

ACBI Monitoring, Evaluation & Learning Bulletin

Supporting laboratories & the future use of project-purchased equipment

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The Royal Society-FCDO Africa Capacity Building Initiative (ACBI) aims to strengthen the research capacity of higher education and research institutions in sub-Saharan Africa by supporting the development of sustainable research and laboratory networks, increasing the number of PhD trained African researchers, improving the quality of research training and mentorship, and retaining these researchers in African institutions. The Centre for Capacity Research (CCR) at Liverpool School of Tropical Medicine, lead the monitoring, evaluation and learning (ME&L) component of the ACBI programme. The ME&L project aims to generate research-informed learning to improve ACBI within its lifetime and to contribute to the global pool of evidence on the science of research capacity strengthening.

Very **limited capacity of research laboratories** has been highlighted by CCR's research team as one of the major barriers to generating internationally competitive research in Africa. In general, laboratories lack adequate infrastructure, are **poorly equipped** and have **insufficient financial and human resources**. CCR has explored ways to address these challenges, informed by interviews with a range of African ACBI-affiliated researchers and laboratory staff. Here we present their suggestions about **how to ensure the continued use of project-purchased equipment**.

Summary

- The equipment purchased through a research project is a **major catalyst** for conducting quality research.
- Sustaining the capacity of research laboratories relies on: **Equipped facilities, trained laboratory staff, and funds for repairing and maintaining equipment**.
- The **benefits** and usage of project purchased-equipment **extends to other research staff and students** at the department/local institution.
- Institutions responsible for research laboratories should **acknowledge and value their role in research** and endorse a strategy/action plan to **ensure financial sustainability** and long-term support, maintenance for laboratories' facilities and infrastructure, and for their human resources.
- Funders play an important role in **encouraging research laboratories to generate revenue** and sustain funds through strategic long-term planning.

Suggestions for institutions

- **Developing cost-recovery strategies to sustain and grow the laboratory**

Establishing a **cost recovery system** would enable laboratories to run equipment, repair it and service it after funding is finished. This could be financed by **commercialization of laboratory products and services** or by **cost-sharing** with other research institutions and private companies (e.g. a local training organisation which could train students and laboratory staff on the use and maintenance of equipment), and by **charging funded PhD students** to use the laboratory.



Photo Credit: Natasha Price

- **Ensuring regular maintenance and timely repair of the equipment**

Setting up an **efficient maintenance and repair system** can help make sure that laboratory equipment functions properly and prolong its lifespan. For example, when purchasing equipment, laboratories (or their institutions or procurement offices) should ensure that the supplier is reliable and knowledgeable about the equipment and should agree to set up **maintenance contracts**.



- **Invest in professional development and career progression of laboratory staff and retain them in the institution**

Include **training opportunities for laboratory staff** in future programmes because specialised, up-to-date and well-trained staff are essential for running complex equipment and ensuring reliable results. This could include **scholarship opportunities** for staff of different seniorities; provision of **vocational education and technical training** (e.g. safety and laboratory management, securing and handling chemicals, handling and using equipment); arranging **exchange visits** to state-of-the-art laboratories; actively involving laboratory staff in **decision-making** in research projects and in **teaching opportunities**; and facilitating their participation in **paper authorship** and in conferences and workshops to provide **networking and partnership** opportunities.

- **Institutional commitment and budget for laboratory accreditation**

Acquiring accreditation of their laboratory is a key goal of many technicians though they recognise that this may be a long process. Technicians and laboratory leaders/managers, with support from project partners, should **make a case** to their institution for the **long-term benefits** of accreditation, for example, the potential to commercialise laboratory activities.

- **Improving the infrastructure and laboratory systems**

This includes enhancing **health and safety** systems, improving **quality assurance** systems, and **increasing laboratory space and storage** for consumables, especially chemicals. Overcrowded laboratories are a safety risk and also hamper high-quality work.

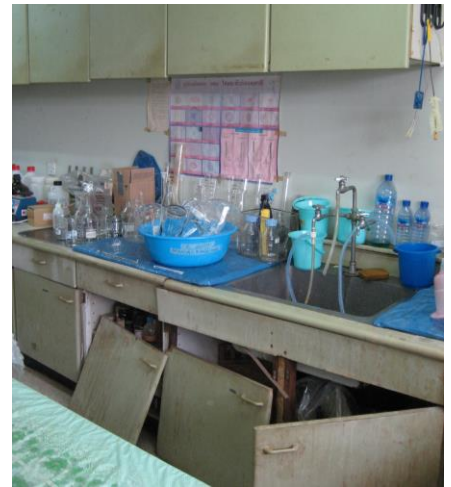


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- **Establish centralised laboratories within research institutions where possible**

Setting up well-equipped central research laboratories with **key equipment which serves the needs of different research departments** for a fee could have a number of benefits including: avoiding duplication of equipment and the ability to invest in advanced up-to-date equipment; generate income to sustain and grow the laboratory; investment in well-trained laboratory staff; results will be of better quality; and experienced technicians can oversee the use of equipment to make sure it is used in the right way to preserve its lifespan.

Suggestions for funders

- **Encourage funding applicants to budget for equipment appropriately**

The purchase of new and advanced equipment through research projects gives African institutions and research centres **technical confidence** and enables them do research that is of **international quality**, thereby helping them **secure future research funds** and collaborations. Allowing generous funds for equipment may also enable users to **reduce travel costs** since they would not need to go as far to access the equipment they need. Funders may also consider innovative mechanisms to **support ongoing maintenance and repair** costs for a limited time after the end of the project or to facilitate gradual take-up of the costs by laboratory institutions.

▪ **Ensure laboratory staff have been consulted at the proposal conception and budgeting stage**

Involving laboratory staff **throughout the programme design, planning and implementation** ensures that the correct equipment (with maintenance contracts) and consumables are **budgeted for**, demonstrates that laboratory staffs' **input and expertise are valued**, and provides a better understanding of the existing **laboratory capacities, gaps, challenges and needs**. Funders should ensure that laboratory staff are included in **personal and professional development opportunities** (e.g. funding for technical and generic skills training; exchange visits; conferences; higher education scholarships).

▪ **Co-fund agreements between African entities and global partners/funders**

Funders, for example, could agree to **provide equipment on condition** that the local institution **invests in infrastructure refurbishment**. Both parties would then **negotiate collaborative ways** for maintaining the laboratory and keeping it up-to-date. Another type of agreement could involve the relevant national ministries in a commitment to providing land to expand facilities, institutions investing in facility construction, and external funders committing to equip the facility.

Researcher Profile



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About the Centre for Capacity Research

The Centre for Capacity Research specialises in the science of research capacity strengthening – a process of individual and institutional development leading to higher levels of skills and greater ability to perform useful research. The centre is a global leader in advancing evidence-informed capacity strengthening practice in low- and middle-income countries, through:

- Conducting high quality, implementation focused capacity strengthening research
- Fostering a global community of capacity strengthening scientists with equitable low- and middle-income country participation
- Sharing learning and advocating for evidence-informed capacity strengthening practice

The Centre for Capacity Research retains a broad interest in capacity strengthening initiatives of all types within a low- and middle-income country contexts, including a speciality in laboratory strengthening.

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