

2

From the Chair, *icipe*  
Governing Council

Dr Lukas Bertschinger,  
Chair, *icipe* Governing Council



3

Thought leadership column by  
the Director General

**Time for a bioeconomy  
in Africa**

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



5

### INSTITUTIONAL NEWS

- Participation in IDIA events
- Director General honoured
- 2017 Annual Report
- New Fellowship for DRP
- *icipe* scientist appointed Head of a Max Planck Partner Group
- Government of the Federal Democratic Republic Ethiopia to provide core funds to *icipe*
- Prof. Torto honoured
- External review
- Awards of excellence from Ethiopian government ministries
- EU Delegation visits
- Visit by Dr Markus Moll, Research Advisor, Sida
- CIM equipment grant award



10

### RESEARCH HIGHLIGHTS

- IPPM project launched
- Plans for a strategy on invasive species in Africa advance
- *icipe* partners with GIZ Somalia
- Advancing nematodes research and management
- Jona Mutasa: self motivated Push-Pull farmer and trainer
- Tsetse repellent blend registered



11

### RECENTLY PUBLISHED

- Global recognition for *icipe* research
- Novel tsetse trapping technology
- Potential for improved malaria diagnosis
- Women empowerment and agricultural productivity in western Kenya
- Testing new satellite technology for better agricultural data



8

### RECENTLY FUNDED

- Three zoonotic diseases; One Health
- Upscaling of tsetse technologies
- Controlling aflatoxin, fall armyworm and Napier Stunt Disease
- New funding from Norad
- Medicinal plant based enterprises and environmental conservation
- Radar satellite data evaluation
- Trypanosome transmission blocking
- Beekeeping and the youth
- Emergency fall armyworm response
- Improving insect colony management



13

### *icipe* IN PICTURES

- Insects for Food and Feed conference
- Biovision visit to Ethiopia beekeeping site
- Tsetse and camel TACs meetings
- *icipe* celebrates World Bee Day
- Slug expert visits
- Push-Pull in Malawi
- Senegalese delegation visits *icipe*



12

### CAPACITY BUILDING AND INSTITUTIONAL DEVELOPMENT

- Trailblazing appointment for former PhD scholar
- PhD scholar accepted in women capacity strengthening programme
- Oliver Chitambo: DRIP scholar who found his way "home"
- Fellowship for IRC Coordinator



15

### STAFF NEWS

- New appointments



## *icipe* BY NUMBERS

**277,534**

Push-Pull farmers trained  
January – June 2018

**125**

(57 female and 68 male)  
Ongoing postgraduate  
scholars

**69**

Peer reviewed papers  
January – June

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Dr Lukas Bertschinger,  
Chair, *icipe* Governing Council

Dear Colleagues and Friends,

Welcome to this e-bulletin that covers *icipe*'s activities for the first half of 2018, an extremely intense period at the Centre.

I would like to begin by congratulating the 44 African nations that signed the Africa continental free trade agreement (CFTA), in March 2018. We at *icipe* appreciate the significance of this Agreement and its direct and indirect implications for economic diversification and structural transformation across the continent. Specifically, we are acutely aware that, to the benefit of scientists, researchers and innovators, the CFTA presents a very real chance for Africa's emerging bioeconomy. Indeed, the Director General's [Thought Leadership](#) column reflects on the significance of the CFTA for a bioeconomy in Africa and makes recommendations for effective action.

On the whole, *icipe* is committed to a regional approach for Africa's development. For example, as reported in this publication, in partnership with the International Institute of Tropical Agriculture (IITA) and CABI, with the support from the Swiss Development Cooperation (SDC), the Centre has contributed to the advancement of plans to develop a continent wide strategy to tackle invasive species.

We are gratified that development partners are appreciative of, and continue to support, *icipe*'s unique role in Africa. As outlined under [Funding News](#), we have new support for a range of projects. Moreover, the Centre has recently received confirmation from the Norwegian Agency for Development Cooperation (Norad) of funding for a proposal entitled: Combating Arthropod Pests for Better Health, Food and Resilience to Climate Change (CAP-Africa).

Meanwhile, our research activities continue in earnest, with major outputs and outcomes across the Centre's Themes. In this period, our researchers have published close to 70 peer reviewed publications. Under the [Recently Published](#) section, we highlight a few including: groundbreaking findings on fruit flies; two sets of findings that could enable the development of a technology for sampling *Glossina fuscipes fuscipes*, the tsetse species that transmits human African trypanosomiasis, and the creation of robust, non-invasive diagnostic and predictors of malaria infections; information about the connection between women's empowerment in agriculture and increases in maize productivity; and our results testing new satellite technology for better agricultural data.

Among other news, the capacity building section has two heartwarming stories. First, is news that Dr Laila Abubakar, a former *icipe* African Regional Postgraduate Programme in Insect Science (ARPPIS) scholar, has been appointed Vice Chancellor of the Technical University of Mombasa (TUM), Kenya. Laila is one of the five women Vice Chancellors in Kenya, four of whom are *icipe* alumni. Second, is a feature on Oliver Chitambo, an *icipe* Dissertation Research Internship Programme (DRIP) scholar from Zimbabwe. This article demonstrates the effectiveness of DRIP in broadening opportunities for *icipe* to harness young scientific talent from within and outside the continent, while also expanding the Centre's global network.

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 and beyond, for a better and healthier Africa.

Dr Lukas Bertschinger,  
Chair, *icipe* Governing Council

We are gratified that development partners are appreciative of, and continue to support, *icipe*'s unique role in Africa.



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

## Time for a bioeconomy in Africa

On 21 March 2018, a momentous occasion was marked in Africa when 44 African nations signed the continental free trade agreement (CFTA). As the first flagship project of the African Union's (AU) Agenda 2063, the CFTA aims to establish a single market for the continent's goods and services, while promoting intra-African trade and accelerating regional integration. The Agreement offers a platform for the movement of raw materials within Africa, and the development of a robust and modern industrial base. Overall, the CFTA, with its potential spillover effects of better market access, aligned trade regimes, increased investments as well as job and wealth creation, is expected to lead to economic diversification and structural transformation in the continent.

### What does the CFTA mean for the research and development community in Africa?

The CFTA is about Africa trading with itself; but it is also about African nations combining synergies to trade with the world in the best way possible. In other words, the CFTA will enable Africa to create regional value chains and to connect them to the global value chain, thereby entering the global market at a higher level than ever before. To exploit new opportunities and to address and new demands, Africa's quality and quantity of trade will require a massive boost.

Within this scenario, two issues are evident. First, trade in Africa will no longer be 'business as usual'. A shift must occur with a move from trade in raw commodities to value added products. Second, and closely aligned, Africa now has a chance to innovatively exploit its abundant biological resources into commercial ventures that will lead to inclusive development and transform livelihoods. In effect, and to the benefit of scientists, researchers and innovators, the CFTA presents a very real chance for Africa's emerging bioeconomy.

A bioeconomy is an ideal that brings together the commercial activity surrounding the use of renewable biological resources – such as crops, forests, animals and micro-organisms (like bacteria) – to solve challenges related to food, health, environmental protection, energy and industrial processes. In Africa, a bioeconomy has the potential to reinnovate primary production especially in agriculture, the backbone of most economies in the region, and also in sectors like aquaculture, forestry, health and industry. Therefore, adopting a bioeconomy development model, with its components of harnessing biosciences knowledge, technology generation, transfer and uptake, leading to sustainable bioinnovations and accompanying products and services, institutions and policies, presents a viable way to create opportunities for all sections of society, including women and the youth.

**The Africa continental free trade agreement (CFTA), signed in March 2018, presents a very real chance for Africa's emerging bioeconomy, and in effect, opportunities for scientists, researchers and innovators.**

### *icipe* and BioInnovate Africa: Supporting a bioeconomy

This vision of a bioeconomy in Africa is one that we at *icipe* embrace, through BioInnovate Africa Programme, one of Africa's largest regional innovation-driven science initiative, which is hosted and managed by the Centre with the support of the Swedish International Development Cooperation Agency (Sida). BioInnovate's mandate is to facilitate collaboration between scientists, policymakers and industry partners, to link bioscience research ideas and technologies directly to business and the market.

This responsibility clearly resonates with the vision of a bioeconomy. In accordance, the Programme is significantly involved in the promotion of a bioeconomy in Africa. For example, in November 2017, BioInnovate, in partnership with *icipe* and the National Council for Science and Technology of Rwanda (NCST) organised a high level forum on developing a bioeconomy in eastern Africa. Under the theme: 'Inclusive growth through sustainable bioinnovations', the event aimed to explore opportunities and ways to address challenges for bioeconomy development in eastern Africa. Based on this forum and other activities, *icipe* makes the recommendations in the following page in regard to the development of a bioeconomy, especially in view of significant developments like the CFTA.





## Recommendations

### Commitment to sustainable and inclusive development

A bioeconomy must contribute to the United Nations Sustainable Development Goals by deliberately and consistently embracing the three pillars of economic growth, environmental protection and social inclusion, while avoiding potential trade-offs between them. The development of a bioeconomy should also be mindful of how programmes can advance economies of diverse communities, and encourage participation of all sections, including women and youth across the value chain.



### Capacity building

As an emerging, multi-sectoral concept, the development of a bioeconomy will require a range of skill sets.

For example, scientific and technical capacity will be needed in genetics, biology, ecology, information technology, and engineering, the key drivers of a bioeconomy. Bioentrepreneurs will also have to be trained, in terms of understanding appropriate innovation models, and in translating knowledge into viable businesses.

The capabilities of African partners will require reinforcement, to enable them produce products that meet global standards, and to take leadership roles in the regional and global value chains. Capabilities in science, technology and innovation diplomacy will require a boost. As discussed above, the latter requires a distinct and complex set of activities. Therefore, specific training

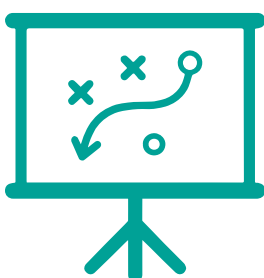


is required, for example to enable countries to incorporate innovation diplomacy in their diplomatic missions and to equip diplomats with the necessary skills.

### A regional bioeconomy strategy

is vital towards a shared approach in integrating bioinnovations into the economy. Indeed, this idea was highly endorsed during the aforementioned high level forum. Moreover, BioInnovate Africa was overtly recognised, and implicitly mandated, as an appropriate driver of a consultative, participatory process for such a strategy.

BioInnovate embraces this responsibility and aims to work with partners, mindful of the continent's well founded aspirations for regional integration and opportunities presented by the CFTA.



### Establishment of regional technology and innovation hubs

To effectively institute a bioeconomy in Africa, bioentrepreneurship and business incubation needs to be promoted especially among young scientists and innovators. One strategy for achieving this goal is by establishing technology and innovation incubation centres in and around universities and research institutions. Such hubs can focus on specific aspects, expanding to other areas as they mature. In effect, this approach will lead to regional innovation ecosystems.



### Science, technology and innovation diplomacy

The institutionalisation of a bioeconomy will require a range of supporting aspects, including increased investments in science, technology and innovation, and pivotal structures like policies and institutions. Therefore, it will be necessary to obtain the backing of policymakers and regional and international partners. This goal calls for science and technology and innovation diplomacy, to facilitate communication of knowledge, values and priorities, translate information, mediate any arising conflict and, overall, develop trust and mutual respect among stakeholders.



## Participation in IDIA events

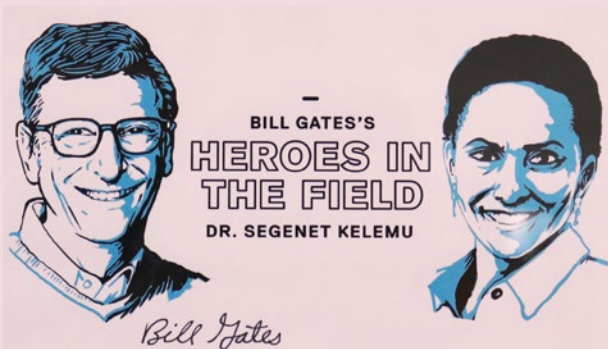


In May, *icipe* was involved in a range of activities of the International Development Innovation Alliance (IDIA), an informal platform for knowledge exchange and collaboration around development innovation in which the Swedish International Development Cooperation Agency (Sida), one of the Centre's core donors is a partner. An IDIA delegation visited *icipe* for

discussions on innovation in Kenya. Significantly, *icipe* hosted a meeting of IDIA, under the theme: Strengthening the Agricultural Innovation Ecosystem in Kenya, with *icipe* Director General, Dr Segenet Kelemu as a panellist in one of sessions, and the Centre's technologies and strategies on display.

## Director General honoured

Over the past six months, Dr Segenet Kelemu, *icipe* Director General has received two major recognitions. In January, Dr Kelemu was named one of five 'heroes in the field' selected by leading philanthropist, Bill Gates, for using their talents to fight poverty, hunger and disease, while providing opportunities for the next generation. Following this, she has been featured in Time Magazine, January 25 issue. On 1 May 2018 Dr Kelemu was one of the recipients of the Women of the Decade Award, the highest recognition conferred by the Women Economic Forum (WEF). A global conference of the ALL Ladies League (ALL), WEF is the largest women chamber in the world, with about 70,000 members in 150 countries. For complete details, visit <http://www.icipe.org/news/icipe-director-general-among-bill-gates%E2%80%99-%E2%80%98heroes-field%E2%80%99>; and <http://www.icipe.org/news/icipe-director-general-honoured-0>.



*icipe* has recently published its 2017 Annual Report, which shows that despite a fast changing environment for research and development (R&D), the Centre achieved major outputs and outcomes across all its programmes. The report consists of 10 chapters presenting key highlights in a synthesised and easily readable format, as well as a number of outstanding accomplishments, which are presented in more detail as featured stories. To download a copy, visit: <http://www.icipe.org/publications/annual-reports>





## Government of the Federal Democratic Republic Ethiopia to provide core funds to *icipe*

The Federal Democratic Republic of Ethiopia, through the Ethiopian Agricultural Research Council (EARC), has signed a memorandum of understanding (MoA), with *icipe*, to grant the Centre unrestricted core funding for five years (2018 – 2022). Ethiopia and *icipe* have had a longstanding relationship, which started in 1992, leading to the implementation of a wide range of developmental programmes across the country. <http://www.icipe.org/news/government-federal-democratic-republic-ethiopia-provide-core-funds-icipe>

## New Fellowship for DRP



Dr Sunday Ekese, Director of Research and Partnerships (DRP), has been appointed Fellow of the Royal Entomological Society (FRES), UK. The Society supports international collaboration in research and publication. It aims to promote excellence in entomology and demonstrate the importance of studying insects to everyone.

Fellowships are invited from those who have made a substantial contribution to entomology, through publications or other evidence of achievement. For more information on Dr Ekese, please visit: <http://www.icipe.org/about/team/senior-management/dr-sunday-ekesi>

## External review

Since 1983, every five or six years, the *icipe* Governing Council, has commissioned Periodic External Review (IPER) of the Centre's programmatic and institutional agenda for better positioning in view of current and emerging regional and global challenges. In March 2018, the review for the period 2013 – 2017 was undertaken by Dr Bruce Pengelly, Agricultural Consultant, Australia; Dr John K. Lynam, Independent Consultant, with experience in tropical agricultural research; and Prof. Serap Aksoy, Professor of Epidemiology, Department of Epidemiology of Microbial Diseases, Yale School of Public Health. The Report is expected to set recommendations for the development of *icipe's* vision and strategy, as well as mid-term research and development plans.

## *icipe* scientist appointed Head of a Max Planck Partner Group



Dr Merid Getahun, a scientist within the *icipe* Animal Health Theme, has been appointed Head of a Max Planck Partner Group to be based at the Centre. Set up by the globally renowned, Germany based Max Planck Institutes, the Partner Groups are intended to foster interest-led, high quality international research partnerships. The goal is to promote and strengthen the careers

of participating international scientists while increasing global circulation of the best minds. Read more: <http://www.icipe.org/news/icipe-scientistappointed-head-max-planck-partner-group>

## Awards of excellence from Ethiopian government ministries



*icipe* has received two awards of excellence from government ministries in Ethiopia. The Ministry of Livestock and Fisheries has recognised the Centre for its strong partnership and outstanding contribution to apiculture and sericulture development in the country. The Ministry of Agriculture and Natural Resources has acknowledged *icipe's* strong partnership and pioneering contribution to integrated management of cereal stem borers, fall armyworm and *Striga*, through promotion of the Push-Pull technology in Ethiopia.

## Prof. Torto honoured

Prof. Baldwyn Torto, Head, *icipe* Behavioural and Chemical Ecology Unit, has been honoured by the University of Cape Coast, School of Graduate Studies, Ghana, for his commitment and outstanding mentorship to Justice Kwaku Addo, who is graduating from the University with a PhD in chemistry. In addition, Justice will receive an award for outstanding research.



## EU Delegation visits

Over the past 10 years, the European Union (EU) and *icipe* have formed a solid partnership towards strengthening agriculture as a core and effective component in Africa's development. Within this period, the EU has provided grants amounting to approximately Euro 38 million to support a range of *icipe* initiatives including: tsetse repellent collars technology, climate-smart Push-Pull technology, management of fruit flies, research on insect transmitted camel diseases, bee research, and more recently, control of the fall armyworm. Over the past several months, *icipe* has welcomed key EU delegations representatives. On 19 February 2018, Mr Bernard Rey, Deputy Head of Unit,



Dr Hubert (left) and Ms Susan Kasyoka-Kimani (right) listen to Dr Everlyn Nguku (middle), Interim Head, *icipe* Environmental Health Theme as she explains some of the outputs of the Centre's bee research.

DEVCO C1 – Rural Development, Food Security, Nutrition, European Union (EU), visited *icipe*. He was accompanied by: Ms Myra Bernardi, Head of Rural Development, Agriculture and Food Security, Delegation of the European Union to Kenya and Mr Stephen Wathome, Programme Manager, Agriculture and Rural Development, Delegation of the European Union to Kenya. On 31 May 2018, Dr Isabelle Hubert, Desk Officer – Kenya DG DEVCO, visited *icipe* accompanied by Ms Susan Kasyoka-Kimani, Programme Assistant, Rural Development and Agriculture section, EU Delegation to the Republic of Kenya. For more details, visit: <http://www.icipe.org/news/eu-delegation-visits-icipe>



Mr Rey (right) visiting the tsetse repellent technology research facility, with Dr Dan Masiga, Head, *icipe* Animal Health Theme, and Dr Segenet Kelemu, *icipe* Director General.

## Visit by Dr Markus Moll, Research Advisor, Sida

Dr Moll visited *icipe* in April 2018, where he held roundtable discussions on ongoing activities across the themes and Units, and toured some of the Centre's facilities. The Swedish International Development Cooperation Agency (Sida), has been a key supporter of *icipe* since the Centre's founding. Over the years, Sida has provided core contribution, and additional funding for research on locusts, *icipe* external reviews, capacity building and equipment upgrade, specifically in the *icipe* Behavioural and Chemical Ecology Unit, to support Good Laboratory Practice Accreditation. Sida also supports BioInnovate Africa Programme, one of Africa's largest regional innovation-driven science initiative, which is hosted and managed by *icipe*.



Dr Moll (centre) during a visit to the commercial facility set up to produce the *icipe* developed Fruitfly Mania™, at the Kenya Biologics Ltd, with Managing Director, Chris Kolenberg (right), and Peterson Nderitu (left).

## CIM equipment grant award

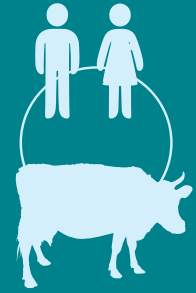
The *icipe* Research on Nematodes Group has received a binocular microscope from the Centre for International Migration and Development (CIM), jointly run by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, and the German Federal Employment Agency, Germany. The equipment, awarded to Dr Solveig Haukeland, a CIM integrated expert at *icipe*, is essential for research on nematodes; transparent, tiny worms that are invisible to the eye. The model has advanced specifications that have improved the team's ability to identify, observe and count nematodes and cysts. It is now also possible to capture still and live images of nematodes, their movement and behaviour, and to project this information for training and teaching purposes. As a result, the Group's laboratory and field activities have improved significantly. Moreover, a second microscope is expected, which will greatly enhance the processing of nematode samples.





### Three zoonotic diseases; One Health

A new project led by *icipe* in partnership with the International Livestock Research Institute (ILRI) and the Directorate of Veterinary Services, Ministry of Agriculture, Livestock and Fisheries, Kenya, seeks to reduce transmission of three important zoonotic diseases: brucellosis, visceral leishmaniasis and Rift Valley fever, in Isiolo, northern Kenya, through a participatory One Health approach. The project, funded by Biovision Foundation for Ecological Development, will cooperate and collaborate with communities, animal and public health actors, and a consortium of partner organisations. This will ensure prompt detection and treatment of the three diseases in people and animals; to identify the source of the ailments at veterinary and community level; and to implement steps to prevent further transmission.



### Upscaling of tsetse technologies

Biovision Foundation for Ecological Development, Switzerland, has committed support for the upscaling of two proven *icipe* technologies – the tsetse repellent collars and NGU traps – for the control of tsetse and trypanosomiasis in Kwale County coastal Kenya, through community partnerships, training and engagement. The project will build a critical mass of people with access to knowledge and tools for effective tsetse and trypanosomiasis control.



### Controlling aflatoxin, fall armyworm and Napier Stunt Disease

*icipe* has received funding from Biovision Foundation for Ecological Development, Switzerland, for a project centred on the Push-Pull technology with the aim of empowering farmers with knowledge and skills on emerging challenges, mainly fall armyworm, aflatoxin infestation and Napier Stunt Disease (NSD). In addition to controlling stemborers, as per its initial design, Push-Pull has recently been shown to combat fall armyworm and aflatoxin. Meanwhile, as Napier grass is one of the main intercrops of the technology, NSD constrains Push-Pull, and also affects smallholder dairy systems. Previous *icipe* research has discovered the vector responsible for transmitting NSD, led to the development of rapid diagnostic tools for early detection of NSD, and identified stunt-resistant napier cultivars.



### New funding from Norad

*icipe* has received confirmation from the Norwegian Agency for Development Cooperation (Norad) of funding for a proposal entitled: Combating Arthropod Pests for Better Health, Food and Resilience to Climate Change (CAP-Africa), submitted in response to a competitive call to support research institutions and organisations in sub-Saharan Africa. CAP-Africa is a programme grant built upon three strategic research thrusts: Global health to reduce the burden of malaria and emerging infectious diseases; Climate change to fill critical gaps in knowledge on climate change impact on ecosystem services and invasive pests and deploying climate-smart technologies to improve food security and systems resilience; and Education to train postgraduate level for leadership in scientific research, development, policy and technology dissemination. The funding is for the period 2018 – 2023, with activities being implemented in collaboration with the Norwegian Institute of Bioeconomy Research (NIBIO) and partners in Tanzania, Uganda, Ethiopia and Kenya.



Norad

### Medicinal plant based enterprises and environmental conservation

*icipe* has received funding from Biovision Foundation for Ecological Development, Switzerland, for sustainability of medicinal plants-based enterprises and biomonitoring of environmental health in targeted regions of Kenya and Tanzania. The initiative will build on previous and ongoing interventions by *icipe* and Biovision Foundation, which have led to commendable progress in this regard.





### Radar satellite data evaluation

*icipe* has received funding from the Swedish University of Agricultural Sciences (SLU) to evaluate the possibility of using radar satellite data (which are not affected by clouds) to complete gaps in time-series of vegetation indices derived from optical satellite data (which are affected by clouds). These vegetation indices provide timely data for the so-called CropSAT (CropSAT.com) tool which is a decision support system used in Sweden, Denmark and Norway for an operational nitrogen fertilization. However, the use of vegetation indices based on optical satellite data is a challenge in regions frequently covered by clouds, such as northern Europe. *icipe* will test the combination of both radar and optical satellite data for estimating vegetation indices for reliable data supply when wheat fields are covered by clouds. Further, the project will enhance collaboration between the *icipe* Geoinformation Unit and the SLU Precision Agriculture and Pedometrics Unit in the field of Precision Agriculture.



### Trypanosome transmission blocking

New support from BMZ Small Grants and Max Planck Institutes, Germany, will enable *icipe* researchers advance studies to develop a new strategy for trypanosome transmission blocking by enhancing trapping of trypanosome-infected tsetse flies. Among other aspects, the study will investigate factors affecting insect vector infection rates, especially in the context of behaviour modification by the pathogen in vectors.



### Beekeeping and the youth

A new initiative funded by Biovision Foundation for Ecological Development to be implemented in Dehana Woreda, Amhara Region, Ethiopia, is expected to enhance the capacity and productivity of beekeeping farmers, targeting about 300 disadvantaged young women and men. The project will build on the success of *icipe*-led beekeeping activities in Tolay, Oromia Regional State, funded by Biovision Foundation, to complement the ongoing Mastercard Foundation supported Young Entrepreneurs in Silk and Honey project in other parts of the Region. The scheme is also in response to the ambitious national honey production target under the second Growth and Transformation Plan of Ethiopia.



### Emergency fall armyworm response

With funding from the Food and Agriculture Organization of the United Nations (FAO), *icipe* is implementing a project to establish an Emergency Community-based Fall Armyworm Monitoring, Forecasting, Early Warning and Management System (CBFAMFEW) in eastern Africa. The initiative targets to a total of 1000 people, including 350 representatives of national agricultural research systems, and 600 farmers, who will be trained in identifying the fall armyworm, its biology and ways to monitor and collect data on its impact.



### Improving insect colony management

*icipe* has received funding from the International Atomic Energy Agency (IAEA) to characterise endosymbionts, and to screen pathogens that threaten the mass rearing of recently described fruit fly species in Africa, including *Ceratitis quilicii* and *C. copelandae* and *Bactrocera latifrons*. The aim of the project is to improve colony management in mass rearing insects for sterile insect technique applications.





## IPPM project launched

*icipe* and partners including national agricultural research and extension systems in Kenya and Tanzania, have launched a new 3-year project titled: Integrated pest and pollinators management (IPPM), aimed at enhancing productivity of avocado and cucurbits in East Africa. Funded by the German Ministry of Economic Development and Cooperation (BMZ), the IPPM project is built on the premise that environmental services such as pollination and integrated pest management (IPM) are key drivers, and two components that can interact in a variety of ways, resulting in healthier agricultural landscapes and improved food security. Cucurbits (cucumber, butternut and pumpkin), and avocado are economically important crops in East Africa, which are also highly dependent on pollination services and are severely affected by several insect pests.



## Plans for a strategy on invasive species in Africa advance

Plans towards developing a comprehensive strategy that will enable sub-Saharan Africa (SSA) to deal more proactively and effectively with invasive species have advanced significantly. This milestone was achieved through a recent concluded workshop co-organised by *icipe*, the International Institute of Tropical Agriculture (IITA) and CABI, with support from the Swiss Development Cooperation (SDC). The event brought together over 100 participants from across the world, including researchers, policymakers, as well as representatives of national and pan-African institutions, regional economic communities and the private sector. The participants deliberated the strengths and challenges; made recommendations and assigned tasks, towards creating and instituting a strategy for tackling invasive species in Africa. Read more: <http://www.icipe.org/news/plans-strategy-invasive-species-africa-advance>



## *icipe* partners with GIZ Somalia

*icipe* has signed a contract with GIZ Somalia to conduct joint activities on combating major plant pests. The initiative will focus on management of *Tuta absoluta*, the invasive pest of tomato and other crops; and white flies, which attack tomato and water melon and spider mite, pests of papaya. So far, the Centre has conducted workshops and practical trainings and demonstrations; identified the extent of *T. absoluta* infestation; undertaken an assessment of knowledge and practices regarding the pest among growers and other stakeholders; and evaluated the application of phytosanitary measures in the field.



## Advancing nematodes research and management

*icipe* in partnership with the International Institute of Tropical Agriculture (IITA), have jointly identified a range of strategic factors to be addressed and, accordingly, started a variety of initiatives, to resolve the growing threat of plant parasitic nematodes in sub-Saharan Africa (SSA). For more information, visit: <http://www.icipe.org/news/advancing-nematodes-research-and-management>



## Jona Mutasa: self motivated Push-Pull farmer and trainer

A key goal of *icipe* is to ensure that the Centre's technologies are transferred to as many end users as possible. To achieve this vision, *icipe* uses a range of strategies, including the media, to create awareness. The effectiveness of these efforts is demonstrated by the impressive story of Jona Mutasa, a Zimbabwean farmer who learned about the Centre's Push-Pull through a magazine article, and has now become a prominent trainer, leading to over 2000 farmers adopting the technology. For more information, visit: <http://www.icipe.org/news/jona-mutasa-self-motivated-push-pull-farmer-and-trainer>



## Tsetse repellent blend registered

The Pest Control Products Board (PCPB) has officially registered a tsetse repellent blend developed by *icipe*. The product, developed over years of research by the Centre, is a blend of four compounds, obtained through studies on the odour-profile of the waterbuck (an animal known from ecological studies to be unpreferred by tsetse). Through various trials, *icipe* has determined the effectiveness of the repellent blend on tsetse. The product is being used to control the flies in various parts of eastern Africa through the *icipe* tsetse repellent collars technology. The registration certificate means that the repellent blend can now be commercialised. In accordance, the Centre is progressing plans to license private sector manufacturers.



## Global recognition for *icipe* research

A peer reviewed article titled: Identification of the Ubiquitous Antioxidant Tripeptide Glutathione as a Fruit Fly Semiochemical, published by *icipe* researchers in October 2017, has been selected for the *Journal of Agricultural and Food Chemistry Research* Article of the Year Award (AGRO Division). The paper presents findings from *icipe* research on host marking behaviour of fruit flies, which enables certain species to deposit a chemical (pheromone) to indicate fruits where they have already laid eggs, thereby pre-empting repeated egg-laying on the same fruit. Knowledge on this specific chemical, commonly known as a 'host marking pheromone', is useful in the control of species that exhibit such phenomena. For instance, if a product containing such host marking pheromone (s) is sprayed onto fruits, it could deter and prevent some fruit flies from laying eggs on them. Paper link: <https://www.ncbi.nlm.nih.gov/pubmed/28911226>



## Novel tsetse trapping technology



A recently published study by *icipe* and University of Pretoria, South Africa, has identified a possible novel technology for sampling *Glossina fuscipes fuscipes*, the tsetse species that transmits human African trypanosomiasis. The researchers found that sticky small panels made of blue and black material trapped more tsetse than the commonly used biconical traps. The study also determined how colour differently influences the choice by female and male tsetse on where to land on the panels. This knowledge is significant, as it could be used in targeted biological control of the flies. Moreover, the ability of the technology to catch tsetse flies even at low densities is important for improved monitoring of the flies that remain, during and after tsetse control interventions. Paper link: <https://link.springer.com/article/10.1186/s13071-018-2840-6>

## Potential for improved malaria diagnosis

Asymptomatic infections, that is scenarios where patients do not show disease symptoms, are a major hindrance in malaria control, as they result in frequent undetected and untreated cases. Such patients constitute a hidden reservoir for the malaria parasite and possible persistence of the disease, potentially accounting for up to 90% of onward transmissions. Therefore, improved diagnostic screening methods are needed, especially those suited to large-scale screening of populations to identify asymptomatic infections. A recent study by *icipe* and partners at ETH-Zurich, Switzerland, indicates that specific human odours have significant potential for development into robust, non-invasive diagnostic and predictors of symptomatic and asymptomatic malaria infections. The key chemicals identified, therefore, require further exploration for this purpose. Paper link: <http://www.pnas.org/content/early/2018/05/08/1801512115>



## Women empowerment and agricultural productivity in western Kenya



A recent study by *icipe* and partners has found that women's empowerment in agriculture significantly increases maize productivity. Although women's power to make important decisions about agricultural production was found to be the most important driver of maize productivity among the six indicators of women's empowerment tested by the study, all except for the workload indicator (the amount of time that women spend working) had a significant effect on maize productivity. More specifically, the results suggest that plots jointly managed by women and men have better productivity when the women are empowered. These findings provide evidence that women's empowerment contributes to reducing the gender gap in agricultural productivity, and to improving, specifically, the productivity of the farms they manage. Thus, rural development interventions in Kenya that aim to increase agricultural productivity—and, by extension, improve food security and reduce poverty—could achieve greater impact by integrating women's empowerment. Paper link: <http://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0197995&type=printable>

## Testing new satellite technology for better agricultural data

The establishment and spread of insect pests and, as a result, plant diseases, depends on cropping cycles (for example crop rotation), as well as cropping patterns (either mixed or mono-cropping). However, current models to understand insect life cycles and crop production in Africa only use indicators or regional scale estimates of cropping patterns, which are not useful in understanding local trends. The main obstacle is unavailability of data, largely due to the difficulty in mapping the complex cropping patterns in different agroecological landscapes in Africa. A recent study by *icipe* has shown that landscape-scale cropping patterns can be accurately mapped using the newly available 5-meter RapidEye satellite data. Further, the results of the study shows that cropping systems are important indicators for resilient food security and nutrition systems. Paper link: <https://www.ncbi.nlm.nih.gov/pubmed/29099780>



## Trailblazing appointment for former PhD scholar

Laila Abubakar, a former PhD scholar within the *icipe* ARPPIS programme, has been appointed Vice Chancellor of the Technical University of Mombasa (TUM), Kenya. She becomes one of five women Vice Chancellors in Kenya, four of whom are *icipe* alumni. A Professor of Biochemistry, Laila undertook her research at *icipe* between 1998 – 2002, sponsored by the German Academic Exchange Service (DAAD). Her studies were groundbreaking as they unravelled the mystery of why only tsetse flies, and not other blood sucking insects, transmit African trypanosomiasis. As a result, Laila received several recognitions, including 1st Prize *icipe* Governing Council Research Award in 2002. Since then, she has continued to conduct globally acknowledged research focusing on the molecular basis of vector-parasite interactions and bioprospecting in marine and fresh water environments, first at the University of Nairobi, Kenya, and then at TUM.



## Fellowship for IRC Coordinator

Arnold Mwanzu, Coordinator, *icipe* Information Resources Centre (IRC), is among five librarians from around the world selected by the International Federation of Library Associations and Institutions (IFLA) and the Online Computer Library Center (OCLC), to participate in the 2018 IFLA/OCLC Early Career Development Fellowship Program. The programme supports library and information science professionals from developing countries through advanced continuing education and exposure to a range of issues in information technologies, library operations and global cooperative librarianship.

<https://www.oclc.org/en/news/releases/2018/201801dublin.html>

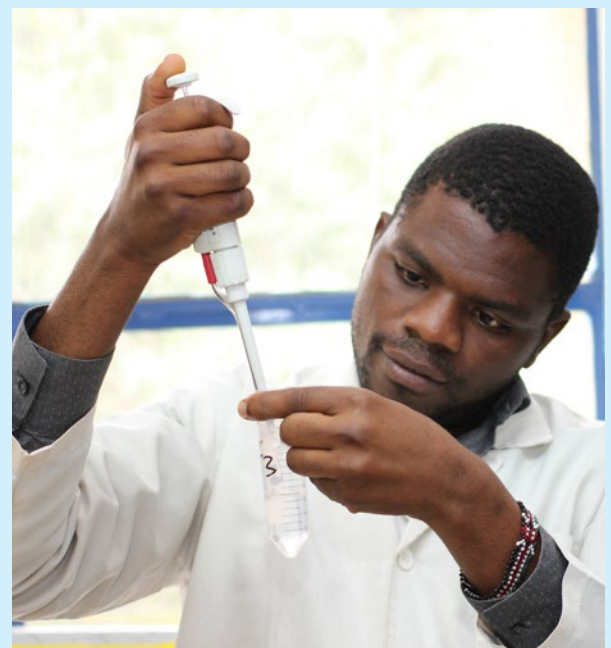
## PhD scholar accepted in women capacity strengthening programme

Teresiah Njihia, an *icipe* African Regional Postgraduate Programme in Insect Science (ARPPIS) student has been accepted into the Mawazo PhD Scholars Programme (<http://mawazoinstitute.org/phd-scholars/>), which aims to strengthen the capacity of young women to conduct bold, insightful research on Africa's development, and to effectively communicate their results to different stakeholders, for example, government and industry leaders, and the general public. Teresiah is currently undertaking research towards the development of a trapping system using semiochemicals for the management of the antestia bug *Antestiopsis thunbergii* in coffee. She is registered at Jomo Kenyatta University of Agriculture and Technology (JKUAT), Kenya, and is supervised by Dr Régis Babin (*icipe* and Cirad, France), and Dr Lucy Murungi (JKUAT).



## Oliver Chitambo: DRIP scholar who found his way “home”

*icipe*'s vision of building scientific and leadership capacity in Africa is often realised within complex scenarios that the Centre addresses through various approaches. One example is the *icipe* Dissertation Research Internship Programme (DRIP) programme, which broadens opportunities to harness young scientific talent from within and outside the continent while also expanding the Centre's global network. DRIP scholars may be registered at any university anywhere in the world; they may conduct part or all of their research at *icipe*, being co-supervised by researchers at the Centre and in their respective universities or research institutes. As is the case for Oliver Chitambo, a Zimbabwean DRIP scholar who recently completed his PhD research at *icipe*, the programme can be the 'long way home' for African students studying abroad. Registered at the University of Bonn, Germany, joining *icipe* enabled Oliver to employ world class scientific skills on an Africa specific problem – the management of pests of African leafy vegetables – in an African context. <http://www.icipe.org/news/oliver-chitambo-drip-scholar-who-found-his-way-%E2%80%99Chome%E2%80%9D>







**Insects for Food and Feed conference**

icipe was strongly represented at the 2nd Global Conference on Insects to Feed the World in Wuhan, China. Pictured, Komi Fiaboe (centre), Senior Scientist, *icipe* Insects for Food and Feed programme with Chia Shaphan Yong (left) and Henlay Magara (right), both PhD students within the programme.



**Biovision visit to Ethiopia beekeeping site**

Ms Loredana Sorg, Biovision Foundation for Ecological Development, Switzerland, visited a new beekeeping pilot project site funded by the Foundation in Wag Hemra Zone, Amhara Region, Ethiopia, and held meetings with key stakeholders. Pictured, Ms Sorg (second left) with Ms Mulu Getaneh (left), a local trader who prepares refined beeswax plates for use as foundation sheets by *icipe* researchers. Also in the picture is Workneh Ayalew (second right), *icipe* Ethiopia Office, and Muluken Zeryihun (right), Deputy Manager, Amhara Regional State Livestock Resources Development Promotion Agency, a partner in the project.



**Tsetse and camel TACs meetings**

The Technical Advisory Committees (TACs) meetings of the tsetse and camel surra research components within the European Union funded Integrated Biological Control Applied Research Programme (IBCARP) met in Mombasa, Kenya in January 2018. The TACs members also visited the Shimba Hills field site where the *icipe* tsetse repellent collar technology is being tested with impressive results. In addition, as seen in this picture, the Centre has set up on site laboratory standard trypanosomiasis diagnosis. Pictured, TAC members Hon. Joanne Nyamasyo (in red dress), Ministry of Agriculture Livestock and Fisheries, County Government of Kwale; Dr James Wabacha, Chief, African Union-Inter-African Bureau for Animal Resources; Ms. Joyce W. Daffa, Agriculture, Livestock & Fisheries, Tanzania and Mr Daud Tamasot, Member of County of Assembly, Korr / Ngurunit County Government, Marsabit.





### icipe celebrates World Bee Day

In 2017, the United Nations General Assembly adopted by consensus a resolution declaring 20 May as World Bee Day. Every year on this day, the attention of the global public will be drawn to the importance of preserving bees and other pollinators, and the overall importance of these insects to the entire humanity. As a leader in bee research and expertise in Africa and globally, *icipe* joined the premier World Bee Day celebrations through a digital campaign on the Centre's website and social media (more details: <http://www.icipe.org/news/celebrating-world-bee-day>). In addition, the *icipe* Ethiopia Office participated in the World Bee Day and 1<sup>st</sup> National Honey Festival from 20 – 23 May 2018 in Mekelle, Tigray Region, Ethiopia. Pictured: Birhan Alehegn, a beneficiary, explaining the benefits of the Mastercard funded Young Entrepreneurs in Silk and Honey (YESH), being implemented by *icipe* in Ethiopia.



### Push-Pull in Malawi

*icipe* with the support of Biovision Foundation for Ecological Development, Switzerland, aims to expand the Push-Pull technology as extensively as possible beyond East Africa. One of the target countries is Malawi, where, currently, around 80 farmers are testing the technology, with a goal of reaching at least 10000 farmers in the country. Pictured: Dr Stefan Diener, Coordinator, Push-Pull sub-Saharan Africa project, Biovision Foundation, pictured with Mr Cuthbert Mambo, Assistant Agricultural Research Officer, Department of Agriculture and Research Services, Malawi, during a field day to raise awareness on Push-Pull. The dissemination of the technology is also supported by the European Union (EU) and *icipe* 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; and Government of the Federal Democratic Republic of Ethiopia.



### Slug expert visits

Certain nematodes found in slugs can be used to biologically control this group of molluscs. Dr Jenna Ross, a slug expert from University of Aberdeen, Scotland, UK, and Stellenbosch University, South Africa, recently visited the *icipe* Research on Nematodes group, to enhance knowledge on the slug-nematode relationship.



### Senegalese delegation visits *icipe*

Prof. Karamoko Diarra, University Cheikh Anta Diop of Dakar Senegal, and Dr Ibrahima Sarr, Senegalese Institute of Agricultural Research, made a familiarisation visit to *icipe* to explore collaboration opportunities. Here, *icipe* researcher Tanga Bii explains ongoing activities within the Centre's Insects for Food and Feed Programme.



## NEW APPOINTMENTS



**Luis Arturo de Anda** has been appointed Head of Finance. A Certified Public Accountant, Luis also holds an MBA from the University of the Valley of Mexico and a Diploma in Finance Engineering from the School of High Management and Administration in Barcelona, Spain. He also has a Bachelors degree in Public Accounting from the University of Aguascalientes, Mexico. Previously, Luis

was Finance Controller at the International Potato Center (CIP), and Finance Manager at the International Maize and Wheat Improvement Center (CIMMYT). He has 20 years of experience in financial accounting, project accounting, risk management, budgeting and implementation of Enterprise Resource Planning systems.



**David Mfuti Kupesa** has joined *icipe* as a Postdoctoral Fellow in the Behavioural and Chemical Ecology Unit, under the Plant Health Theme. David holds PhD in Entomology from North-West University, South Africa; an MSc in Agricultural Entomology and a BSc in Crop Science from the University of Kinshasa, Democratic Republic of Congo (DRC). Prior to joining *icipe*, David worked as a researcher

at the National Agriculture Research Centre in DRC, and at L'Institut national pour l'Étude et la Recherche Agronomique (INERA), Mvuazi Research Centre. David has about 12 years of experience in integrated pest management, insect pathology/entomology and development of delivery systems to auto disseminate entomopathogenic fungi for the control of insects, pests and diseases.



**Adeyemi Akinyemi** has joined *icipe* as a Postdoctoral Fellow in the Behavioural and Chemical Ecology under the Plant Health Theme. Adeyemi holds a PhD in Entomology from Keele University, UK; an MSc in Agricultural Entomology and a BSc in Agriculture from the Federal

University of Agriculture, Nigeria. Previously, Adeyemi worked as a Laboratory Demonstrator at Keele University. He has nine years of experience in thrips research, chemical ecology and laboratory entomology.



**Dinah Wanjiru Wamai** is the new Grants and Projects Accounting Officer. She holds a Bachelors degree in Business Administration from Maseno University, Kenya. She is also a Certified Public Accountant. Prior to joining *icipe*, Dinah was Finance and Administration Manager at

Sumac Microfinance Bank Limited. She also served as a Senior Auditor at PricewaterhouseCoopers, Rwanda. Dinah has seven years of experience in Accounting, Auditing and Taxation.



**Terry Warukira Gichuhi** has joined *icipe* as a System Analyst in the Information Communications Technology (ICT) Unit. She holds an MBA in Innovation and Technology Management from Concordia University, Minnesota, USA, and a BSc in Computer Science from Egerton University, Kenya. Prior to joining *icipe*, Terry was a Business Solution

Analyst Neurotech Systems Africa. She also worked at Indra Limited as a Software Engineer. Terry has eight years of experience in leading software product development and delivery of innovative business solutions to clients in education, energy, water, and aviation industries.

# *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)
- 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
- Ministry for Foreign Affairs of Finland
- National Geographic Society
- National Research Fund, Kenya
- Netherlands Organisation for Scientific Research (NWO)
- Newton Fund
- R. Geigy Foundation, Switzerland
- Research Institute of Organic Agriculture (FiBL), Switzerland
- Russell IPM Ltd, UK
- Scottish Funding Council through University of Glasgow
- Swedish Research Council through the Kungliga Tekniska Högskolan (KTH)
- Swiss National Science Foundation (SNSF)
- SWITCH Africa Green
- The MasterCard Foundation, Canada
- The Volkswagen Foundation, Germany
- United Nations Environmental Programme (UNEP)
- USAID—United States Agency for International Development's IPM Innovation Lab (Feed The Future Innovation Lab for Integrated Pest Management) of Virginia Tech, USA
- United States Agency for International Development Partnerships for Enhanced Engagement in Research (USAID-PEER) Science program with funding from National Academy of Sciences (NAS)
- 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

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