Introduction

The availability of financial resources and other sources of support are crucial for the generation, uptake, and expansion of research. Researchers, host institutions, policymakers, and the private sector in low and middle-income countries (LMICs) are often limited in resources for research and development. From 2008 to 2012 most sub-Saharan Africa nations spent less than one percent of their total GDP on research and development, compared to around 3 percent in the United States.

Higher education institutions (HEIs) in LMICs offer academic training programs and research opportunities. In addition, non-academic institutions in LMICs carry out agricultural, health and other development-related research. But due to a lack of funds, many institutions, even those with clear-cut objectives, often operate without well-qualified administrative staff. Under these conditions, researchers are unable to produce quality results.

In many USAID priority countries, research and academic training programs are weak. “There is a growing recognition that increased foreign assistance is desperately needed to expand and extend the benefits higher education offers [which strengthen tertiary education]” (3). Given that need, bilateral and multilateral funding sources are increasingly focusing on strengthening tertiary education in LMICs. Indeed, a 2017 analysis of investment in global education revealed that 42 percent of OECD bilateral donor investment in international education was earmarked for higher education, with investment trends increasing still more in subsequent years.

Understanding how monetary support impacts the uptake and policy utility of development research can help donors and the private sector make meaningful investment decisions. With that in mind, this evidence brief examines the provision of monetary resources to researchers and other research stakeholders, including how research dynamics, cost-effectiveness, and results differ depending on who receives and manages the funds. It explores the role financial resources play in empowering quality research, the best approaches to combine financial and technical assistance for better research, the capacity and needs among institutions for research management and administration, and the funding and compliance issues associated with research.

Findings, Gaps, Conclusions, and Recommendations

Opportunities and Constraints in Providing Direct Financial Support

Donors in the Global North are funding a multitude of HEI partnership projects in LMICs to further each institution’s development goals. Understanding how local actors can leverage resources to conduct high-quality research and promote technology for improved development outcomes is imperative for donors and other stakeholders to build strategies regarding future engagement with LMIC research institutions. The evidence contained in the EGM largely focuses on United States bilateral funding supporting the work of HEIs in the Global South.

2. Fifty-seven documents were reviewed from the EGM for this brief, including 19 performance evaluation reports, 15 peer-reviewed articles, 8 bilateral donor documents, and 4 industry publications. The remaining documents were impact evaluations, white papers, case studies, and meta-analyses. Of these, 34 contained citable evidence for the purposes of this brief.
FINDINGS

- The body of evidence in the EGM suggests that HEIs in the Global South are often caught in vicious cycles of underfunding. Lack of funding impacts the ability of HEIs to retain skilled workers and to collaborate with other research institutions (5; 6).

- HEIs in LMICs tend to employ a relatively small number of researchers who, in addition to teaching, are responsible for research projects operating on limited budgets and supported by poor research infrastructure (27). As a result, they do not perform as effectively as they might, are limited in their ability to engage in relevant research at full capacity or are producing relatively few research outputs (4; 1).

- Evidence of the impact of direct resource provision activities is mixed. Despite the long history of providing research grants to local institutions for capacity building and other goals, this approach does not always lead to the desired return on investment (1; 4; 6; 8). Resources provided to HEIs are often utilized to maintain the operations of selected faculties, centers, and departments, an approach that does not necessarily improve the quality of education and research (9).

- Strong fiscal guidelines and procedures can be important for the proper utilization of funds received for research and development activities. Conversely, in some situations putting too many bureaucratic obstacles in the path of funding can stall the timely completion of project activities. As a result, funds set aside for activities arrive late in program countries, impacting projects (10; 11; 7).

- While we did not find significant evidence of systematic funding and compliance issues in collaborative research projects, we did note cases of misalignment with existing procurement procedures and donor guidelines (10). Other common research administration issues included inadequate bookkeeping, untimely reporting from field offices, untimely claims for reimbursement, and poor account operation practices (12; 7). In some cases, host institutions lack strict fiscal guidelines. That has been attributed to high turnover among accounting staff, insufficient skills among staff to manage project accounts, inadequate or non-existent research administration approaches and systems, and insufficient coordination between departments on matters related to financial information.

- To implement quality research, HEIs in the Global South must expand their capacity to retain and mobilize qualified researchers while ensuring an adequate supporting research infrastructure. Furthermore, the utilization of funds targeted for research and development activities depends on the institution’s capacity to mobilize staff, the institution’s ability to procure services and equipment, the availability of pre- and post-award research support systems, and the presence of functioning financial control systems (6; 30; 7).

- Recent evidence suggests models that direct funding through Global North HEIs to Southern counterparts create power imbalances and practical inequities that limit the potential growth and research contribution of the Southern institution (30; 32; 33; 34). Instead, donors should consider directly funding Southern institutions, partnering with Southern governments, or working through regional funding organizations (32).

- The World Health Organization has identified three keys to improving the sustainability of research in LMICs. They consist of enabling transparent research costing and pricing, optimizing the recovery of indirect costs, and strengthening capacities for grant management (31). Funders should be consistent in allotting funding to both Northern and Southern partners, including for overhead, equipment costs, and salary levels (32). Funding these areas has been shown to increase HEI capacity to undertake large-scale, long-term research (6). A promising practice involves funding maintenance and equipment renewal expenses using a sliding schedule, with the Southern HEI covering a progressively larger share of expenses over the duration of a project, thus guaranteeing the availability of host country funding once external financial support ceases (30).
 priced at $13. When research institutions collaborate, they build synergy to carry out research activities on a larger scale, pooling capacity to address shortcomings in human and financial resources.

* Academic grants or fellowships to advance research or study abroad have often been leveraged by researchers to build research portfolios that allow them to obtain larger grants (4; 10; 7).

### GAPS

**Compliance:** Information on compliance—such as audit findings—is generally produced for internal consumption and not publicly available, making it difficult to prove the prevalence of misusing or failing to follow financial guidelines of sponsoring institutions in projects supporting resource provision for research.

**Diversity and Inclusion:** One common recommendation of the review of research support projects is to increase the participation of women in research. There is also a need to address women researchers’ needs—such as ensuring equal opportunity for resource acquisition and promotion—as few funds focus on women researchers (14). Many points of evidence pointed to a lack of funding mechanisms specifically focusing on female researchers and therefore a relatively light body of evidence specific to expanding female participation (15).

**Research Support Sustainability:** As with other international development programs, the sustainability of higher education partnerships is a concern. When donors end their support, evidence shows that work they fund at recipient institutions or networks becomes vulnerable, since the financial sustainability of these initiatives is tied almost exclusively to donor contributions. While some promising practices are emerging involving the use of sliding support (30), the evidence base is still relatively thin on how to better ensure sustainability.

### CONCLUSIONS

In addition to direct funding to support research activities, resources are needed for capacity building and establishing the necessary supporting infrastructure for research in LMICs. Leveraging resources from external sources can help address gaps in these areas. Working with foundations, bilateral and multilateral donor agencies, and the private sector can bring additional opportunities as these entities are keen to work with others to complement their work.

### RECOMMENDATIONS

**Recommendation #1:** Promote diversified and local level co-funding to sustainably support research

As international support for research and training can be short-lived, institutions should seek support from local and other non-conventional funding sources. In recent years, private sector businesses have shown some interest in investing in science and technology in LMICs. Institutions can build relations with such businesses to expand financial support and create greater sustainability, in addition to supporting national governments in developing research grant funding sources in-country.

**Recommendation #2:** Find a reasonable balance between flexible financial management and bureaucratic processes that reflects the realities of the context and institution

Sometimes a partnership project suffers when a heavily bureaucratic system slows the transfer of funds, negatively affecting research and development activities. A less bureaucratic system ensures funding will arrive on time (8; 11). Some research projects allowed for small discretionary funds to allow flexibility in re-allocating spending on unforeseen but important activities (16). Donors adopting such an approach ensure the existence of clear guidelines on resource management and processes to ensure accountability in re-allocation decisions.

**Recommendation #3:** Expand research support opportunities for women and young researchers

The evidence reviewed placed significant emphasis on providing more opportunities to women and young researchers when funding research. Support providers should develop strategies to reach these groups, as many female researchers in LMICs confront structural and social barriers in applying for research grants.
Approaches for combining financial and technical assistance (TA) for researchers and institutions

Much USAID research funding is guided by the premise that providing financial and technical assistance together strengthens research capacity in LMICs better than providing either alone (16; 5; 15). Funding from such partnership projects is often applied not only to local research grants but also to technical assistance to the university for grant management, research administration, curriculum development, and to local innovation programs, hubs, and accelerators. For researchers to achieve their objectives, they must be supported by adequate infrastructure and research administration at their home HEIs. Capacity building of HEIs can be directly targeted to researchers to improve their ability to carry out high-quality and relevant research and/or to their home institutions to enable these HEIs to better support and incentivize research.

FINDINGS

The evidence demonstrates a need for capacity building in research administration processes and infrastructure (16; 32). Researchers based in HEIs with low administrative capacity have often said that funding alone cannot help them achieve their scholarly goals as long as they face unsupportive research ecosystems (6; 7; 30). Training initiatives aimed at building human resource bases for research administration can take a central role in improving the outcomes of scholarly support (2; 1; 17; 32).

- Capacity building programs for research administration and implementation can take many forms, including learning-by-doing, graduate or postgraduate courses, institutional partnerships, and the creation of centers of excellence (18; 6). The evidence also demonstrates instances of multiplier effects when trained researchers or administrators train peers and colleagues at home institutions (16; 19).

- Young researchers who learn skills through internships, fellowships, or other applied experiences, rather than through coursework alone are more likely to utilize research administration and implementation skills in their work (20; 3; 21). Providing applied opportunities through technical assistance increases the potential for development outcomes in LMICs.

- For institutional partnerships, the capacity to leverage the strengths and compensate for the limitations of each partner—including utilizing resources—is critical to success (22).

- Scholar exchange programs have also been proven to help build institutions and improve research capacity (23; 17). When expert in-country support is needed, scholar exchange programs can be fruitful and have a proven benefit for the economies of host countries.

- To increase the exposure of researchers to recent developments in their field, partnership projects can fund researchers’ travel to national, regional, and international conferences and meetings to complement direct research support. Attendance at conferences helps expand researchers’ networks and creates opportunities to share findings and learn from other researchers’ results and methods (15; 7).

- Multi-researcher collaboration is critical to enable larger and better funded research projects, which may also contribute substantively to informing the policy-making process within a country (6). Within an institution, the success of a given partnership will often depend on the strength of support of an initiative from senior-level departmental heads and university leadership (3). Getting strong commitment from leadership at the beginning of a partnership is important for sustaining the work.

- Evidence has shown that the production of high-quality, multi-institutional research requires stakeholders from
different institutions to truly share ownership and interact throughout the process, from collaboratively framing and designing the research agenda to conducting the research, and jointly using and disseminating knowledge generated (24). One study suggested that such co-production processes can not only produce better research outcomes, but they may also “develop capacity, build networks, foster social capital, and implement actions that contribute to sustainability” (24).

• Often, local institutions use partnership support for procuring necessary research equipment and building supporting infrastructure. This type of support has a significant impact on strengthening the research capacity in these settings (1; 25).

• Multi-institutional partnerships take many forms (refer to the Evidence Brief “Effective Partnership Approaches in International Research”) and can therefore engender a variety of positive impacts beyond carrying out research. The evidence demonstrates positive impacts of such partnerships in and of themselves and also through applied technical assistance in the form of curriculum changes, improved teaching and instruction, collaborative publications, new academic programs, consultation outside the university, and advising government policy (3). In some cases, the private sector also collaborates with academic institutions in training and research.

• Private Sector Engagement is an increasingly prevalent form of technical assistance that can support the development of an academic course, of modules within a course, or fellowships for an existing course in which private sector parties have an interest (26). They can also provide internship opportunities within their organizations for new graduates, which help build the experience of these researchers. Partnerships can also tackle curricula deficiencies by creating special programs within an institution.

• Without sufficient incentives, it has proven difficult to retain a trained research workforce in LMICs, both in terms of current faculty as well as prospective faculty in the form of recent graduates and postdoctoral researchers.

GAPS

• Robust Needs Assessments: The evidence suggests that while various forms of support are provided to LMICs for improving research capacities including financial support, in-kind support, and in some cases expert support, the interventions seem largely based on a subjective assessment of needs. There is space for inclusion of additional types of need, including objective assessments of research capacity.

• Long-Term Impact: The long-term impact of resource and capacity building support should be examined to understand how this support could contribute to sustained growth at LMIC HEIs while also contributing to local, national, and regional development priorities.

• Omission of Non-governmental Organizations: Another important gap in these approaches is that while some partnership projects identify and include non-governmental organizations (NGOs) as partners, many partnership projects fail to maximize their role in implementing and translating research and development. Yet other partnerships fail to include them altogether despite a potential shared interest in achieving certain development outcomes. This corresponds with a gap in the evidence base on how to ensure effective involvement of NGOs.

CONCLUSIONS

A major capacity gap that has hindered the implementation and translation of HEI-based research in the Global South is limited infrastructure and institutional capacity for research administration. Providing training to a small number of key HEI leaders and administrative staff on how to improve research administration and implementation can have multiplier effects for expanding training to more people.

Multi-institutional partnerships—including those with the private sector—that are based on financial equity and technical exchange can enhance the effectiveness of Southern institutions in implementing research and facilitating the sharing of ideas, data, experience, and expertise.

RECOMMENDATIONS

Recommendation #1: Ensure adequate research administration capacity within institutions that host research awards

Inadequate research administration and financial systems are common weaknesses of HEIs in LMICs. The success of partnerships depends in part on the functionality of research award management systems at partner institutions. Implementing a well-structured financial management system can also help attract additional funding. The evidence shows the importance of building strong, proven financial management practices including budgeting, accounting, timely receipt, and expense processing and reimbursement, rapid receipt and transfer of funds, and internal
audits. Strategies to strengthen the financial and award management systems include training institutional staff, providing supporting equipment and tools, and building strong monitoring systems to track expenses and to award compliance. Host governments can also provide support by establishing operational guidelines for HEIs.

**Recommendation #2:**

**Establish a sustainability framework for capacity building of HEIs**

Many institutions in LMICs require continuous institutional strengthening to grow. This means they suffer when capacity-building initiatives are interrupted by the cessation of funding and project activities. Traditionally, few grants have included appropriate sustainability frameworks (3). Such sustainability frameworks must be built into early planning for this type of initiative so research activities can continue after external support ends. A significant component of a successful framework entails an incentive system to address skilled faculty and staff retention, potentially including financial rewards like salary bonuses, accelerated promotion, and funding for travel and conferences. Host governments can also play an important role in institutionalizing such changes.

**Recommendation #3:**

**Expand the role of local civil society and non-governmental organizations in research partnerships**

NGOs can be key sources of information and opportunity to understand local development needs. Few partnership projects identify and include NGOs and other local groups. Bringing more NGOs and other local groups into partnership mechanisms may allow for more effective translation and utilization of research. NGOs may also provide expertise in award management support and training to HEI staff.

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**Acknowledgements**

This document is made possible by the generous support of the American people through the United States Agency for International Development (USAID) under the terms of contract no. 7200AA18C00057, which supports the Research Technical Assistance Center (RTAC). This report was produced by Paul Perrin, Lila Khatiwada, Kevin Waitkuweit, Jaclyn Biedronski, Kevin Fink, and Anna Lande at the Pulte Institute for Global Development at the University of Notre Dame as well as Gabriela Alcaraz and Brooke Jardine at NORC at the University of Chicago. The contents of this document are the sole responsibility of RTAC and NORC at the University of Chicago, and do not necessarily reflect the views of USAID or the United States Government. April 2022.
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