



Congo Basin Institute facilitates international science on the spot

by Meindert Brouwer

Graduate students and young professionals in biology, ecology, nature conservation and tropical agriculture have a new, exciting opportunity in Central Africa.

On the outskirts of Cameroon's capital Yaoundé, next to the forest, a new center of scientific excellence is on the rise: the Congo Basin Institute. Researchers from Africa and countries around the world can learn there from one another and work together to find ways to protect ecosystems and biodiversity and raise the level of food security in Africa.

The main partners are the renowned Center for Tropical Research of the Institute of the Environment and Sustainability at the University of California, Los Angeles (UCLA) and the highly reputed International Institute of Tropical Agriculture (IITA) with headquarters in Ibadan, Nigeria. Other scientific institutions have joined them. Rashid Hanna, Country Director of IITA and co-Director of CBI is clear: 'Together we can do a lot more than individually.'

It is on the campus of IITA in Yaoundé that the Congo Basin Institute will take shape. The new institute will be a dream come true for founding father, Professor Tom Smith (60) of UCLA. More than 30 years ago, Smith arrived in Cameroon for the first time as a student carrying a backpack. He has done research in rainforests all over the world ever since.

Smith is specialized in an intriguing niche: speciation in ecotones – locations where different ecosystems meet. These ecotones represent highly diverse habitats for living organisms, which may lead to the evolution of new species. Smith has documented speciation in birds in ecotones, and the phenomenon is believed to occur in other organisms in the same areas. Smith teaches in the Department of Ecology and Evolutionary Biology at UCLA, and directs the Center for Tropical Research. International nature conservation organisations regularly seek his advice.

CRITICAL JUNCTURE Smith is a gentle person, but also very determined. He underlines the necessity of research in Central Africa: 'We are at a critical juncture. There is climate change, which is going to affect Africa more than any place on the planet. And there are more than one billion people living in Africa now. This number is expected to quadruple



Cameroonian student Michel Dongmo examines specimens under a microscope at a laboratory on IITA's campus in Yaoundé.



IITA's existing campus includes molecular genetics, tissue culture, and analytical laboratories, along with screen houses and experimental plots. Insert: The CBI campus will include a state-of-the-art conference center, distance learning center, and dormitories.



CBI co-Director Dr. Rachid Hanna of IITA with Dr. Tom Smith (right) on the site of CBI's planned campus.

by the end of the century. This puts tremendous pressure on trying to understand how we are going to feed people and how they are going to have enough water.'

Smith and his partners want the Congo Basin Institute in Cameroon to become a model for developing world partnerships between universities, non-governmental organisations, donors, governments, and businesses. For students and scientists from Central Africa it is important that they can work with scientists from developed countries in their home region. Likewise, it is important that visiting students and scientists from the US, Europe and elsewhere have the opportunity to cooperate with colleagues from Central Africa, who are the best sources of local knowledge and local challenges.

A fully developed Congo Basin Institute could also help to stop the brain drain from Central Africa, Smith states. It is revealing that Smith uses the word 'we' when he refers to demographics in the world of African science: 'People from

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Africa go overseas, to the developed world, to get higher degrees. Only one in five comes back. As a consequence we lose the best and the brightest.'

NURTURE One of the bright scientists from Central Africa is ecologist Kevin Njabo (48) from Cameroon. Njabo is Africa Director and Assistant Adjunct Professor at the Center for Tropical Research of UCLA. He is happy to share his view. Njabo: 'Central Africa desperately needs a new generation of environmental and conservation experts to find solutions to the complicated problems facing the region. One of the best ways to nurture young African scientists is to first recognize and understand their challenges and then help them overcome the challenges by providing high-quality research and education opportunities to them where they are needed: in their home countries.'

Njabo continues: 'The Congo Basin Institute, the first international affiliate of the University of California, Los Angeles in its 96-year history, provides this support and creates a network of permanent, multi-disciplinary enterprises focused on innovative, evidence-based solutions to critical development challenges in central Africa. This network will encourage young African scientists to conduct novel conservation research and management activities that address the critical challenges facing wildlife, biodiversity and ecosystem health in the Congo Basin. Its state-of-the-art facility already includes fully equipped analytical laboratories, administrative offices, classrooms, a library, low-cost housing for students/researchers, and a GIS/Remote Sensing Training Facility.'

Njabo concludes: 'In addition to providing access to the largest university system in the world, the Congo Basin Institute will encourage and provide a means for young Africans to remain engaged in their research and stay in the region to practice their trades. No other institution in Africa provides such benefits.'



Kevin Njabo adjusting a CDC light trap. Baited with CO₂, it is a tool to sample mosquitos for monitoring and surveilling disease vectors and other entomological surveys.

APPLICATION FOR GRANTS

In 2014, the Conservation Action Research Network (CARN) established the Congo Basin Grant Program to support and encourage young African scientists to conduct novel conservation research and management activities that address wildlife, biodiversity and ecosystem health in the Congo Basin. These small grants can build the foundation for young African researchers to become independent, providing "bridge funding" that allows them to compete in larger international arenas and encourages them to remain in their native countries to conduct research. For more information see <http://conservationactionresearch.net/index.php>

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The first phase of building for the Congo Basin Institute will consist of adding a conference center, a distance learning center and dormitories to the current facilities of the International Institute of Tropical Agriculture in Yaoundé, which already include genetics, analytical, and tissue culture laboratories.

BUTTERFLIES AND CLIMATE CHANGE

Michel Arnaud Dongmo Kenfak is a third year PhD candidate at the University of Yaoundé. He carries out his research at the Congo Basin Institute, making use of the current facilities of the International Institute of Tropical Agriculture (IITA).

Kenfak is ‘truly grateful’ to what CBI offers him: ‘Thanks to funding from the Conservation Action Research Network (CARN), and working directly under the supervision of Dr Rachid Hanna of IITA and Dr Timothy Bonebrake of the University of Hong Kong, I am currently studying the plastic responses of different populations of the Light bush Brown butterfly *Bicyclus dorothea* to warming climate scenarios. I am also studying the genetic diversity of this butterfly across different ecologies of Cameroon. Results from this study will lead to develop strategies to conserve tropical biodiversity under future climate change. The Congo Basin Institute has greatly facilitated my work in Cameroon and enabled me to collaborate with researchers from all over the world. Thanks to the CBI, I can live and work in Cameroon and have access to all the necessary resources for my PhD research.’



Smith: ‘Building these facilities would create a space for research and collaboration in the heart of the Congo Basin, it would be transformative.’ Funding has not been secured entirely yet. ‘How much do you still need,’ I ask Smith. ‘Seven million US dollars for the first phase,’ he replies.

SOLUTIONS Smith, IITA-director Hanna and their partners in the Congo Basin Institute intend to collaborate with Central African scientists to develop solutions that address sub-Saharan Africa’s interlocking environmental and developmental challenges. The main fields of research of the Congo Basin Institute are biodiversity, food and water security, climate change, poverty alleviation, and public health and disease surveillance.

Based in Yaoundé, Cameroon, the Congo Basin Institute has the ambition to serve students and early career professionals from all over Central Africa and facilitate students and scientists from abroad through a network of research and education facilities.

PARTNERS CONGO BASIN INSTITUTE

The Congo Basin Institute (CBI) was founded by the University of California, Los Angeles (UCLA) and the International Institute of Tropical Agriculture (IITA).

Other partners include:

- Drexel University, Philadelphia
- Higher Institute of Environmental Sciences (HIES), Yaoundé, Cameroon
- University of New Orleans
- Congo Basin Forest Partnership

CBI is always interested in adding partners who are committed to research and education in the Congo Basin. Organisations who are interested are encouraged to visit www.cbi.ucla.edu and contact Virginia Zaunbrecher, Associate Director at the Center for Tropical Research at UCLA at zaunbrecher@ucla.edu



Students attend a professional development workshop at CBI, supported by the US National Science Foundation.