

OpenPlant Fund Application Form

Please ensure that you have read all of the associated eligibility criteria and information before submitting an application. There are no word limits on the application in order to keep the application process as lightweight as possible, but please be concise!

Please submit an application containing the following sections by email to colette.matthewman@jic.ac.uk in an editable format such as .odt or .docx (not PDF) and attach any images separately to the email.

Title of Project: Reach & Teach Science in Africa: a capacity building project designed to strengthen capacity for agricultural research and innovation in sub-Saharan Africa.

Primary contact for the team

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Team

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Emily Servante, PhD student at the Department of Plant Sciences, University of Cambridge
Role: Project and Course Coordinator (includes developing the training curriculum)
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Conor Simpson, PhD student at the Department of Plant Sciences, University of Cambridge
Role: Reach & Teach Programme Director (oversees the Reach & Teach outreach programme and online learning platform)
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Summary

‘Reach & Teach Science in Africa’ is an annual capacity building project designed to strengthen research and innovation in sub-Saharan Africa through the provision of world-class scientific teaching, training and resources to 1,000 researchers and academics in African universities and research institutes by 2029.

Proposal

Describe what you are planning to do with the funding, including aims, methods, outcomes and who will be involved.

The project will involve mobilizing research scientists from the University of Cambridge, John Innes Centre and other research institutions in the UK to teach, mentor, and provide appropriate resources to facilitate scientific teaching, research and innovation in African universities. As the annual average undergraduate class size per lecturer in enabling science subjects such as molecular biology is between 200-600 students, the 'Reach & Teach' project promises to reach and transfer scientific knowledge to about 40,000 undergraduate and postgraduate students in sub-Saharan Africa by 2029.

The first 'pilot' project will be held in collaboration with the Laboratory of Genetics, Horticulture and Seed Science at the University of Abomey-Calavi in Benin Republic, West Africa from **1st-5th April 2019**. One hundred agricultural researchers, lecturers and advanced postgraduate students from Benin and other African countries (Nigeria, Ethiopia, Kenya, Cote d'Ivoire, Senegal, Togo, Cameroon, Malawi, Zimbabwe, Mali, Congo, Rwanda, Burundi, Uganda, Ghana, etc.) will participate in the Workshop.

The Workshop will provide state-of-the-art teaching in molecular biology and genetics, physiology of organisms, bioinformatics and statistical analysis. It will also include sessions on scientific and grant proposal writing and an open labware building/synthetic biology workshop designed to encourage African researchers to become more proactive in finding solutions to some of the problems faced in their institutions, especially the lack of laboratory equipment and instruments required to conduct high-quality research.

Benefits and outcomes

Describe how your project fits the remit of OpenPlant and the judging criteria, including details of any new interdisciplinary interactions between Cambridge and Norwich.

- African researchers will acquire excellent knowledge and skills in molecular biology, synthetic biology and related disciplines needed to foster research and innovation, especially in the field of crop agriculture on the continent. The skills and expertise gained will be particularly useful and relevant to solving problems relating to hunger, poverty and malnutrition in the region.
- The Workshop provides a unique platform for relationship building, knowledge exchange and formation of new research partnerships to address food insecurity in sub-Saharan Africa.
- The hardware construction and synthetic biology session will aim to introduce the participants to cell-free synthetic biology and how it can be used to engineer biological parts and systems for agricultural research. The session will also enable the participants to gain hands-on experience in building laboratory instruments such as microscopes, which they can use for teaching at their institutions. This exercise will inspire the scientists to create solutions to some of the problems faced in their institutions and/or country with the little resources they have available.

- Our Online Learning Platform will enable the continuing development of our trainees and other African researchers and plant breeders.

We would be interested to have researchers from Norwich who are interested in going to teach the Workshop in Benin in April, as well as to contribute to our Online Learning Platform, which is currently being designed to offer live and offline lectures, seminars and short science courses to students and lecturers in African universities starting in February 2019. This is a great way to reach more scientists and students across the African continent.

Sponsor for the research and cost centre

Include name, institution, department and email address of the individual who will support the project and sponsor the cost-code to which you want funds to be allocated. This would generally be a research supervisor. Make sure you get permission from the sponsor and include the following text in your application:

Professor Jim Haseloff
 Department of Plant Sciences, University of Cambridge
 Email: jh295@cam.ac.uk

I confirm that I have the full support of the sponsor listed above and that they can be added to the OpenPlant Fund mailing list to receive project updates (to which they can unsubscribe at any time).

Budget

Provide costings for your proposal (up to £4000) and indicate if you have access to any additional funding to meet your aims.

Items	Cost (£)
Teaching & training materials (including reagents, consumables and parts for building microscopes)	3,000
Travel (5 trainers from the UK and Chile)	3,000
Accommodation (5 trainers from the UK & Chile)	2,000
Accommodation for outstanding African PhD students to participate in the Workshop	1,500
Workshop venue	500
Total	£10,000

This funding will enable us to open the Workshop announcement and start receiving applications. We strongly believe that thousands of university students will benefit from this Workshop, which will equip 100 lecturers and researchers from low income sub-Saharan African countries with sound knowledge and skills in core concepts, techniques and applications of molecular and synthetic biology. It will also help us to explore new research avenues and how synthetic biology may be applied to improve crop yield and production in sub-Saharan Africa. Benin Republic is a francophone country, and scientists from other francophone countries will be involved in the Workshop, which will be very useful.