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Chair, *icipe* Governing Council



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1.2k

Social media mentions  
(July – September 2018)

7

New PhD students  
(three female, four male)

26

Peer reviewed papers  
(July – September 2018)

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Dr Lukas Bertschinger,  
Chair, *icipe* Governing Council

Dear Colleagues and Friends,

It is our great pleasure to present the *icipe* e-bulletin for July – September 2018. In addition to all the regular sections, this issue has a number of interesting elements worth highlighting.

We spotlight progress of the Centre's concerted efforts to expand its footprint across the eastern African region, focussing on the strengthening of our Uganda office and initiation of activities in Rwanda. In addition to its national role, the *icipe* Uganda office has demonstrated potential to become a regional hub. Meanwhile, the advancement of our activities in Rwanda reveals a compelling chronology of effective technology adoption, thriving on synergies between donor support, national development agendas, policymakers, non governmental organisations and farmers.

Indeed, *icipe* strongly considers such collaborations critical to attaining the Centre's mission. Therefore, we have introduced a new section dedicated to views From our Donors and Partners, which we launch in this issue with a commentary from Andreas Schriber, Co-Founder and CEO of Biovision Foundation for Ecological Development, Switzerland, on the longstanding partnership with *icipe*.

Alongside other development partners and agencies, *icipe* recognises the urgent need to enhance productive employment for the youth, as a fundamental component for Africa's socio-economic transformation, in alignment with the African Union (AU)

Agenda 2063 and the aspirations of the United Nations Sustainable Development Agenda (SDGs). In a Special Focus section, we feature five inspiring stories of young people from Ethiopia, Kenya and Uganda, who have found enriching opportunities through the Centre's activities.

The Director General's Thought Leadership Column focuses on the issue of girls' education. While cynics might term it the debate that won't go away, it is for good reason that this topic has persisted on the global agenda over the past several decades. While acknowledging ongoing efforts, the DG shares from her own experience, six lessons that might be useful in addressing challenges to provide girls with high quality education.

We also note the selection of *icipe* to manage the Regional Scholarship and Innovation Fund (RSIF), an initiative aimed at strengthening doctoral training, as well as research and innovation in applied sciences, engineering and technology, in Africa. We believe that this choice is an affirmation of the Centre's near 50-year history, as a testament of unrelenting commitment to science and innovation-led development in Africa.

Friends and colleagues, it is our hope that you will find these, and many other stories presented in this e-bulletin interesting and informative. We look forward to working with you in the rest of 2018, for a better and healthier Africa.

Dr Lukas Bertschinger,  
Chair, *icipe* Governing Council

**In addition to its national role, the *icipe* Uganda office has demonstrated potential to become a regional hub.**



**Dr Segenet Kelemu**  
Director General, *icipe*

## Girls' education

Cynics might term it the debate that won't go away. But, it is for a good reason that the issue of girls' education has persisted on the global agenda over the past several decades. More recently, deliberations have re-emerged with renewed vigour, driven by the retrospection of achievements made through the United Nations Millennium Development Goals (MDGs, 2000-2015), and aspirations of their successor, the Sustainable Development Goals (SDGs).

Girls' education is a strategic development priority. As demonstrated by research, better educated women not only have better employment prospects, they are also freer to reach their dreams, and are in a more superior position to boost their lives. Educated girls are also able to contribute

to the health, safety and prosperity of their families, communities, economies, and the world.

Through the MDGs, significant progress was made in education in general, seen, for example, in the rise in primary school net enrolment rate in the developing regions to 91% in 2015, up from 83% in 2000. Sub-Saharan Africa (SSA) had the best improvement record, having achieved a 20% increase in net enrolment rate between 2000 and 2015, compared to a gain of just 8% between 1990 and 2000. Due to these advances, more girls than ever before joined school.

However, by 2015, about 30 million children, 54% of them girls, remained out of school in SSA alone, a scenario that stipulated need

for enhanced efforts to ensure girls have access to quality education.

Indeed, the design of the SDGs rightly recognised that educating girls and promoting gender equality would be key to the achievement of all of the 17 goals. Still, in 2018, three years after the launch of the SDGs, estimates from the United Nations Educational, Scientific and Cultural Organization (UNESCO), show that 130 million girls aged between six and 17 are out of school. An additional five million girls of primary school age will never enter a classroom. Further, a report issued this year by the Global Education Monitoring Report indicates that, globally, only 66% countries have achieved gender parity in primary education, 45% in lower secondary and only 25% in upper secondary.

### Six lessons I have learnt

The right to education is entrenched in international human rights treaties, and commitments to girls' education have been made in a number of international and regional agreements and frameworks. Yet, as is also widely recognised, such pledges will only be effective if the challenges girls face to enter remain and progress in school are tackled effectively. These obstacles include: distance from schools, cultural norms and practices, conflict and insecurity, school-related gender-based violence, early or forced marriages, early pregnancy, sex trafficking, child marriage and forced prostitution, as well as the need for girls to contribute labour or income to their families. While efforts are ongoing to address these factors, I share six lessons from my own experience that might be useful.

**Girls are a resource waiting to be tapped.** Today, there are more than 1.1 billion girls in the world. If we ignore them and their unique needs for education, we shortchange the world in accessing a vibrant asset for a better tomorrow.



**Get to the root of the problem.** Having grown up in a remote village in Ethiopia, I know first hand that for many families, sending their daughters to school is an afterthought. In many cases, girls, alongside women, are trapped in the



daily grid of back-breaking work that appears to be reserved for them: weeding, picking coffee berries, collecting firewood, fetching water, washing clothes, grinding and pounding grains, ferrying farm produce, long-distance, to markets. While my parents were visionary enough to send all their children to school, I am aware that this was not the case for many other girls. Therefore, for true change to occur, top level policies must be supported by sustained conversations with parents, guardians and society in general.

**Make school affordable.**

During my childhood, school was free in Ethiopia, and my parents only had to pay for notebooks, pens and pencils. Had this not been the case, I most likely would not have gone to school, as my parents, who were supporting their own seven children and many others, would not have been able to afford it. Many parents are in the same situation today. Beyond fees, the majority of households are hard placed to meet overheads for uniforms and other school needs.



**Harness the positive.** My daughter, just one generation away from me, has had an easier life with numerous opportunities. But, I believe there is a certain fulfilment and character forming that comes from rural strife. Indeed, that environment made



me the person I am today. I developed a strong work ethic, the ability to multitask, to live in modesty, and to have empathy for others. I learnt the socio-emotional and life skills necessary to navigate and adapt to a changing world.

**Dare to be different.** In my village in Ethiopia, pretty girls who conformed to society's norms and rules were the ones that attracted suitors. I failed miserably on these criteria. I was too rebellious; too tomboyish. I challenged the rules too much. While this must have been distressful to my parents and relatives at the time, I knew all along that I was lucky. I considered these traits my ticket to freedom, to becoming an outstanding student and eventually, a professional woman. This knowledge set me on my career path early in life. I decided to study agriculture, although based on my parents' preference, I was meant to be a medical doctor. So, to all girls, I say dare to be different. The world will meet you halfway.



**It takes a village.** This adage applies completely to me. Yes, I was determined, and I worked hard, but I am infinitely aware of the immense support I received to reach my goals. Besides my parents, my older brothers, once they had their own income, invested in my education. In addition, I was supported by my teachers, and cheered on by the entire community.





## icipe solar PV Plants officially commissioned

On 28 September 2018 *icipe* officially commissioned its solar photovoltaic (PV) power plants — at its Duduville Campus headquarters in Kasarani, Nairobi, and at the Thomas Odhiambo Campus on the shores of Lake Victoria; and its field stations in Muhaka, coastal Kenya, and Nguruman, Kajiado, Rift Valley. This project is part of the Greening of *icipe* initiative, funded at USD 5 million by the Swiss Agency for Development and Cooperation (SDC). The project also includes energy saving and water harvesting, and conservation measures, with the aim of reducing the Centre's carbon footprint and making its environment more eco-friendly. Read more: <http://www.icipe.org/news/icipe-solar-pv-plants-officially-commissioned>



Pictured during the launch (l-r): Dr Daniel Davies, General Manager, Solarcentury Africa; Mr Donald Kaniaru, Member, *icipe* Governing Council; Dr Yves Guinand, Senior Thematic Advisor Rural Development, Federal Department of Foreign Affairs, Swiss Agency for Development and Cooperation (SDC); Dr Segenet Kelemu, Director General, *icipe*; Eng. Samson Kasanga, Deputy Director in charge of Solar Unit, Ministry of Energy, Kenya, representing the Cabinet Secretary; Dr Thomas Oertle, Head of Cooperation, Embassy of Switzerland in Kenya.



Dr Guinand and Dr Oertle, after unveiling a plaque to commemorate the launch.



Dr Guinand (second left) assisted by Mr Kaniaru (extreme right) and *icipe* staff planting a tree to mark the launch.

## icipe to manage regional doctoral training, research and innovation fund

The International Centre of Insect Physiology and Ecology (*icipe*), Kenya, has been selected to manage the Regional Scholarship and Innovation Fund (RSIF), an initiative aimed at strengthening doctoral training, as well as research and innovation in applied sciences, engineering and technology (ASET), in Africa. The RSIF is one of the flagship programmes of the Partnership for skills in Applied Sciences, Engineering and Technology (PASET), an initiative by African governments to address fundamental gaps in skills and knowledge necessary for long-term, sustained economic growth in sub-Saharan Africa (SSA). PASET was launched in 2013 by the governments of Senegal, Ethiopia and Rwanda, while the governments of Kenya and Ivory Coast have since joined the partnership. So far, 15 other African governments have made commitments to join PASET. More information: <http://www.icipe.org/news/icipe-manage-regional-doctoral-training-research-and-innovation-fund>



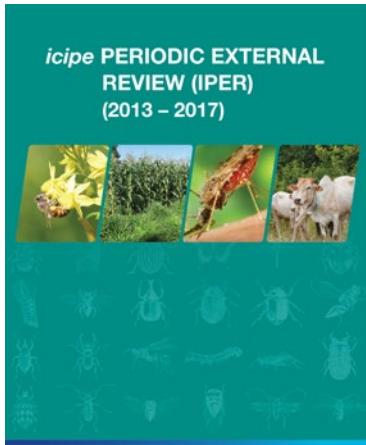
Dr Javier Botero Alvarez, Lead Education Specialist at the World Bank, making a presentation during a planning meeting on *icipe*'s role as the RCU of the RSIF.





**icipe Periodic External Review 2013 – 2017**

icipe embraces the need for constant re-evaluation towards innovative planning, execution and overall operations. With the revision of the Centre's strategy in mind, in March 2018, the Centre's Governing Council of commissioned the *icipe* Periodic External Review (IPER) for the period of 2013-2017. The review report of the IPER, conducted recently by three international experts, Drs. John Lynam (Chair), Bruce Pengelly and Serap Aksoy. The team indicated that in the process of undertaking the review "we find a well managed and highly productive research institute and our findings are oriented to better strategically positioning the Center in the medium term future." Full report available here: <http://www.icipe.org/news/icipe-periodic-external-review-2013-%E2%80%93-2017>



**icipe honours Dr Hans Herren**

*icipe* has honoured Dr Hans Rudolph Herren, a former Director General of the Centre, for his enduring commitment to supporting the Centre's mission; and his vision of the role of science-led development for sustainable, socio-economic transformation in Africa. This recognition is denoted in the dedication of the main administration building block at *icipe* Thomas Odhiambo campus, Mbita Point, on the shores of Lake Victoria, to Dr Herren. Please see below, details of Dr Herren's contribution to *icipe*. Read more: <http://www.icipe.org/news/icipe-honours-dr-hans-herren>



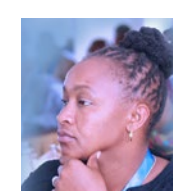
**Best poster award**

Margaret Mendi Njoroge, a PhD scholar, received the first prize for the best poster in the recently held Pan-Africa Mosquito Control Association (PAMCA) conference for a poster titled: Repellent-treated eave wraps as a tool in the arsenal against residual malaria transmission. She is registered at Wageningen University, the Netherlands, supervised by Dr Alex Hiscox (Wageningen University), and Dr Ulrike Fillinger (*icipe*). The research is being undertaken within the East African Collaboration of Mosquito Push Pull (EACoMoPP), funded by the Innovative Vector Control Consortium through Wageningen University.



**Fellowship for *icipe* scientist**

Beatrice Muriithi, Postdoctoral Fellow in the Social Science and Impact Assessment Unit (SSIA), has been awarded the Science by Women fellowship by the Women for Africa Foundation, a Spanish private entity aimed at contributing to the sustainable development of Africa through the drive of its women. The fellows spend six months at a Spanish centre of excellence, where they receive training and integration in a dynamic, multidisciplinary and highly competitive work team, and are able to develop their research projects and acquire complementary competences, empowering them to transfer their research results to tangible social and economic benefits. Dr Muriithi will be hosted by Barcelona School of Economics. For more information: [science.by.women@mujeresporafrika.es](mailto:science.by.women@mujeresporafrika.es)



**icipe Director General featured in The CEO Magazine**

*icipe* Director General, Dr Segenet Kelemu, has been featured as one of the exceptional leaders from around the world breaking ground and shattering the glass ceiling by the *CEO Magazine*, an Australian business magazine that aims to provide thought-provoking business and lifestyle articles. The complete article is available here: [http://www.icipe.org/sites/default/files/leading-businesswomen\\_EU1018\\_segenet-icipe.pdf](http://www.icipe.org/sites/default/files/leading-businesswomen_EU1018_segenet-icipe.pdf)

**icipe research honoured**

A peer reviewed article entitled Identification of the Ubiquitous Antioxidant Tripeptide Glutathione as a Fruit Fly Semiochemical, published by *icipe* researchers in October 2017, was selected for the *Journal of Agricultural and Food Chemistry* Research Article of the Year Award (AGRO Division). Based on this recognition, Prof. Baldwin Torto, the *icipe* lead scientist of the research was invited to give a lecture at the 256th American Chemical Society (ACS) national meeting, which took place between 19 – 23 August 2018, in Boston, Massachusetts, USA.



Editor-in-Chief of the *Journal of Agricultural and Food Chemistry*, Prof. Dr Thomas Hofmann (right) presenting the award to Prof. Baldwin Torto.

## RECENTLY FUNDED

**Donors: The World Bank; Government of South Korea; the governments of Ivory Coast, Malawi, Mozambique, Rwanda, Senegal and Tanzania.**

Appointment of *icipe* as the Regional Coordinating Unit (RCU).  
Role: To manage the Regional Scholarship and Innovation Fund (RSIF), including:

- Manage the two RSIF funds: (i) a general fund, which supports PhD training, research and innovation projects annually and (ii) a permanent or endowment fund, whose proceeds will be channeled into the general fund.
- Provide overall coordination planning, monitoring and evaluation of RSIF activities.
- Strengthen capacity of universities and partnering institutions to manage PhD scholarships, and to conduct research and innovation in the priority sectors.
- Facilitate creation of partnerships with governments, universities and national and international research organisations for research training.

More information: <http://www.icipe.org/news/icipe-manage-regional-doctoral-training-research-and-innovation-fund>

**Donor: THRiVE Consortium, supported through the DELTAS Africa Initiative grant # DEL-15-011 to THRiVE-2.**

Type of grant: PhD fellowship awarded to Joel Ouma Odero (Animal Health Theme).

Research topic: Understanding tick-borne zoonotic disease epidemiology within the nomadic pastoral systems in Isiolo, Tana river, West Pokot and Garissa counties, Kenya.

Supervisors: David Tchouassi and Rosemary Sang (*icipe*), with additional mentorship from Cambridge University, UK.

**Donor: Bill & Melinda Gates Foundation**

Awarded to: Menale Kassie, Head, Social Science and Impact Assessment Unit, based on a joint project proposal between *icipe* and Tel Aviv University (TAU).

Project: A crowd-sourcing approach to large scale monitoring of pests by smallholder farmers.

**Donor: German Academic Exchange Service (DAAD)**

Type of grant: 2018/2019 DAAD in-country/ in-region programme scholarships.

Awarded to: Capacity Building and Institutional Development Unit.  
Total: Seven PhD scholarships.

**Donor: BBSRC Global Challenges Research Fund (GCRF)**

Awarded through Keele University, UK, to Zeyaur Khan, Charles Midega and Amanuel Tamiru, *icipe* Push-Pull integrated vector management programme.

Project: Sustainable Agriculture for sub-Saharan Africa (SASSA) (Enhancing crop diversity and ecosystem services to promote biological control of fall armyworm in smallholder cropping systems).

**Donor: United States Department of Agriculture – Research, Education and Economics (USDA-REE)**

Awarded to: Baldwyn Torto, Head, BCEU.

Project: Identification of semiochemicals for regulation of potentially invasive pests of beneficial organisms for the control of invasive pests to the United States.

**Donor: The United Nations Environment Programme (UNEP) and the Global Environment Facility (GEF)**

Submitted by: World Health Organization Regional Office for Africa (WHO-AFRO).

Awarded to: Clifford Mutero and Ulrike Fillingner (scientists, Human Health Theme), through WHO Technical Services Agreement.

Project: Demonstration of effectiveness of diversified, environmentally sound and sustainable interventions, and strengthening national capacity for innovative implementation of integrated vector management (IVM) for disease prevention and control in the WHO-AFRO region.

**Donor: United States Agency for International Development (USAID)/Virginia Polytechnic Institute and State University, USA**

Awarded to: Tadele Tefera, Head, *icipe* Ethiopia Country Office.  
Programme: IPM for Rice, Maize and Chickpea in East Africa.

**Donor: THRiVE Consortium, supported through the DELTAS Africa Initiative grant # DEL-15-011 to THRiVE-2**

Type of grant: Career Development Award

Awarded to: David Tchouassi (Scientist, Behavioural and Chemical Ecology Unit – BCEU), and Dr Rosemary Sang (Scientist, Human Health Theme).

Project: Investigating the role of sandflies in the circulation of arboviruses in selected ecologies of Kenya.

Collaborators: Dr Richard Echodu, Gulu University, Uganda.

**Donor: United Nations Office for Project Services – Enhanced Integrated Framework (UNOPS EIF)**

Awarded to: Workneh Ayalew (Scientist, *icipe* Ethiopia Country Office) and Evelyn Nguku (Scientist, Environmental Health Theme)  
Research topic: Scaling up quality honey productivity and fair trade project (2017-2020): Government of the Federal Republic of Ethiopia; Enhanced Integrated Framework (EIF) Tier II Project Proposal.

Partners: Ministry of Trade; Ministry of Agriculture, Livestock and Fisheries (Ethiopia).

**Donor: Cultivate Africa's Future (CultivAF, Phase 2) initiative, International Development Research Centre by the International Development Research Centre (IDRC), Canada, and Australian Centre for International Agricultural Research (ACIAR)**

Awarded to: Chrysantus Tanga (Scientist, Insects for Food and Feed Programme), Menale Kassie (Head, Social Science and Impact Assessment, SSIA) Unit, Gracious Diiro (Postdoctoral Fellow, SSIA).

Project: INSFEED2: Insect feed for poultry, fish and pig production in sub-Saharan Africa.

**Donor: Europe-Africa Agricultural Research and Innovation Cooperation Program (LEAP-Agri)**

Lead partner: Cirad.

Funding to *icipe* as the national partner is through the National Research Fund, Kenya.

Awarded to: Beatrice Muriithi (Postdoctoral Fellow, SSIA) and Chrysantus Tanga (Scientist, Insects for Food and Feed programme).

Project title: Sustainable intensification of fruit production systems through innovative pest biocontrol technologies (pest-free fruit).



## Creating opportunities for the youth

With the knowledge that Africa's socio-economic transformation will only arise through a truly inclusive and holistic approach to development, *icipe* has maintained a firm commitment to youth employment in Africa. The five testimonials below are just an example of the Centre's contribution towards this goal. Link: <http://www.icipe.org/news/creating-opportunities-youth>



**Peace Nakato**

Age: 24 years  
Location: Bugiri District, eastern Uganda  
Programme: Push-Pull integrated pest management programme



**Cynthia Mbula David**

Age: 22 years  
Location: Shimba Hills, Kwale County, coastal Kenya  
Programme: Integrated vector management of tsetse and trypanosomiasis



**Joseph Wambua Muendo**

Age: 31 years  
Location: Machakos County, eastern Kenya  
Programme: fruit fly integrated pest management



**Wudie Aymero**

Age 26 years old  
Location: Amhara region, Ethiopia  
Project: Young Entrepreneurs in Silk and Honey (YESH) project, a partnership between *icipe* and the Mastercard Foundation  
<https://mastercardfdn.org/young-women-trailblazing-in-ethiopia-s-honey-economy/>



**Samuel Chan**

Age: 34 years  
Location: Nyabondo plateau, Kisumu County, western Kenya  
Programme: Integrated vector management for malaria control



### *icipe* across the region

**Rwanda:** In December 2017, the highly innovative Push-Pull technology was officially launched in Rwanda. As of May 2018, 4745 farmers had been trained, and 240 farmers had adopted the technology. The interesting chronology of events consisting of synergies between donors, policymakers, non governmental organisations, farmers partnerships, and farmer testimonials are available here: <http://www.icipe.org/news/icipe-push-pull-rwanda>  
<http://www.icipe.org/news/fall-armyworm-rwanda>

**Uganda:** *icipe* opened an office in Uganda in 2012. As a result, so far, 20,000 farmers (47% of them women) have adopted the Push-Pull technology. In addition, the office continues to strengthen its national and regional roles, towards expanding *icipe*'s footprint and impact through wholistic and integrated implementation of the Centre's technologies. Read more: <http://www.icipe.org/news/icipe-uganda>

### IBCARP case study

In 2015, the Integrated Biological Control Applied Research Program (IBCARP), an initiative funded by the European Union (EU), with additional funds from *icipe*'s core funds and other sources, to support the adoption of the Centre's technologies and strategies for improved cereal, horticulture and livestock productivity by an estimated 350,000 additional farmers and pastoralists in Kenya, Ethiopia and Tanzania, was launched. A case study of progress and outcomes achieved through IBCARP, complete with testimonials from farmers, is available here: <http://www.icipe.org/sites/default/files/IBCARPicipecasestudy-layout.pdf>



## Fall armyworm information sharing

On 18 September, *icipe* held an information sharing session on the management of the fall armyworm in Africa for ambassadors and officials of African governments, donor representatives, national research systems, international organisations and members of the press. Recommendations included the need for: transboundary collaboration in the management of invasives; sustainable, integrated pest management of the fall armyworm; communities of practice to develop such solutions; partnerships to roll out strategies being developed through various initiatives, including those by *icipe*. Read more: <http://www.icipe.org/news/fall-armyworm-information-sharing-session>



Mr Stephen Wathome, Programme Manager, Agriculture, Job Creation and Resilience, Delegation of the European Union to Kenya; Dr Julius Ecuru, Programme Manager, BioInnovate Africa/*icipe*; Mr Nuku Kamasa-Quashie, Deputy Head of Mission/Permanent Representative to UNEP and UN-HABITAT; Ghana High Commission Dr Dennis Rangi, Director General, Development, CABI; Dr Shewit Kalayou, Scientist, Animal Health Theme, *icipe*.



Zachary M. Kinyua, Assistant Director, Crop Health Research, Kenya Agricultural & Livestock Research Organization (KALRO).



Her Excellency Agrina Mussa, High Commissioner and Permanent Representative to UNEP and UN-HABITAT, Malawi High Commission, and Dr Robert Skilton, Head, Capacity Building and Institutional Development, *icipe*.

## BioInnovate biobusiness boot camp

BioInnovate Africa recently organised a biobusiness boot camp for the project leaders and private sector partners involved in projects funded by the Programme, to refine pathways to market the innovative products under development through these initiatives.

The three-day event streamlined expectations from researchers and business leaders in project implementation and contributed to strengthening commercialisation capacities of participating firms. The boot camp also enabled participants to harmonise their roles and responsibilities as co-developers, overall boosting the potential of sustainably introducing products into the market.



Group discussions during the BioInnovate Boot camp.



Teams discuss their business models with guidance from Ms Shira Mukibi, Business Manager, BioInnovate Africa.

## High level policy seminar for eastern Africa

In July 2018, BioInnovate Africa, in partnership with the Tanzania Commission for Science and Technology, held a high level policy seminar in Dar es Salaam, Tanzania. The aim was to explore best practices in building innovation ecosystems that support growth and sustainable development in the country, and eastern Africa in general, and to identify opportunities for the public sector interventions, and potential linkages with the Programme. The participants comprised policy experts, private firms, research organisations, media and donors from Tanzania and across eastern Africa. A key recommendation from these deliberations was that governments and policymakers should



Seminar panelist Prof. Dr Anthony Manoni Mshandete, Professor of Biotechnology, The Nelson Mandela African Institution of Science and Technology (NM-AIST) and Eng. George Mulamula, CEO, Dar Teknohama Business Incubator.

actively support research and innovation through policies and funding to vital players in the innovation ecosystems, for example universities and business incubation centres.





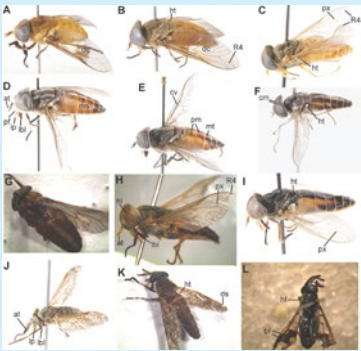
### New edible cricket species

*icipe* researchers and partners have reported for the first time a new edible cricket species of the genus *Scapsipedus*. The study highlights the current distribution in Kenya, acoustic behaviour, including male's call and courtship song, mitochondrial sequences, and data on the biology of the new species. This edible cricket is a very promising species for mass production for human consumption and/or for inclusion in livestock feeds. Although, cricket farming for food and feed is relatively new in Africa at large, *icipe* researchers have developed efficient and cost-effective technologies, and protocol for mass rearing local cricket species under various rearing conditions. The newly described species, *Scapsipedus icipe* Hugel & Tanga nov. sp. is widely farmed in the Nyanza region and other parts of Kenya, where some organisations including *icipe* have trained several youth and women groups to empower them with this entrepreneurial activity. Paper link: DOI: <http://dx.doi.org/10.11646/zootaxa.4486.3.9>



### eDNA mosquito analysis

With rising resistance of mosquitoes to insecticides, as well as changes in the insects' biting and resting behaviour, larval source management, that is, targeted management of mosquito breeding sites, is a promising approach to controlling these vectors. However, traditional methods to monitor immature stages of *Anopheles* mosquitoes are hindered by variability in their breeding habitats. *icipe* researchers have evaluated the use of an environmental DNA (eDNA) analysis technique in monitoring the malaria transmitting *Anopheles gambiae* larvae in experimental aquatic habitats. The study shows that eDNA detection at species level rather than species complex level is achievable, which could potentially save costs and time in monitoring these vectors. Paper link: <https://wellcomeopenresearch.org/articles/3-26/v1>



### Biting flies description

Biting flies transmit various pathogens to people and animals, while their painful bites affect livestock production. At present, the description of biting flies in eastern Africa is fragmented and sparsely documented without final valid checklists. Using molecular DNA barcoding, *icipe* researchers have conducted the first study to describe in detail the morphology of diverse biting flies in Kenya, Tanzania and Uganda. The findings indicate need to comprehend biting flies and their habitat, integrating climatic factors, pathogens, blood meal sources, as well as the effect of human activity on the distribution of the insects. This information is expected to inspire larger scale investigations, and enable implementation of more efficient control measures against these neglected vectors. Paper link: <https://zookeys.pensoft.net/article/21144/>



### Fall armyworm natural enemies

An *icipe* study reports for the first time new associations between several species of natural enemies and the invasive and highly destructive fall armyworm, in Africa. This information is important towards designing a biological control programme for the pest, which has spread rapidly and caused untold damage across the continent since initial reports of its presence in 2016. Such an approach will complement existing solutions, like the *icipe* Push-Pull technology, while pre-empting the indiscriminate use of harmful and often ineffective pesticides. Paper link: <https://onlinelibrary.wiley.com/doi/abs/10.1111/jen.12534>

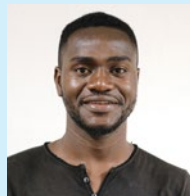


### African bees resistance

Previous *icipe* research has shown that African bees are able to survive, without treatment, maladies inflicted by *Varroa* mites that have been known to contribute to the colony collapse disorder (CCD) syndrome that has devastated bees in Europe and America. *icipe* researchers have recently published two papers that contribute knowledge on the reason for the resistance of African bees to these pests. The first article advances understanding on the Centre's previous reports of a higher rate of grooming in African bees compared to European bees, this time focusing on the hygienic behaviour of bee colonies. The second paper highlights the ability of African bees to detect *Varroa* infested brood cells, open them and remove the mites without harming the developing bee pupa. Paper links: <https://www.ncbi.nlm.nih.gov/pubmed/29661259>; <https://link.springer.com/article/10.1007/s13592-018-0570-6>

## ARPPIS scholars, class of 2018

In September 2017, 11 postgraduate students joined *icipe* through the African Regional Postgraduate Programme in Insect Science (ARPPIS), with support from German Academic Exchange Service (DAAD). The scholars will be hosted within various projects being implemented by the Centre.

**Fairo Dzekashu Foryuy (Cameroon)**

**Research project title:** Diversity of plants, pollinators, and their network in natural and agricultural habitats of the eastern Afrotropical biodiversity hotspot in Kenya.

**Host project and funding:** African Plant-Pollinator Interaction (APPI), funded by JRS Biodiversity Foundation

**Supervisors:** Dr Michael Lattorff (*icipe*) and Dr Régis Babin, both from (CIRAD and *icipe*).

**Bio:** Fairo holds a BSc in Zoology and Animal Physiology and an MSc in Zoology and Animal Physiology (Specialty Entomology), both from the University of Buea, Cameroon.

**Vongai Marjorie Paradza (Zimbabwe)**

**Research Project:** Development of effective biopesticides for management of pesticide resistant strains of whiteflies infesting vegetables in East Africa.

**Host project and funding:** BioInnovate Africa Programme funded project "Promoting smallholder access to fungal biopesticides through Public Private Partnerships in East Africa (PROSAFE)"

**Bio:** BSc in Agriculture (Crop Science) and an MPhil in Agriculture, both from the University of Zimbabwe

**Supervisors:** Dr Fathiya Khamis, Dr Sevgan Subramanian, Dr Komivi Akutse, Dr Sunday Ekese.

**Mukundi Mukundamago (South Africa)**

**Research project:** Predicting the spatio-temporal distribution of common plant-pollinator interactions in two contrasted and changing landscapes of the eastern Afrotropical biodiversity hotspots in Kenya (the Aberdare range and the Taita Hills).

**Host project and funding:** APPI project (JRS Biodiversity Foundation)

**Bio:** Mukundi holds a BSc in Environmental Management from the University of Venda, South Africa; a BSc in Biodiversity and Ecology, from Stellenbosch University, South Africa; and an MSc in Conservation Ecology, Stellenbosch University, South Africa.

**Supervisors:** Dr Michael Lattorff (*icipe*) and Dr Régis Babin (CIRAD/*icipe*).

**Kochelani Saili (Zambia)**

**Research project:** Evaluating the feasibility and impact on malaria transmission of community-based house-screening as an additional vector control intervention in Zambia

**Host project and funding:** AFRO-II project, funded by the World Health Organization Regional

Office for Africa (WHO-AFRO) through *icipe* and the National Malaria Elimination Centre (NMEC), Zambia.

**Supervisors:** Prof. Clifford Muteru, Dr Ulrike Fillinger and Dr Menale Kassie (*icipe*).

**Bio:** Kochelani holds a BSc (Ecology major) and an MSc in Entomology, both from the University of Zambia.

**Faith Isikhuemen Ebhodaghe (Nigeria)**

**Research project:** Characterising the impact of community-driven tsetse and trypanosomiasis control in the human-livestock-wildlife interface of Shimba Hills, Kwale County, Kenya

**Host projects and funding:** Upscaling community-driven tsetse and trypanosomiasis control (Biovision Foundation) and Integrated

Biological Control Applied Research Project, tsetse component (European Union).

**Bio:** Faith holds a BSc degree in Zoology from Ambrose Alli University, Nigeria and an MPhil in Entomology from the University of Ghana, Legon. He is a member of the Zoological Society of Nigeria.

**Supervisors:** Dr Michael Okal and Dr Beatrice Muriithi (*icipe*)

**Advisors:** Dr Dan Masiga and Dr Tobias Landmann (*icipe*)

**Nadia Karelle Toukem (Cameroon)**

**Research project:** Optimization of integrated pests and pollinators management (IPPM) strategies in avocado-cucurbit production systems in East Africa.

**Host project and funding:** Integrated pest and pollinators management (IPPM) to enhance productivity of avocado and cucurbits among

smallholder growers in East Africa, a project funded by the German Federal Ministry for Economic Cooperation and Development (BMZ).

**Supervisors:** Dr Brian Isabirye, Dr Sevgan Subramanian, Dr Fathiya Khamis, Dr Elfatih M. Abdel-Rahman and Dr Michael Lattorff (*icipe*).

**Bio:** Nadia earned a BSc in Animal Biology from the University of Dschang, Cameroon and an MSc in Zoology from the University of Yaoundé 1, Cameroon. She is a member of the African Association of Insects Scientists.

**Edwin Ogola (Kenya)**

**Research project:** Evaluating the ecology of relevant arboviruses in blood-feeding arthropods in selected ecologies of Kenya.

**Host project and funding:** Identification of virus transmission networks, funded by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation).

**Bio:** Edwin holds a BSc in Biochemistry and Molecular Biology and an MSc in Biochemistry all from Egerton University, Kenya.

**Supervisors:** Dr David Tchouassi, Prof Rosemary Sang and Prof Baldwin Torto (*icipe*).





**Andreas Schriber**  
Co-Founder and CEO of Biovision Foundation

## Biovision Foundation's partnership with *icipe* A success story celebrating its 20th anniversary

Right from day one, when Biovision was founded in June 1998, the partnership with *icipe* was at the heart of our activities in Africa.

This vision was primarily driven by three factors. One: the Founder of Biovision, Prof Hans R. Herren, was at the time the Director General of *icipe*. Two, the core mission of Biovision, "Improving livelihoods of small farmers in sub-Saharan Africa through ecological development", naturally matched the Foundation with the rich network of *icipe*. This was more so because Biovision based its sustainable solutions on scientific evidence. Three: Biovision shares with *icipe* the holistic approach that covers better health for humans, animals, plants and the environment, providing a unique framework for synergies, through our vast experience in our individual fields, and range of our combined relevant networks.

Since 1998, Biovision Foundation has promoted the development, dissemination and application of sustainable ecological agricultural practices, empowering people in Africa to help themselves. With *icipe* as our major partner in Africa, and our growing network worldwide, we are able to act in various roles as a pioneer of change, for example in improving food

security, sustainable agriculture and food systems. The growing desire of various stakeholders including governments to significantly increase grain yields and animal production is encouraging. However, focus on environmental sustainability of soils, crop, water resources and sustainable ways of managing weeds and pests through ecologically sound agronomic practices besides innovations deserve highlighting.

The huge challenges in fighting hunger and poverty are closely connected with global themes such as climate change, loss of biodiversity, inequality, planetary boundaries, to mention just a few. That is why more research on ecological solutions and more holistic approaches are needed. We also need to bear in mind that we need to contribute to the achievement of the Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda. As such, business as usual is not an option. Within this context, *icipe*'s contribution to search for reliable and scientifically proven solutions for food security, improved nutrition and sustainable agriculture remains relevant and indispensable. Human, animal, plant and the environmental health can only be achieved if food security, improved nutrition and sustainable agriculture become the norm of African agriculture.

The proof that our common vision of a more food secure and healthier Africa is creating impact has undoubtedly been demonstrated. Many strategically important fields of applied research for sustainable development have been taken from the lab to the land, tested in real life with smallholder farmers and promoted among practitioners as well as decision makers, donors and private sector partners. The complementary mission and strategic approach of Biovision and *icipe* is both the foundation for what we have achieved so far – as well as a solid basis for a promising continuation of our partnership. Collectively, we can make this world a better place, for all.

### Biovision – Foundation for ecological development

**Our vision:** "A world with enough food for all, produced by healthy people in a healthy environment"

Biovision is a not-for-profit, non-denominational, politically independent Swiss foundation based in Zurich. Since 1998, it has supported ecological solutions to alleviate poverty and improve food security in Africa.

Since 2012 Biovision has general consultative status of the UN Economic & Social Council (ECOSOC). In 2013, Biovision and its founder Hans Rudolf Herren won the Right Livelihood Award, also known as the Alternative Nobel Prize.

Focussing on our key priority of **Food security and sustainable agriculture**, Biovision is contributing to the implementation of Agenda 2030 both globally and nationally; it takes as its point of reference SDG 2 "**Zero Hunger**".

[www.biovision.ch](http://www.biovision.ch)



Representatives of Biovision Foundation, Biovision Africa Trust, *icipe* and other network partners, during Biovision's 20th anniversary commemoration at the *icipe* Thomas Odhiambo Campus. – Picture by Martin Grossenbacher



## Indian High Commissioner visit

On 26 July 2018, Her Excellency Mrs Suchitra Durai, High Commissioner of India to Kenya (right) and Mr. R. Chandramouli, First Secretary (left), made a familiarisation visit to *icipe* with a special interest in understanding ongoing initiatives on bee and silk research. They are pictured with *icipe* Director General, Dr Segenet Kelemu.



## icipe hosts OWSD meeting

On 5 – 7 September, *icipe* hosted the Africa Regional Conference 2018 of the Organization for Women in Science for the Developing World (OWSD), under the Theme: Women in Science, Engineering and Technology for Sustainable Development.

## icipe at ISCE meeting

*icipe* was strongly represented at the recent 34th International Society of Chemistry meeting in Budapest, Hungary, by the Behavioural and Chemical Ecology Unit (BCEU) team consisting of (l-r) Baldwyn Torto (BCEU Head) and scholars: Akua Antwi-Agyakwa, Olabimpe Olaide, Teresiah Njihia, Hilaire Kpongbe and Ruth Kihika.



## EU visit to beekeeping activities

In June 2018, representatives of the European Union Delegation to Ethiopia including: Mr Dominique Davoux, Team Leader, Rural Transformation & Resilience; Mr Erik Habers, Head of Cooperation and Mr Eshetu Mulatu, Operations Officer, visited *icipe*-led beekeeping sites in Tolay, Oromia region.

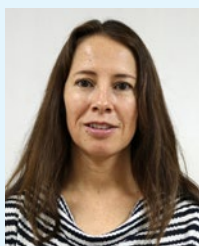
The Delegation also visited Holeta Bee Research Centre, which serves as a satellite station of the EU funded African Reference Laboratory for Bee Health, based at the *icipe* headquarters in Nairobi. *icipe*'s beekeeping activities in Ethiopia are supported by the European Union (EU), Biovision Foundation for Ecological Development, Switzerland, and the Mastercard Foundation. <http://www.icipe.org/news/beekeeping-ethiopia-icipe-eu-partnership>

## Seed workshop

In August 2018, *icipe* organised a workshop to deliberate issues surrounding the availability and accessibility of *Desmodium* and *Brachiaria* seeds, two key components of the Centre's Push-Pull technology. A key outcome of the event, which was attended by various stakeholders, was that *icipe* will lead the development of a regional, value chain focused strategy for *Desmodium* and *Brachiaria* seed production.







**Dr Monica Fisher**, an applied economist, has joined *icipe* as a Gender Specialist to conduct both gender analysis and adoption, and impact assessment. She holds

a PhD in agricultural economics from Purdue University (2003). Her research has focused on sub-Saharan Africa (Malawi, Senegal, and Uganda) and covers a wide range of topics including gender in development, poverty, food insecurity, climate change, technology adoption, and entrepreneurship. Prior to joining *icipe*, Monica worked at the University of Idaho, USA, the International Maize and Wheat Improvement Center (CIMMYT), outposted to Ethiopia, the International Food Policy Research Institute (IFPRI), outposted to Malawi, and Oregon State University, USA. She has co-authored more than 35 peer reviewed publications and has considerable experience working on funded grant projects. Past funding has come from the National Science Foundation, the National Institutes of Health, United States Agency for International Development, and United States Department of Agriculture, among others. In addition to research, Monica's career has involved university teaching and mentoring. Examples of courses taught are rural economic development and policy, environmental economics, and spatial regression. She has served on the thesis/dissertation committee of five M.S. and Ph.D. students and looks forward to mentoring students at *icipe*.



**Ms Lydia Nakhone** has been appointed Research Programmes Manager in the office of the Director of Research and Partnerships. Lydia holds an MSc in Health Economics and

Policy Development from the University of Nairobi and a BSc in Biomedical Science with Information Technology from Maseno University, Kenya. Previously, Lydia was a Program Officer at Twaweza East Africa, and also held research positions at the University of Nairobi, Institute of Health Policy Management and Research, as well as the Innovations for Poverty Action.



**Dr Mark Wamalwa** joins *icipe* as a Postdoctoral Research Fellow in Modelling under the Plant Health Theme. Mark holds a PhD in Bioinformatics from the University of Western

Cape, South Africa; an MSc in Bioinformatics from Wageningen University & Research, the Netherlands, and a BSc in Veterinary Medicine from the University of Nairobi, Kenya. Previously, Mark was a Lecturer at Kenyatta University in the Biochemistry and Biotechnology Department. He has also served as a Postdoctoral Scientist, Bioinformatics, at BecA-ILRI hub, and as a Research Fellow at Solvay Pharmaceuticals, Netherlands.



**Dr Shewit Kalayou** has joined *icipe* as a Scientist in the Animal Health Theme. Shewit holds a PhD in Veterinary Medicine and Sciences from the Norwegian University of Life

Sciences, Norway, an MSc in Biotechnology from the National University of Ireland, and a BSc in Veterinary Medicine from Addis Ababa University, Ethiopia. Prior to joining *icipe*, Shewit also held research positions at Oslo University Hospital, and as an Assistant Professor at the College of Veterinary Medicine, Mekelle University, Ethiopia.



**Dr Michael Mukembo Kidoido** joins *icipe* as a Senior Monitoring, Evaluation and Learning Specialist, based in the Social Science and Impact Assessment Unit. Michael holds

a PhD in Agricultural and Development Economics, an MSc in Agricultural, Environmental and Development Economics from Ohio State University, USA, an MSc degree in Agricultural Economics and a BSc in Agriculture from Makerere University, Uganda. Previously, Michael was working with the International Livestock Research Institute (ILRI), where his focus was on developing and implementing Monitoring, Evaluation and Learning systems. Prior

to this, he was a Researcher at Makerere University, Danish Institute for International Studies, and at the Danish Alliance for Self-Reliance Strategy.



**Dr Shepard Ndlela** joins *icipe* as a Postdoctoral Research Fellow, post harvest, under the Plant Health Theme. Shepard holds a PhD in Entomology from the University of Nairobi,

Kenya, an MSc in Tropical Entomology and a BSc in Biological Sciences from the University of Zimbabwe. Prior to joining *icipe*, Shepard was working with the Tobacco Research Board, Zimbabwe as an Entomologist where his focus was on identifying insect pests and advising farmers on insect pests management, research on good agricultural practices, and integrated pest management. He has also worked as a Curator Entomologist at the Natural History Museum of Zimbabwe.



**Dr Peter Onyango Sangoro** joins *icipe* as a Postdoctoral Research Fellow, Malaria integrated vector management, World Health Organization Regional

Office for Africa (WHO-AFRO) II project under the Human Health Theme. Peter holds a PhD and an MSc in Philosophy in Infectious and Tropical Diseases from the London School of Hygiene and Tropical Medicine, UK, and a BSc in Environmental Health from Moi University, Kenya. He previously worked at Ifakara Health Institute (IHI), Tanzania, as a Technical Advisor and as a Postdoctoral Scientist, conducting a large-scale clinical trial evaluating the impact of topical repellents against early evening malaria transmission in rural Tanzania. Prior to this, he was a Research Fellow at the Stockholm Environment Institute (SEI)-Africa Centre, and a Public Health Officer at the African Medical Research Institute.

# icipe gratefully acknowledges the financial support of the following organisations and agencies

## Core donors

- Swiss Agency for Development and Cooperation (SDC), Switzerland
- Swedish International Development Cooperation Agency (Sida), Sweden
- UK Aid, Government of the United Kingdom
- Ministry of Higher Education, Science and Technology, Kenya
- Government of the Federal Democratic Republic of Ethiopia

## Restricted project donors

- African Union
- African Women in Agricultural Research and Development (AWARD)
- AIRD (French Inter-institution Agency for Research and Development)
- Bioinnovate Africa Programme
- Biotechnology and Biological Sciences Research Council, UK, through Rothamsted Research, UK
- Bayer: Science For A Better Life
- Biovision Africa Trust
- Biovision Foundation for Ecological Development, Switzerland
- Canadian Government through International Development Research Centre (IDRC)
- CIRAD – Agricultural Research for Development, France
- Cultivate Africa's Future (CultiAF) through International Development Research Centre (IDRC)/Australian Centre for International Agricultural Research (ACIAR)
- European Union
- Federal Ministry for Economic Cooperation and Development (BMZ), Germany
- Food and Agriculture Organization of the United Nations (FAO)
- German Academic Exchange Service (DAAD)
- Deutsche Forschungsgemeinschaft (DFG)
- Global Environment Facility (GEF)/United Nations Environment Programme (UNEP)
- Government of South Korea
- Grand Challenges Canada (GCC)
- Innovative Vector Control Consortium (IVCC), through Wageningen University
- International Atomic Energy Agency (IAEA)
- International Centre for Genetic Engineering and Biotechnology (ICGEB)
- International Fund for Agricultural Development (IFAD)
- IRD, Institut de Recherche pour le Développement, France
- JRS Biodiversity Foundation, directly and through Royal Museum for Central Africa (RMCA)
- Liechtenstein Development Service (LED), Principality of Liechtenstein
- Max Planck Institute
- Medical Research Council, UK
- Ministry for Foreign Affairs of Finland
- National Geographic Society
- National Research Fund, Kenya
- Netherlands Organisation for Scientific Research (NWO)
- Newton Fund
- Norwegian Agency for Development Cooperation (NORAD)
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- Swedish University of Agricultural Sciences (SLU)
- Swiss National Science Foundation (SNSF)
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- The Volkswagen Foundation, Germany
- The World Bank
- United Nations Environmental Programme (UNEP)
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- United States Department of Agriculture (USDA)
- United States National Institutes of Health (NIH)
- United States National Science Foundation (NSF)
- Wellcome Trust, UK
- World Federation of Scientists through the ICSC-World Laboratory
- World Health Organization
- World Trade Organization (WTO) – Enhanced Integrated Framework (EIF)

In realising its mission, *icipe* also benefits from extensive partnerships with research partners (including universities and research institutes in Africa and beyond), private sector partners, and communities across Africa.

For more information on these and other topics, please visit our

Website: <http://www.icipe.org> or contact us through our

Email address: [icipe@icipe.org](mailto:icipe@icipe.org)

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