



THE AFRICA CAPACITY BUILDING INITIATIVE



▲ A gathering of ACBI award holders in 2018

Better together

In 2013, the **UK's Foreign, Commonwealth and Development Office (FCDO)**, the **Royal Society** and the **Liverpool School of Tropical Medicine's Centre for Capacity Research (CCR)** began working with **10** international research consortia and **26** research institutions in **18** sub-Saharan African countries and **9** universities in the UK. Together, they collaborated on the **Africa Capacity Building Initiative (ACBI)** to support research consortia to deliver excellent scientific research with real development impact and to significantly strengthen individual, institutional and international research capacity. While conducting research on water and sanitation, soil science and renewable energy, ACBI also set out to strengthen research and laboratory networks, improve the quality of research training and mentorship available to PhD students, and inspire researchers to pursue careers in African research institutions.



THE
ROYAL
SOCIETY

Soil Science

- Makerere University, Uganda • Rhodes University, South Africa
- Université Cheikh Anta Diop, Senegal • Université Nationale du Zaire, Democratic Republic of the Congo • University College London, UK • University of Bristol, UK • University of Dar es Salaam, Tanzania • University of Nairobi, Kenya

Renewable Energy

- Cardiff University, UK • Council for Scientific and Industrial Research, South Africa • Dar es Salaam Institute of Technology, Tanzania
- Imperial College London, UK • Kwame Nkrumah University of Science and Technology, Ghana • Makerere University, Uganda
- Maseno University, Kenya • Université de Yaoundé 1, Cameroon
- Université Marien-Ngouabi, Republic of the Congo • University of Botswana • University of Lagos, Nigeria • University of Leeds, UK
- University of Manchester, UK • University of Mauritius • University of Namibia • University of Nottingham, UK • University of Pretoria, South Africa • University of Zululand, South Africa

Water and Sanitation

- Agence Nationale des Parcs Nationaux, Gabon • Agricultural and Environmental Research Institute, Burkina Faso • Federal University of Agriculture, Nigeria • Forestry Research Institute of Ghana
- Imperial College London, UK • Kwame Nkrumah University of Science and Technology, Ghana • Lunyangawa Agricultural Research Station, Malawi • University of Liverpool, UK • University of Nottingham, UK • University of Pretoria, South Africa • University of Zimbabwe • Zambia Agricultural Research Institute

CCR was commissioned to lead the research capacity strengthening process.

Besides tracking and learning from all of the projects in ACBI, CCR's small and dedicated team continually shared what they learned with the consortia, the Royal Society and the FCDO.

CCR remained independent of participating institutions, but its role was clearly defined and highly visible.

CCR not only helped optimise ACBI's successes but also ensured that information about how these were achieved has been widely shared within and beyond ACBI.

Evidence gathering and sharing

As consensus on how to strengthen research systems and practices in ways that are effective and lasting emerges, CCR is increasingly recognised as a global leader in formulating and advancing evidence-informed capacity-strengthening practices.

CCR's work with ACBI is a good example of how their approach succeeds in practice. In fact, ACBI proved so effective that, in their final review, the FCDO noted that:

- By 2023, despite the delays caused by the Covid-19 pandemic, 97% of ACBI's PhD students had graduated and were pursuing careers as scientists, with over 80% based in African science institutions.
- Several institutions across the consortia had established long-term partnership agreements, including: institutional memoranda of understanding; shared research centres; joint use of resources; ongoing exchange visits; and (in one case) a joint PhD programme.
- By helping to continuously strengthen research capacity across the consortia throughout ACBI's lifetime, CCR enabled the programme to generate not only an excellent return on investment, but also to share new knowledge about the process that FCDO and other funding agencies have been able to apply to other large international research programmes.

Similarly positive, the Royal Society observed that ACBI's research consortia brought together world-class experts and researchers from the UK and African countries, allowing for a valuable exchange of knowledge, skills and expertise in multiple disciplines.

'In response to CCR's input, the ACBI consortia made significant progress in addressing many of the key challenges that postgraduate research students face when pursuing doctoral studies – helping them overcome barriers hindering their academic and research progress, while supporting their personal and professional development.'

– Natasha Bevan, Head of International Grants, Royal Society



KEY SUCCESS FACTOR

- FCDO's long-term commitment to ACBI (over a ten-year period, and across two funding rounds) enhanced the depth of the research conducted, and helped ensure that capacity-strengthening initiatives could be thoroughly researched, well designed and appropriately implemented.



MORE INFORMATION

CCR (2018) *Africa Capacity Building Initiative: Monitoring, Evaluation, and Learning*, Project Report, 5 October.

Royal Society (n.d.) *Royal Society-FCDO Africa Capacity Building Initiative*.

FCDO (2022) *ACBI Programme Completion Review*, December.

ACBI's knowledge networks



An unusually innovative approach

ACBI asked CCR's specialist learning research team to explore how the consortia's institutions could proactively strengthen research systems at the levels of individual researchers and research staff, institutional policies and processes, and international collaborations and networks.

Aware that they would be unable to focus on the research systems of every institution in every consortium in detail, CCR suggested an innovative approach whereby its team would be embedded in the programme throughout its lifetime.

CCR proposed starting with a baseline assessment. Through a process of consultation, interviews and questionnaires, ACBI's partner institutions were invited to develop a vision of the optimal research systems they aspired to and agree on a set of benchmarks that aligned with ACBI's primary goals.

Each institution then reviewed their research capacity against these benchmarks, and CCR used the results of this baseline study to identify where its specialist team could best add value across the programme.

Two areas that emerged were postgraduate training and career development and, specifically, how participating in a large research consortium influences:

- the ability of research laboratories to support research in the natural sciences;
- research-skills development among PhD students;
- knowledge sharing among consortia partners.



KEY SUCCESS FACTORS

- Direct and regular access to the programme's decision-making forums meant that CCR was able to facilitate in-depth explorations of the challenges facing the consortia. Appropriate yet flexible responses and strategies were developed while issues of primary importance for the consortia remained in focus.
- CCR produced frequent and detailed reports on learnings and good capacity-strengthening practices occurring across the consortia. Regular discussion of these data across diverse communication platforms enabled the consortia to adjust and improve their systems.
- Processes related to administration and communication were reviewed continuously to improve efficiency, both centrally and in each consortium, while the use of virtual meetings reduced travel costs and facilitated wider participation in learning events and training.



MORE INFORMATION

- Bates I, Pulford J and Silvester L (2022) What does 'strengthen research capacity' actually mean, and how can we do it? *Times Higher Education*, 28 September.
- Dean LC, Njelesani J, Smith H and Bates I (2015) Promoting sustainable research partnerships: A mixed-method evaluation of a UK-Africa capacity strengthening award scheme, *Health Research Policy and Systems* 13: 81.
- El Hajj T, Gregorius S, Pulford J and Bates I (2020) Strengthening capacity for natural sciences research: A qualitative assessment to identify good practices, capacity gaps and investment priorities in African research institutions, *PLoS ONE* 15, 1: e0228261.
- Pulford J, El Hajj T, Tancred T, Ding Y, Crossman S, Silvester L, Savio M, Bevan N, Tagoe N and Bates I (2023) How international research consortia can strengthen organisations' research systems and promote a conducive environment and culture, *BMJ Global Health* 8: e011419.
- Pulford J, Crossman S, Begg S, Amegee Quach J, Abomo P, El Hajj T and Bates I (2020) Strengthening research management and support services in sub-Saharan African universities and research institutions, *AAS Open Science* 3: 31.

Mutual learning inspires trust



'The South-South collaboration has been really beneficial for me. We've been able to collaborate with each other, learn from each other and become inclusive in the research we are doing. It has kind of built a solidarity among the students.'

– ACBI PhD graduate



'By earning the trust of participating organisations, the CCR team was able to collect information confidentially, and use this to develop suggestions regarding ongoing improvements to the programme. Consortia members, the Royal Society and the FCDO accepted most of the ideas and found ways to action the recommendations.'

– Imelda Bates, Head of CCR

Increasing support and recognition for research laboratories

When CCR began focusing on laboratory skills and infrastructure in ACBI-affiliated institutions, researchers and laboratory staff identified the usual challenges of inadequate infrastructure and equipment, poor financial support and staffing levels. They also suggested several novel solutions to problems that CCR communicated to the programme management team.

The Royal Society responded quickly, advising ACBI consortia that, in addition to budgeting for research equipment, they could apply for funds to include laboratory and other support staff in training and skills-enhancement opportunities.

Soon the benefits were clear. Access to quality consumables and equipment improved, as did quality-assurance processes and health and safety standards. As training and skills-exchange opportunities increased, technicians' self-confidence and motivation improved. This, along with the upgrading of research laboratories, created positive spin-offs for the PhD candidates.

To sustain laboratories' capacity to conduct science research in the long term, the technicians proposed building cost-recovery mechanisms into all future funded research programmes.

The gains made via ACBI demonstrate that fostering a working environment in which all contributions to the research process are acknowledged and respected has the potential to increase the impact of improving infrastructure and increasing skills levels. Sustaining these gains requires proactive planning, consultative leadership, institutional transformation and networking as well as accreditation and cost-recovery mechanisms – in short: systems change.

'That [skills exchange with a UK laboratory] changed my life; I learned a lot of things about how to run the lab and how to work with people.'

Lessons learned about strengthening research laboratories

- Include laboratory staff in decision-making about the procurement and specifications of equipment and consumables.
- Support the professional development of laboratory staff by including them in training courses, authorship teams and conferences.
- Ensure that if state-of-the-art equipment is purchased, it can be accessed across and beyond consortium members during and after the initial project, thus making laboratories into catalysts for high-quality research and for attracting new income.
- Plan for the future of project-acquired laboratory equipment by ensuring that host institutions have the resources to take over its maintenance, repair and even replacement in the long term.
- Help laboratories achieve international accreditation so that they can market their services and generate revenue.

'Through those [technicians'] networking workshops, we understand our common issues and we can discuss solutions – it's a form of solidarity.'

* These statements were made by consortium members during interviews in which confidentiality was guaranteed.



KEY SUCCESS FACTOR

- Being part of a consortium-based programme gave researchers and research support staff access to wider networks of scientific expertise for project design, data collection and results analysis, as well as for activities such as developing funding applications and writing for academic publications.



MORE INFORMATION

Royal Society, Liverpool School of Tropical Medicine and UKAid (n.d.)
Royal Society–FCDO ACBI Research Laboratory Capacity: Case Study.

Enabling doctoral students to thrive

ACBI provided fully funded scholarships for 38 PhD students from 26 research institutions in sub-Saharan Africa. CCR's role was to investigate factors influencing the students' progress and to try to ensure that their participation in ACBI enhanced the quality of the doctoral training they received.

CCR's initial baseline study revealed differences in how PhD programmes were run across the consortia, but most institutions experienced challenges with student induction, finances, communication, infrastructure, professional development and networking opportunities.

CCR also invited the PhD students to reflect on how being part of a large international research consortium was impacting on their research, and to consider what might support them further. All the students acknowledged that belonging to a research consortium offered substantial benefits such as adequate income for subsistence and research, and access to training and networking opportunities, when compared to the experiences of their self-funded peers.

Each student was allocated a supervisor from their own institution plus one or more from other institutions involved in the consortium, and every student had a mentor who provided professional guidance and support.

Although all students noted that having access to the experience and expertise of a pool of international experts was invaluable, various challenges arose. Some mentioned delays due to poor communication or insufficient technical guidance, while others experienced difficulties managing potentially conflicting feedback from multiple supervisors from different disciplines. Inadequate institutional support, such as limited access to literature and quiet work space, or the prevalence of cumbersome procurement processes, also sometimes hindered students.



KEY SUCCESS FACTOR

- CCR's work widened the evidence base on institutional-level drivers of inequitable career progress in relation to gender, age, seniority, etc. while the integration of PhD students and laboratory technicians helped improve equity across age groups, seniority and areas of expertise within research projects conducted by the consortia.

As CCR shared student feedback across the consortia, institutions tried to address these issues. By the end of the programme, many students credited ACBI's positive research culture and the support received from peers within and beyond the consortia, with boosting their self-confidence, enhancing their sense of wellbeing, inspiring them to foster productive research relationships and accelerating their progress.

Lessons learned on enhancing doctoral research environments

- Clarify exactly what is expected of students, supervisors and research support staff.
- Facilitate open discussions with students about the challenges they face.
- Create opportunities for positive interactions and collaborations between student peers, post-doctoral fellows and research support staff.
- Facilitate students' access to a range of training and networking opportunities, and include laboratory and administrative staff whenever appropriate.
- Provide mentors, within and beyond each institution or research consortium, who are willing to act as independent allies with whom students can confidentially discuss research challenges and career plans.



MORE INFORMATION

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El Hajj T, Wiltgen Georgi N, Crossman S, Tagoe N and Bates I (2024) How an international research programme can contribute to improvements in the research environment: The perspective of doctoral students in sub-Saharan Africa. *F1000Research* 13: 238 [version 2; peer review: 3 approved].

Royal Society, Liverpool School of Tropical Medicine and UKAid (n.d.) *Africa Capacity Building Initiative case study: Challenges and benefits for PhD students.*



‘Evidence from ACBI shows that research consortia can foster a positive research culture for those directly involved in a programme (including PhD students and laboratory staff) and beyond (research and support staff within the institution). However, ensuring the sustainability of these gains remains a challenge. Embedding a capacity strengthening framework, along with a robust monitoring and evaluation plan into any research programme is vital for developing a better understanding of what works, what doesn’t work and why. This evidence can be used to improve current programmes and inform future initiatives, as well as guiding funders in shaping programmes for longer-term investment and better value for money.’

– Taghreed El Hajj, lead researcher on CCR’s learning research team for ACBI

For more information about ACBI’s learning research initiatives, or to discuss how CCR can support your research capacity strengthening initiatives, please contact:

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