Kenyan life insurance scheme for HIV and diabetes patients that was expanded to the UK.
- Increased research capacity may help uncover new high-impact cause areas, or find better solutions or implementation of solutions for existing cause areas

Current challenges seem moderately well-documented and accounts of capacity gaps are abundant. Examples include deficient policy frameworks, limited research management capacity of universities, and lack of incentives for scholars to do research. However, there is little consensus in the literature, which includes many possible explanations for why scientific capacity in SSA is low, e.g., policies, infrastructure, political instability, institutions, and colonial history.

We provide an overview of five research capacity-strengthening modalities: vertical research programs, North-South partnerships, centers of excellence, networks and consortia, and training, of which vertical research projects appear to be the most common. There is little evidence on these modalities’ effectiveness. Based on case studies we looked into, we found it plausible that there are likely areas of science in SSA that are potentially impactful to fund, including:

- Research on problems that are constrained to a particular geographic area
- Research on genetic differences of local populations
- Research that involves local flora and fauna
- Research that requires a strong understanding of local political and cultural norms
- Time-sensitive situations, such as disease outbreaks where waiting for external technical assistance may result in dramatically different outcomes

Based on very limited evidence and conversations with three experts, our weakly held recommendations are (roughly in order of our confidence):

- Supporting monitoring and evaluation of interventions might be highly impactful, as it can inform the design of current and future research capacity-strengthening interventions. There are various ways to do that (e.g., funding programs whose implementation incorporates monitoring and evaluation, funding third-party evaluations, or facilitating knowledge-sharing between capacity-strengthening actors), but we have not been able to rank these approaches by their feasibility or cost-effectiveness.
- Research capacity building should favor a systems approach, as past, fragmented efforts reportedly led to detrimental outcomes like brain drain. However, little literature is focused on how to use a systems approach in research capacity building.
- We advise against vertical research projects for capacity building, as they are reportedly largely ineffective at increasing capacity.
- The choice of modality seems to matter much less than how it is enacted. We advise focusing on commonly recognized good practices, such as prioritizing local agency and leadership (see Research Consulting [\[2019\]](#), pp. 47-48] for a brief summary of good practices).
- Research capacity-strengthening interventions might be best in a context with a medium level of existing capacity, such as Ghana, Rwanda, Uganda, and Mozambique.