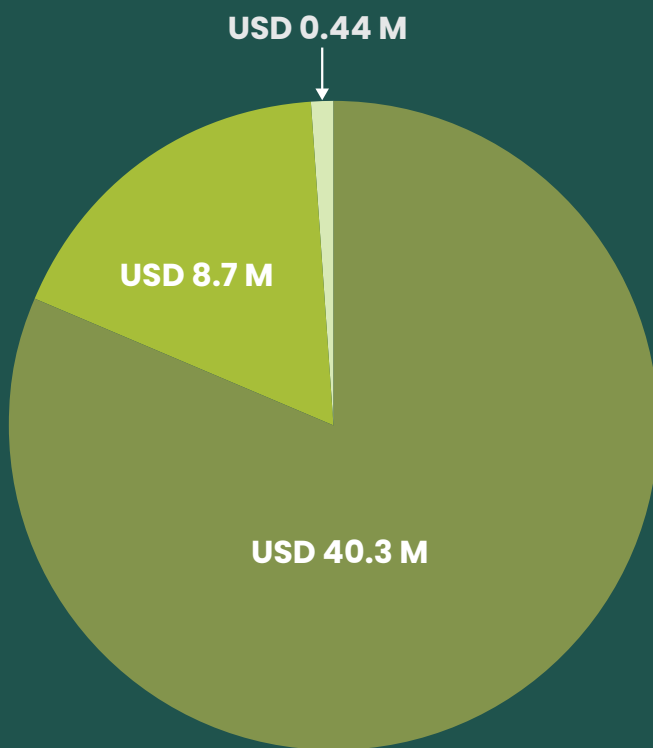




# 55 Years of Partnership and Impact

Contribution by the  
Swiss Agency for Development and Cooperation  
to the  
International Centre of Insect Physiology and Ecology (*icipe*)  
(1970 - 2025)



- CORE FUNDING
- SPECIAL INITIATIVE GRANTS
- CAPITAL

# Overview

## + Content and Highlights

Foreword **03**

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Core funding **04**

---

Selected *icipe* achievements **06**

---

SDC funded projects **13**

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Looking to the future **17**

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Based on success in eastern and West Africa, we are upscaling the *icipe* fruit fly IPM packages in Malawi, Mozambique, Tanzania, Uganda, Zambia and Zimbabwe. The impact of our interventions is evident, with farmers, like Mrs Rosemary Lungu of Mpwaya Camp in Zambia, now gradually re-entering mango trading.



▲ **Dr Abdou Tenkouano**  
*icipe* Director General

# Foreword

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## A partnership for transforming livelihoods in Africa and beyond

✚ For more than five decades, the Swiss Agency for Development and Cooperation (SDC) and the International Centre of Insect Physiology and Ecology (*icipe*) have forged a transformative partnership, rooted in science, driven by impact, and dedicated to sustainable development in Africa and beyond.

Indeed, SDC, alongside several Swiss agencies, was instrumental in the establishment of *icipe* at the Centre's founding in 1970. This involvement aligned with Switzerland's commitment to international development and research collaboration.

Since then, sustained core funding and targeted project support from SDC have contributed to *icipe's* evolution as an institution. This has also enabled breakthrough innovations in agriculture, health, and environmental sustainability across the continent. In turn, *icipe* has demonstrated a strong return on investment and alignment with SDC's development cooperation goals of reducing poverty, improving production systems, addressing environmental challenges, and expanding access to education and basic healthcare.

Looking ahead, we envision a partnership between SDC and *icipe* that ensures that we continue to harness the power of insects and insect science to develop inclusive, nature-positive solutions that support climate resilience, environmental protection, food and nutrition security, health and improved livelihoods.

Together, we will contribute to the Sustainable Development Goals (SDGs) and Africa's Agenda 2063, while aligning with national and regional priorities.

# 01 Core Funding

**“ For research and development institutions like *icipe*, core funds safeguard resilience and capacity for innovation by enabling longterm, visionary planning. ”**

The Swiss Agency for Development and Cooperation (SDC) holds the distinction of being *icipe*'s most enduring core funder, having consistently provided such support to the Centre for 50 years.

Core funding is financial support given to institutions to produce valuable global public goods, and to support general operations, research, management and administration costs.

For research and development institutions like *icipe*, core funding is indispensable. It enables smooth daily operations and strengthens long-term resilience by supporting visionary planning.

Core funds also provide a safety net during funding gaps, allowing uninterrupted research activities and talent retention. These resources support infrastructural upgrades, ranging from physical and intellectual infrastructure to scientific laboratories, modern data systems, and state-of-the-art equipment.

They enhance capacity across key areas, including finance, communication and research management.


Importantly, core funds enable the exploratory phases of innovative research, generating the evidence base needed to attract future investments.

Thanks to SDC's consistent and generous support, *icipe* has expanded its research portfolio, attracted new funding sources, and instituted green operations. This support has bolstered the Centre's ability to lead major regional initiatives, nurture scientific leadership, empower communities through inclusive models, and translate scientific innovation into real-world impact.

In essence, core funding from SDC has reinforced *icipe*'s institutional foundation and elevated the Centre's capacity to deliver sustainable, transformative solutions in Africa and beyond.



*H.E. Mirko Giulietti (front), the Swiss Ambassador to Kenya and Somalia, and also the Permanent Representative of Switzerland to the Office of the United Nations, pictured with (clockwise): Prof. Kym Anderson, Former Chair, icipe Governing Council (GC); Dr Abdou Tenkouano, DG, icipe; and Dr Ylva Hillbur, current Chair, icipe GC, while attending the icipe Science Week on 11 November 2024.*

A woman with long braids, wearing a white lab coat, is smiling and holding a green plastic tray filled with dark soil. She is standing in a greenhouse or nursery, with shelves of colorful boxes visible in the background. The entire image has a teal color overlay.

Alongside investments from other donors, SDC's core support has enabled *icipe* to explore new research areas, like the insects for food, feed and other uses, providing novel opportunities for diverse sections of society, including youth.

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"I can attest to the joy of insect farming. In collaboration with *icipe* and partners, our farm boosts local growth, while earning global recognition for climate smart innovation." – Winnie Wambui, Harcourt Agri-Eco Farm, Kenya

# 02 Selected Achievements

- + **Creating employment**, with a staff of 472 people, currently.
- + **Developing scientific and science leadership capacity** in Africa. Since 1983, *icipe* has trained over 1000 PhD and MSc graduates, and numerous students on internships.
- + **Providing policy support** to governments and agencies by generating evidence-based knowledge and recommendations, and through membership on various local, regional and global committees, boards and advisory panels.
- + Creating **partnerships for impact**, with over 300 partners globally.
- + **Reaching over 300 million households and stakeholders** across Africa and beyond, with various gender-responsive technologies, approaches and innovations.

## Contributing to better health

Through knowledge and innovations that support:

- + Mosquito control and malaria elimination, for example through integrated vector management tools, and the ongoing studies on the use of a microbe, newly discovered through our studies, which blocks transmission of the disease from mosquitoes to people.
- + Increased preparedness, as well as effective One Health approaches for neglected tropical diseases (NTDs) like leishmaniasis and tungiasis.
- + Tackle the increasing threat of emerging and re-emerging insect-transmitted viruses and diseases like Rift Valley fever, yellow fever and dengue fever.



*A cow wearing an icipe tsetse fly repellent collar. Thousands of farmers across the continent are benefitting from the technology.*

## Supporting sustainable livestock keeping

Through groundbreaking knowledge and innovations:

- + Tsetse fly repellent collar and traps to manage animal trypanosomosis in cattle.
- + Traps for biting flies to manage camel surra.
- + A bioacaricide (Mazao Tickoff) for ticks.
- + Novel livestock disease diagnostic tool that is non-invasive, rapid, affordable, accessible, efficient and easy-to-use.
- + Insights on livestock rumen mechanisms that could help address the polarised role of livestock in greenhouse gas emissions and environmental degradation.



A push-pull plot, integrating onions, a high value commercial crop.

## Supporting agrifood systems transformation

Through knowledge and innovations that:

- + Counter disruptors and stressors, such as indigenous and invasive species, poor soils, drought and climate change.
- + Boost the yield, safety and marketability of the main staples; high nutrient foods such as fruits, legumes and vegetables; and cash crops like coffee.

## Flagship innovations

- + **Climate-smart push-pull technology**
  - Tackles the main constraints of cereal production including insect pests, like stemborers and the fall armyworm, the parasitic *Striga* weed, low soil fertility, as well as climate variability and change.
  - 1.75 million households (women and men equally) in 18 countries in Africa currently benefitting from the technology.
- + **Developed an IPM package against the fall armyworm**, using community-based monitoring, forecasting for early warning and timely management, push-pull technology, native and imported parasitoids, novel fungal biopesticides, pheromone traps and good crop husbandry.
- + **Fruit pests IPM**
  - Includes attractant-based traps, protein-based baits, natural enemies, biopesticides, male annihilation technique, cultural control practices and field sanitation.
- + **Vegetable IPM**
  - Targeting many pests including thrips, whiteflies and the tomato leafminer (*Phthorimaea absoluta*).

## IPM Technologies

# Impact Snapshots

**8.1**

Benefit-cost ratio, and an internal rate of return of 21%, comparable to returns from improved crop varieties

**641,000**

People with improved food security

**2.7 million**

Million tonnes of carbon dioxide equivalent sequestered, valued at USD 12.2 million

**445,349**

People lifted above the poverty line, representing 2% of the poor population

**USD 5**

Average income per capita annual increase

**USD 500M**

Combined net present value

**526,000**

Litres of pesticide use reduction

+ **Desert locust**

Tackling the worst desert locust outbreak in decades, which affected Eastern Africa, starting in 2019, and development of a prediction model for future occurrences.

+ **Soil dwelling pests**

Innovations to manage nematodes, including a revolutionary banana fibre technology nematode-resistant crop varieties and frass fertilisers.

+ **Biopesticide and bioacaricide development** against a plethora of horticultural and livestock pests and diseases

- Commercialised through the joint *icipe*-Real IPM-BioWorks public-private partnership.
- Being used by farmers on a total area of 137,490 ha.
- 4 biopesticides have been registered in 13 Africa, several biopesticides are in the pipeline for registration and commercialization in African countries, EU, UK and USA.
- 54,996 growers in Africa have adopted the biopesticides, directly benefitting 329,976 grower household members.



A range of commercialised *icipe* biopesticides

## Ensuring sustainable access to insect-based ecosystem services

Conservation and protection of beneficial insects through:

- + Science-driven strategies for the sustainable use of bees in honey production, non-honey hive products and pollination services.
- + Silkworms for yarn, sericin and bio-fertilisers
- + Documenting insect biodiversity in Africa and explore nature-based solutions through bioprospecting.
- + Market access and product diversification, through bee colony markets, certification, characterization and Geographic Indication of unique African honeys.
- + Inclusive development, through green jobs and agri-business opportunities in insect-based value chains and entrepreneurship.
- + Integrated circular farming systems by mixing insect farming with crop and livestock systems to maximise resource use and ecosystem resilience.
- + Biodiversity conservation and innovation through digitisation, molecular barcoding and citizen science to monitor environmental health and develop insect-based biodiversity indicators across Africa.



*Birtukan Golo, a member of the More Young Entrepreneurs in Silk and Honey (MOYESH) project, implemented by icipe in Ethiopia with ready-for-sale bales of silk yarn.*

## Impact Snapshots

**1.5M**

People reached with beneficial insect innovations

**15 – 20%**

Yield improvement for pollination dependent crops through pollination services by stingless and honey bees

**84,000**

Insect specimens databased by icipe

**500**

Farmers involved in Geographic indications (GI) for unique and traditional honey in Africa

## Forefront in the insect farming movement

- + Optimised rearing protocols and substrates for cost-effective, sustainable insect mass-rearing, harvesting, and post-harvest techniques, and established mass rearing units for demonstration and training.
- + Mainstreamed the use of insects as alternative, affordable, nutritious and healthier protein options for animal feed.
- + Introduced insect-based, food-to-food biofortification to counter malnutrition.
- + Promoted the use of insects in the effective recycling of organic wastes into high-value organic fertilisers, and plastic waste for safer environments.
- + Designed technologies to produce novel, high-value products such as insect oils, enzymes, pharmaceuticals and bio-energy.
- + Contributing to the development of national standards for the edible insect farming sector, and collaborating with ARSO for continental policies
- + Impacting diverse aspects of agriculture and food systems while also interacting with other key systems like energy, trade and the health of people, animals and the environment.

## Impact Snapshots

**575,000**

Tonnes of organic waste recycled

**28,720**

Tonnes of frass fertilizer per year produced

**> 4,000**

Insect farming enterprises

**> 23,000**

Tonnes of dried black soldier larval meal for animal feed formulation produced

**60,000**

Tonnes of carbon and 145 metric tonnes of methane mitigated per year through waste recycling

**160,000**

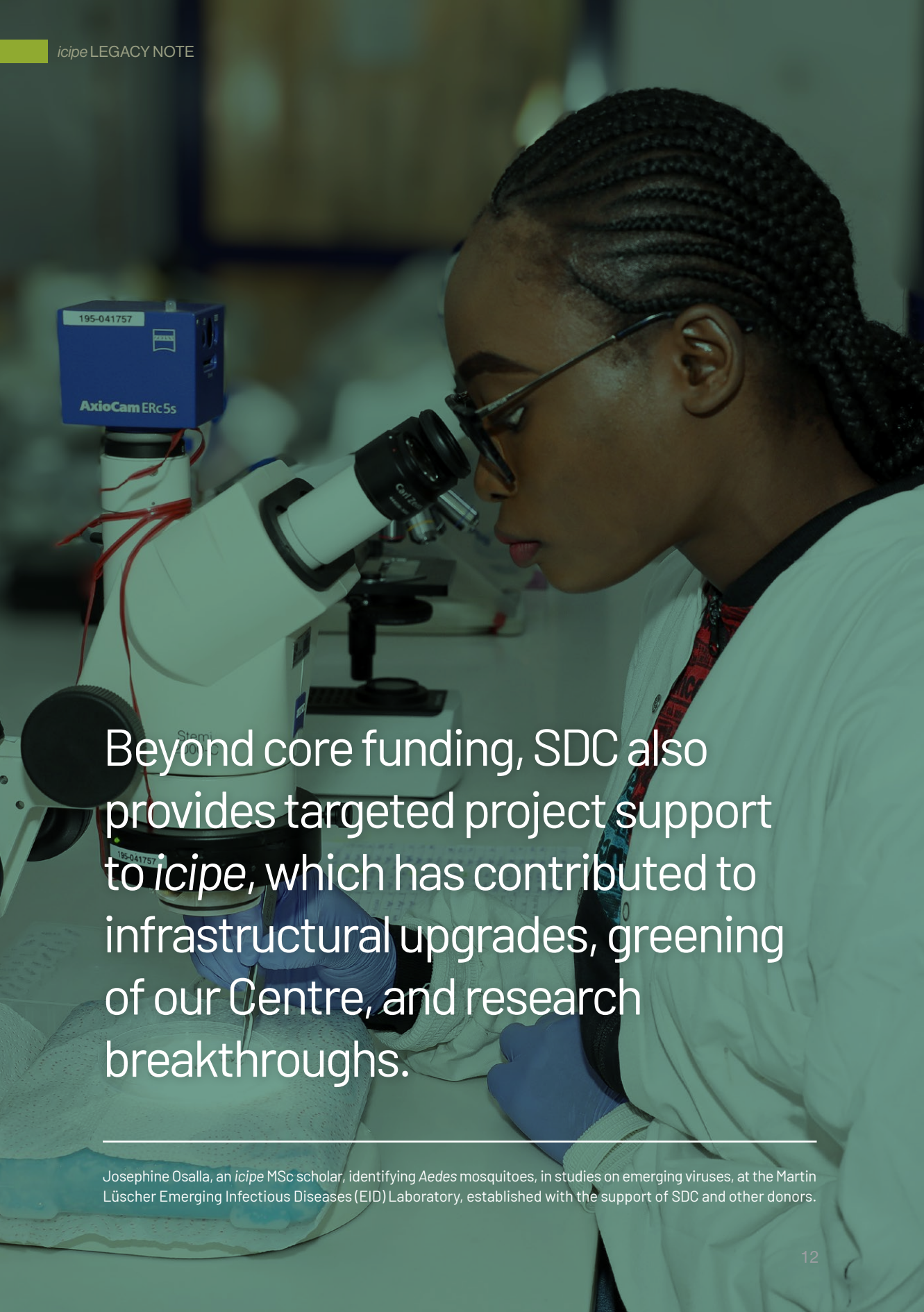
People trained, 15 million reached through publicity and awareness campaigns, 50% women; 90% youth

**> 200**

Partnerships created in 60 countries



Pastoralist community members during a cricket rearing training session

A woman with braided hair, wearing glasses, a white lab coat, and blue gloves, is looking through a microscope. The microscope has a blue camera attachment labeled 'AxioCam ERc5s' and '195-041757'. The background is a laboratory setting with other microscopes and equipment.

Beyond core funding, SDC also provides targeted project support to *icipe*, which has contributed to infrastructural upgrades, greening of our Centre, and research breakthroughs.

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Josephine Osalla, an *icipe* MSc scholar, identifying *Aedes* mosquitoes, in studies on emerging viruses, at the Martin Lüscher Emerging Infectious Diseases (EID) Laboratory, established with the support of SDC and other donors.

# 03 SDC funded projects

## Greening *icipe*

Between 2014 and 2018, SDC supported the 'going green' initiative of *icipe*, which aimed to reduce the Centre's carbon footprint and making its environment more eco-friendly.

### + Measures

- Reduction of energy consumption by means of intelligent energy saving measures
- Sustainable energy supply and reduction of diesel fuel dependency by using solar photovoltaic systems and solar thermal systems; and
- Reduction of clean water consumption by using harvested rainwater as well as water conservation initiatives.

### + Impact

- **35%** contribution of solar energy to the Centre's total energy consumption
- **812 metric tonnes** of carbon dioxide sequestered through clean energy investments.
- **1,174 trees** and **14,583 plants** planted at the *icipe* campuses since 2015
- Single-use plastics reduced through green procurement practices, as well as replacement of outdated equipment and eliminated many
- **1,300 kilogrammes** of paper and 70 kilogrammes of plastics recycled
- **6,800 kilogrammes** of organic waste composted



### Tackling invasive species in Africa

In February 2018, SDC supported *icipe*, CABI and IITA to organise a major forum to develop a strategy for tackling invasive species in Africa. The forum set the scene for a systematic, coordinated, consolidated, proactive and rapid response, based on a clear contingency plan, supported by enforceable policies, reference points, and an inventory of management options. The partners have since launch an Invasive Species Strategy for Africa.



### Platform for NTDs and emerging viruses

In 2011, SDC was among donors that supported the establishment of the Martin Lüscher Emerging Infectious Diseases (EID) Laboratory at the *icipe* Dugesi Campus, in Nairobi, Kenya.

- One of biggest investments in infrastructure since the construction of the Centre's headquarters, and first facility in sub-Saharan Africa built expressly for arthropod-borne-disease research.
- GMP-compliant, equipped with enhanced bio-safety-level 2 suites, modern insectaries and high-throughput molecular, and viral culture platform.
- Developed due to the increasing burden of diseases such as yellow fever, dengue, Rift Valley fever, o'nyong'nyong virus, Crimean-Congo haemorrhagic fever and the chikungunya fever.
- Provides specialised platform to undertake studies to improve risk detection, early warning and response capabilities, to outbreaks of such diseases.
- Allowed *icipe* to expand from agricultural research into human and animal-health threats, and contributed to the Centre's designation as an FAO Reference Centre for Vectors and Vector-Borne Diseases.

*Research conducted in the ML EID discovered a microbe in mosquito that completely blocks transmission of the parasite, recognized as Falling Walls "Breakthrough of the Year 2021".*

## Impact Snapshots

- + Discovery of *Microsporidia MB*, a mosquito symbiont that blocks transmission of *Plasmodium* from the insects to people.
- + The platform supports East African wildlife services to identify illegal bush-meat.
- + Supports ministries of health, livestock and wildlife during outbreaks across East Africa.
- + Over 100 peer-reviewed papers and a string of scientific firsts achieved in the lab.
- + 30 PhD and more than 60 MSc students hosted in the lab

### Trypanosomosis control in Ethiopia

From December 2020 to May 2022, SDC supported *icipe* to roll the Centre's arsenal of tsetse fly and trypanosomosis control strategies, in Borana zone, Ethiopia, home to one of the most important indigenous cattle breeds that are named after the area.

## Impact Snapshots

> 900

Pastoralists trained (40% of them women)

92%

Drop in tse-tse fly populations

75%

Reduction in livestock disease prevalence

38%

Increase in household incomes



(l-r): Eyob Kefeni (PhD student, Hawassa university, Ethiopia) and Abyalew Moges (Research Assistant, *icipe*), pictured with branded black soldier fly products (dried larvae and frass fertiliser), during a stakeholders visit to the insect farming pilot and demonstration site at Hawassa University, Ethiopia.

### Insect-farming enterprises in Ethiopia

From October 2022 – March 2024, SDC supported *icipe* to introduce insect-farming in Ethiopia, through a project dubbed-SIPFEED.

- + Demonstrated benefits of insect-based feeds and insect-composted organic fertiliser.
- + Private sector partners and government agencies representatives trained on black soldier fly production and management; and awareness created among feed millers and the public.
- + Evaluations conducted on local organic waste substrates; assessments of poultry farmers perception and willingness to pay for black soldier fly-based feed completed.
- + Black soldier fly training hub established at Hawassa University, Sidama Region. Two black soldier fly mass rearing units set-up in Adama, Oromia Region; and Bahir Dar, Amhara Region; in collaboration with private sector partners.
- + Several postgraduate students trained at Hawassa University; and Haramaya University, Oromia Region, to generate locally tested scientific evidence for feed regulators and policy and decision makers.
- + National standards for quality and guidelines on production and commercialisation of dried insects for animal feed developed in partnership with Institute of Ethiopian Standards (IES), and key stakeholders.



*The SDC funded AgriPath project is enabling farmers to leap into the digital future, attaining food security and financial independence.*

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### **Digital transformation in agriculture**

*icipe* is a partner in AgriPath, supported by SDC, through the TRANSFORM programme. An initiative of a global multi-disciplinary consortium. AgriPath runs from 2021 – 2025.

- ⊕ It is led by the Centre for Development and Environment, University of Bern. Other partners: Grameen Foundation USA, Grameen Foundation India, Farmbetter Switzerland. It aims to:
- ⊕ Strengthen sustainable farming methods - 50,000 male and female smallholder farmers have access to evidence-based and tailored advice and adopt sustainable agricultural practices for 50,000 smallholder farmers in Africa (Burkina Faso, Tanzania and Uganda); and Asia (India and Nepal)
- ⊕ Test and identify the most effective digital agriculture advisory services (DAS) delivery mechanisms.
- ⊕ Pilot tools including the Farmbetter app, a platform powered by AI-driven recommendations and WOCAT's global database of sustainable land management (SLM) practices.
- ⊕ Collaborate with ministries of agriculture, the development community and DAS providers in five countries to promote evidence-based delivery models to scale-up gender-sensitive DAS for long-term behaviour change towards sustainable agriculture.

# 04

## Looking to the future

At *icipe*, we celebrate our partnership with SDC as more than a mere success story. We see our relationship as a model of what long-term, values-driven investment in science and development can achieve.

Looking ahead, the upcoming launch of the *icipe* Vision and Strategy 2026-2030 will mark the beginning of a bold new chapter. We aim to deepen our contribution to Africa's development, in alignment to our mandate of generating insect science knowledge and translating it into innovative pathways for progress.

We gratefully anticipate continued collaboration with SDC in responding to Africa's evolving needs, while also shaping global solutions through the transformative power of insects and insect science.

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*Cassandra Purity Ronnie, a research assistant at *icipe*, observing a fluorescence-in-situ-hybridization (FISH) image showing localization of the Plasmodium-blocking Microsporidia MB (red), within Anopheles mosquito reproductive organs (green). This image highlights the microbe's relationship with the host, underscoring a critical step in understanding the transmission and biology of Microsporidia MB and how it can be used in malaria control.*





The TROPical Insect Science Institute

# VISION AND STRATEGY

## 2026 - 2030

"Impacting Nature and Society with Insect Science Solutions  
for Food, Health and Climate Resilience"



*icipe's vision* is to pioneer global science in entomology, to improve the well-being and resilience of people and the environment to the challenges of a changing world, through innovative and applied research, alongside deep exploratory study, impact assessment, evaluation, and sustainable capacity building.

*icipe's mission* is to help alleviate poverty, ensure food security and improve the overall health status of peoples of the tropics by developing and extending management tools and strategies for harmful and useful arthropods, while preserving the natural resource base through research and capacity building.

The *mandate* of *icipe* is to research and develop alternative and environmentally friendly pest and vector management strategies that are effective, selective, non-polluting, non-resistance inducing, and are affordable to resource-limited rural and urban communities.

[www.icipe.org](http://www.icipe.org)

