CABI in review 18

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Front cover image: Chinyunyu Plant Clinic in Rufunsa district, Zambia. ©David Ng'ambi for CABI

Roger Horton, MBE, Chair

Foreword from the Chair

I was honoured to take over the role of Chair of the CABI Board in 2018, having joined as a Non-Executive Director in 2017. Prior to that, I was Chief Executive of Taylor & Francis, one of the world's largest academic publishers. I am delighted to have become part of the CABI family.

I would like to say thank you to Philip Walters, who preceded me as Chair. He introduced me to CABI and, for that, I am very grateful. We welcome back Prof Dame Anne Glover, Prof Ruth Oniang'o and Dr Prem Warrior, all of whom have agreed to serve another term on the CABI Board. We also welcome Dr Ismahane Elouafi, Director General of the International Center for Biosaline Agriculture (ICBA), who joined the Board this year, bringing with her a wealth of experience.

As we look to the future, we see challenges and opportunities that lie ahead. In particular, we have seen a change in the way that funding is happening, with a move away from agriculture, making it harder to gain the critical support we need to do our vital work. Funding is now also moving towards country desks and regional organizations, which means it takes longer and is more complicated to access. Nevertheless, CABI's global network of centres and offices, together with the support of our member countries, leave us well placed to adapt to this new landscape.

On the publishing side of the business, we see how search engines are changing the landscape for traditional publishing products. And, of course, for all of us in whichever part of the world we are, cyber security continues to be an ongoing challenge.

But there are great opportunities too. CABI is now well placed as a serious partner in sustainable agriculture, an issue that has become much more important and relevant to businesses and smallholders in Africa and Asia. As a result of our programmes and projects, smallholder farmers have seen a reduction in pests and an increase in crop yields – a great step forward.

We are shifting to new ways of publishing and to new opportunities for open access, in order to enable data from the research we conduct to become more easily available to more people around the world. In 2019, we will be concentrating on our publishing programmes with our new Managing Director for Publishing, Dr Andy Robinson, bringing a new focus to our work and looking at how we can publish research in different ways.

The CABI-led food security programme, Plantwise, has become increasingly well known globally. We will see it move to a bigger scale of operation, where we will be able to involve private sector funding and more local partners. And we are developing technologies and partnering with organizations to enable us to bring together the data and knowledge to increase crop yields with better forewarning of the events around them.

These are exciting times, helping us to create a positive place where CABI staff can excel in their work. It gives me great pleasure to be part of this great organization – to see us combine our knowledge and skills, and turn research into results that make a real difference to the people for whom it really matters. As the new Chair, I look forward to working more closely with our member countries, donors and partners. As always, we rely upon your support and, for that, I thank you.

Foreword from the CEO

CABI fully met or exceeded many of its key performance indicators in 2018, and has met, is on track with or has only minor variance in 89% of the 116 milestones laid out within the Medium Term Strategy for 2017-19. Therefore, we continue to make valuable contributions to achieving the Sustainable Development Goals (SDGs) as laid out in our strategy, particularly SDGs 1, 2, 4, 12, 15 and 17 as well as the cross-cutting goals of Gender Equality and Climate Action (SDGs 5 and 13).

Scientific output remained at a high level with a total of 162 publications in the year, of which 51 were in IF>2 journals, 38 open access and 46 had a social science focus. We have also made good progress with winning significant new projects, conclusively demonstrating the positive impacts of Plantwise, gaining recognition for our central role in the fight against fall armyworm (FAW) and re-energising our Publishing business while also securing final planning permission to commence the Wallingford development, which will significantly reduce our carbon footprint.

We continue to see high levels of competition and budgetary pressures across all parts of our business. Publishing has grown at only 1% (albeit at the industry average level) as academic research budgets remain tightly constrained. However, it is encouraging to see the emergence of a pipeline of exciting new Publishing products, especially the PestSmart plant health eLearning product developed from the Plantwise training materials. International Development has seen the overall emphasis of donor funding shift to areas outside of CABI's core expertise with continued downward pressure on permissible overheads. This has required continued focus on impact, effectiveness and efficiency, combined with rigorous cost control, to deliver our financial targets for the year with net revenue showing 6% growth at £35.7m, and an operating surplus slightly over plan at £423k due to significant cost-saving measures.

Plantwise scale-up and sustainability grew strongly and it has now reached ~31 million farmers cumulatively, established 3,700 plant clinics and trained over 10,000 plant doctors. Country partners committed over £1 million of their own funding to the programme and only 3% of the plant doctor trainings conducted in 2018 were led by CABI; the remainder were conducted by local trainers, with CABI staff present in only a few cases to backstop training and monitor quality. A number of significant evaluation studies on Plantwise came to fruition during the year, looking at the twin impact pathways, namely adoption of plant clinic advice and plant health system change at national level. The pivotal study was the Randomized Controlled Trial (RCT) of Plantwise impact in Kenya, carried out by the American Institutes of Research (AIR) over the period 2014-18 with funding from DFID. The findings were very positive at both the individual farm and the national plant health system levels, providing strong evidence of impacts on crop yields, farmer incomes and reduced use of hazardous pesticides. These studies, together with impact studies in other programmes outside of Plantwise, have also provided very useful learning about the ways in which women farmers can be reached more effectively.

There was growing concern over the spread of FAW across Africa and Asia, as forecast by the 2017/18 evidence notes which CABI produced when this voracious pest was first observed in Africa. The Action on Invasives programme provided policy support for 17 countries, including Ghana, India, Zambia and Kenya. CABI also took part in a number of the FAW technical working groups convened by the FAO, leading the group on communication and awareness. We also developed a management plan for parthenium weed in Pakistan, where agencies were coordinated, control agent permits granted, surveys conducted and extension training undertaken.

In October, we received the final approvals for the detailed plans of our new corporate office on the Wallingford site and initial work on the housing development has begun. Contractors have been appointed for the office construction and fit-out with confirmed pricing that will allow us to deliver the new office within the price received from the sale of land to CALA Homes.
We are also progressing with the assessment of options for the future of our Egham site.

During the year we also saw an improvement in both the number and size of opportunities arising from project development activities, including significant new funding from DFID, ACIAR, the Bill & Melinda

Gates Foundation, the Global Environment Facility (GEF) and the Swedish International Development Agency (SIDA). Of particular note was the greater emphasis on value chains and trade as we increasingly move beyond a narrow focus on plant health to look at how we can increase income for smallholder farmers as a return for growing better quality crops. In this review, you will find stories of the work we have done on crops as varied as apples, cotton, peppercorns and tea – all of them a regular part of our daily lives.

Going forward we will make crop and food production smarter, safer and more sustainable. This will involve greater linkage between Plantwise and other CABI project activities on soil health and seed quality as well as proactive preventative measures based on learnings from the Pest Risk Information SErvice (PRISE) and Action on Invasives. But producing more in higher quality is not sufficient – smallholders need access to cooperative groups, markets, business skills, finance and insurance to move from subsistence to commercial farming. They also need help and advice to make their farming succeed in the face of a changing climate. We will increasingly develop projects on food systems and value chains, with upfront consideration of the cross-cutting themes of climate resilience, women's empowerment and youth employment. This evolution in our strategy will be reflected in our next Medium Term Strategy for the period 2020-22, which I look forward to sharing with staff, partners and member countries at our Review Conference in September 2019.

18.3m farmers
reached by the CABI-led Plantwise programme in 2018, 30m cumulative

Worked in more than
58 countries
in 2018

169
staff publications published in 2018

Adding value

CABI shares scientific knowledge so smallholders can grow more and lose less

30m

farmers reached by the CABI-led Plantwise programme (in total)

This knowledge influences farmers' behaviour and encourages change

229k

farmers in Tanzania applied at least 1 improved agricultural technology

Crop yields and crop values then increase, while losses are reduced

138%

cocoa yield increase in Vanuatu from a sustainable cocoa project

Providing value for money to donors and investors

1:3 the cost-benefit ratio of Plantwise in Kenya

Use of pesticides that damage the environment and human health are also reduced

81%

of 90 farmers interviewed in Cambodia, Vietnam, Myanmar and Thailand, said they experienced fewer pesticide related health problems after visiting clinics

Employment and incomes – people's livelihoods – then start to improve

15%+

income for papaya farmers in Pakistan after agricultural training

Countries' economies grow as internal agricultural systems become more effective

$15m

worth of vegetable exports start again following a project in Ghana

2018 in review

JANUARY

CABI to improve farming for 50 million poor households by tackling invasive species

FEBRUARY

CABI leads the fight against fruit and nut pest

MARCH

Initiative to bolster Pakistani agricultural exports goes global

APRIL

CABI signs MoU with Asian and Pacific Coconut Community

MAY

CABI helps Pakistan's cotton industry to reduce losses of around $350m a year

JUNE

A night at the movies: with soybean and fall armyworm as stars of the show

JULY

CABI welcomes Afghanistan as its 49th member country

AUGUST

World-leading scientists to debate how best to tackle alien invasive plants, which threaten human health and biodiversity across Europe

SEPTEMBER

Tunisian government benefits from world-leading database of applied sciences

OCTOBER

Kenyan farmers reap benefits thanks to Plantwise plant clinics

NOVEMBER

CABI scientists make first discovery of the Asian samurai wasp *Trissolcus japonicus* in Europe – the end of the stink bug invasion?

DECEMBER

SciDev.Net's Script offers free training to help increase high-quality science reporting in Africa

CABI's mission and the Sustainable Development Goals

This is an important time. Problems that we thought of as many years away, like climate change, have arrived, while solutions to issues like hunger and poverty are now within our reach. How we act today will make a big difference to how we live tomorrow.

CABI is committed to making a difference, playing its part in creating a brighter, more equitable and sustainable future.

CABI's mission is to improve people's lives worldwide by providing information and applying scientific expertise to solve problems in agriculture and the environment

By sharing knowledge and science, CABI tackles global issues like poverty, hunger, education, equality, sustainability, climate change, and biodiversity. We do this by helping farmers grow more and lose less of their produce, combating threats to agriculture and the environment from pests and diseases, protecting natural habitats from invasive species, and improving access to scientific information.

We understand that global problems are too complex and interconnected to be dealt with by any one organization. That is why partnerships are at the heart of everything we do. Answers are found when individuals and organizations, countries and regions, work together to solve problems and build sustainable livelihoods.

We are committed to being a partner in helping the world reach the Sustainable Development Goals (SDGs). As ever, our annual review focuses on these goals and areas where we are helping to make a difference to people's lives.

THE GLOBAL CHALLENGES

Climate change

HELPING FARMERS ADAPT TO CLIMATE CHANGE

Erratic rains, severe frosts, unusually warm winters. The world is witnessing growing incidents of the new "normal" caused by climate change. No longer regarded as a future challenge to be faced in the next few decades, climate disruption is already causing substantial losses to agriculture, from coffee crops in Vietnam to wheat in Pakistan.

The rise in global temperatures is also leading to greater biodiversity loss and the spread of crop pests and invasive species. The latter are cause for particular concern. After habitat loss, invasive species are the second greatest threat to biodiversity and cost the global economy an estimated US$1.4 trillion every year.

The delicate balance of the natural world is fundamental to life on Earth, making goals such as SDG 13: Climate Action and SDG 15: Life on Land, which seek to strengthen resilience to climate change and biodiversity loss, all the more important.

Our action

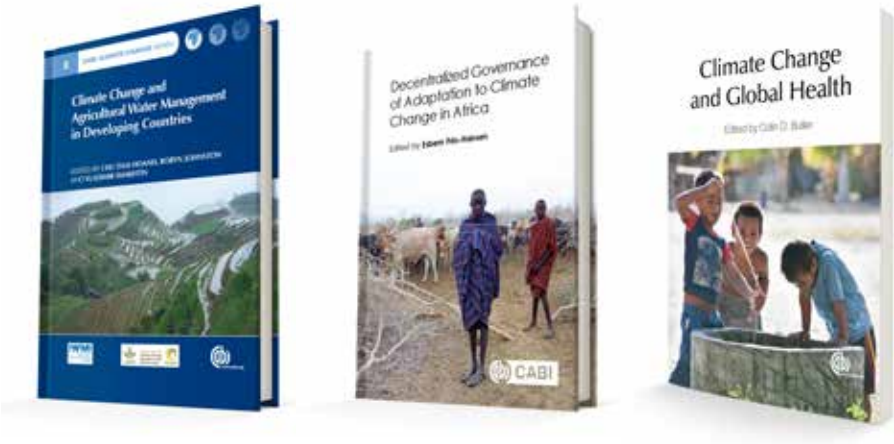
CABI envisions a world in which the agricultural sector is able to supply sufficient, safe and nutritious food, and is embedded in a healthy and climate resilient landscape with clean water and air, healthy soils, and functional ecosystem services.

CABI is helping farmers to adapt to this major challenge through projects that apply, among other things, our expertise in **digital development** and **crop health**.

In sub-Saharan Africa, we are leading a £6.3 million project to create a Pest Risk Information SErvice (PRISE), using environmental data and models on pest life cycles to create risk assessments. In Cambodia, Laos and Vietnam, we are helping to develop environmentally-friendly practices against pests in Climate Smart Villages as a way of building resilience to climate change in rural communities.

Through knowledge creation, management and sharing, we help environmental managers, farmers and researchers protect biodiversity by using natural, sustainable approaches such as biopesticides and **invasive species management**.

CABI's **publishing** products:



THE GLOBAL CHALLENGES

Economic development

CREATING JOBS IN AGRICULTURE THROUGH INCLUSIVE ECONOMIC GROWTH

Today, 836 million people still live in extreme poverty. Many depend on small-scale farms for their livelihoods. Without adequate knowledge about plant health or access to regional markets, farmers remain trapped in a cycle of poverty, struggling to control crop pests and satisfy the demands of food quality and safety standards.

The world's 500 million smallholder farmers stand to gain from trading high-quality produce locally, regionally and internationally. It is vital that they have access to the knowledge and resources they need to grow more, sell more and ultimately raise themselves out of poverty.

We must work together to realize the goals of SDG 1: No Poverty.

1 NO POVERTY

Our action

CABI envisions a world where we break down barriers in agricultural trade and help small-scale farmers build successful and viable businesses, so they can ensure their own sustainable incomes.

CABI's goal is to create employment opportunities – especially for women and young people – in agriculture by investing in inclusive economic growth. By sharing our expertise in food **value chains and trade** and **digital development** we help to create employment opportunities all the way from food production to market stall, putting innovation and technology front and centre.

CABI and partners developed an online food safety training programme and a 'Go to Market' tool kit in **Pakistan** to analyse the performance of food value chains. The project has already helped improve papaya production by 22% and led to a 15% increase in the income of papaya farmers in Pakistan's southeast province of Sindh.

Our work to create a Public-Private Partnership (PPP) in Ghana broke down trade barriers and improved the country's horticultural export abilities, delivering a much-needed boost to its job market. Investment in these kinds of projects has a particular benefit for women and youth employment in agriculture.

CABI's **publishing** products:

4 QUALITY EDUCATION

THE GLOBAL CHALLENGES

Food and nutrition security

FEEDING THE WORLD – TACKLING FOOD SECURITY BY SUPPORTING SMALLHOLDERS

Today, 805 million people go hungry. By 2050, we will need to find food for an estimated two billion additional people. With 80% of food consumed in developing regions grown by small-scale farmers, we must find a sustainable food system that works for smallholders.

Achieving SDG 2: Zero Hunger presents an enormous challenge at both the individual and global levels. With food demand expected to grow by more than 70% by 2050, but with food production not set to keep pace, how do we feed the world?

Investing in the planet's 500 million smallholders in developing countries is vital for increasing food and nutritional security while supplying local and global food markets. To end hunger, major challenges must be overcome, including the control of crop pests – responsible for up to 40% of crop losses – and raising awareness of agricultural best practice and nutritional information.

2 ZERO HUNGER

Our action

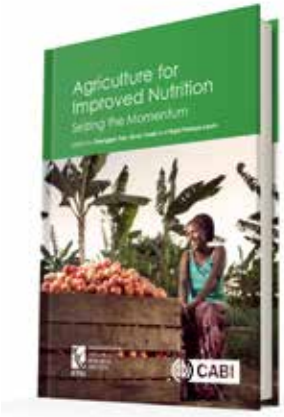
CABI envisions a world where we can grow more and lose less, increasing food and nutrition security and improving rural livelihoods by reducing crop losses.

CABI helps smallholder farmers to improve their crop yields, tackle pests and diseases, and find alternatives to pesticides. With our help, farmers are gaining access to better planting materials and seeds, and adopting sustainable agricultural practices such as the use of organic fertilisers.

The CABI-led Plantwise programme aims to contribute to the SDGs by improving farmers' yields and incomes while reducing the use of toxic pesticides. We also help countries improve their plant health systems, so that they can prevent and manage pest outbreaks more effectively.

By sharing our expertise in **invasive species management** through advisory services like Plantwise, we also increase the supply of safer food into agricultural **value chains and trade**. As a result, farmers are able to produce and trade more and safer food.

CABI's **publishing** products:



4 QUALITY EDUCATION


THE GLOBAL CHALLENGES
Gender and youth
©Asim Hafeez for CABI

CREATING VIABLE FUTURES FOR WOMEN AND YOUTH IN AGRICULTURE

Women and young people have the potential to play an important role in the future of agriculture. Although women rarely control decision-making on family farms, they already constitute 53% of the global agricultural workforce. And while young people might look to the cities for careers, their ambition and drive makes them an undeniable asset to farming.

The hurdles they face are real. Women often find it harder than men to access agricultural information to generate incomes from farming. Opportunities in rural areas are limited for young people as they often have little access to farming finance, information and land.

So we must break down the barriers to employment, pursuing goals such as SDG 5: Gender Equality.

5 GENDER EQUALITY

17 PARTNERSHIPS FOR THE GOALS

Our action

CABI envisions a world in which women, youth and marginalized communities are included in agriculture, and become key to: ensuring equity; increasing participation in agribusiness and reducing youth unemployment; promoting livelihood improvement; increasing production, and reducing poverty.

CABI's goal is to create opportunities for women and young people in agriculture by investing in inclusive economic growth. Our work encourages more food production and trade, while considering how women and young people can share the benefits of growth.

Our Skills for Farms project provided training courses in kitchen gardening for women and youth between 16 and 35 years old in Pakistan. After sharing our expertise in **development communication and extension** and **value chains and trade**, a third of women interviewed had translated kitchen gardening into incomes through the sale of vegetables they grew.

By working with a broad network of partners, we help to deliver tailored technical information using different channels of communication to women and young people about how they can overcome agricultural and environmental challenges.

CABI's **publishing** products:

4 QUALITY EDUCATION

OUR STORIES

Finding a sustainable way to fight pests, protect crops and raise incomes in Pakistan

Maula Dad is a farmer from Khanozai, a small valley in Pakistan's southwestern province of Balochistan and home to some of the finest apples in the country. For years, Maula has been growing apples and selling them across the province, earning a decent income to support his family.

But not so long ago, he nearly abandoned farming altogether. The reason? An invasion of pests, in particular the codling moth (*Cydia pomonella*), which burrows into the apples causing the fruit to drop prematurely. For apple farmers like Maula, it is one of their most feared and destructive pests.

After applying pesticides to his crop four or five times, Maula found that the chemicals had a negative effect on the quality of his fruit. As a result, the market value of his produce declined sharply. This, combined with problems irrigating his orchards, led a despairing Maula to give up farming. But he changed his mind after hearing about the Phytosanitary Risk Management Programme (PRMP), which promotes biological control to tackle pests in a safe way in Balochistan.

Within a year of adopting new methods learned from PRMP, Maula has been able to better control infestations of the codling moth, improve the quality of his apples and earn enough money to invest in a water pump. He now limits his use of pesticides to just one cycle per season.

"During the present growing season, the infestation of codling moth has minimized due to biological control interventions implemented by the CABI project team," Maula said. *"My apples are now being sent to high-end markets throughout Pakistan whereas in the past I was confined to the local markets in Balochistan. Now I am earning PKR 150,000 ($1,300) during the peak months of apple season, compared to being hand to mouth previously."*

As the recently-appointed chair of his local Apple Growing Society, Maula is sharing his expertise with other farmers and has also suggested training on biological control of pests of other crops grown in Balochistan.

DONOR
USAID via United States Department of Agriculture (USDA)

PARTNERS
Pakistan Agricultural Research Council (PARC)
Department of Agriculture, Sindh
Department of Agriculture, Balochistan
Department of Agriculture, Gilgit Baltistan
Southern Zone Agricultural Research Centre
All Pakistan Fruit & Vegetables Exporters, Importers and Merchants Association (PFVA)
Rice Exporters Association of Pakistan (REAP)

CABI CENTRE
CABI in Pakistan

Helping cotton farmers, like Pakistan's 'compost champion', to improve productivity

Pakistan is the fifth largest producer of cotton in the world, with more than 500,000 farmers depending on the crop to make a living and provide for their families. However, 10-15% of the cotton harvest is lost every year because of poor agricultural practices, inefficient storage and transport problems, at an annual cost to the country of $350 million.

Since 2014, CABI has helped more than 30,000 farmers and 62,600 farm workers to conserve natural resources, protect the environment and themselves, by limiting the use of chemical fertilizers and pesticides as part of the Better Cotton Initiative (BCI). As a result of adopting more sustainable alternatives, yields have improved and so have earnings, while costs have decreased.

Shah Muhammad Dahri, a smallholder farmer from Sandhan village in Sindh province, expects his yield per acre to increase by 200kgs compared with last year after CABI's BCI project team suggested he compost farm waste to use as organic fertilizer. The higher yield means he has 17% more income to spend on education, food, medicine and other essentials for his family.

Guided by CABI, Shah Muhammad collected farmyard manures, sugarcane mud, poultry manures and other green waste. After letting it decompose for three months, he then applied the organic fertilizer to his land before sowing cotton seed.

Not only was Shah Muhammad able to dramatically reduce his use of synthetic fertilizer compared to previous years, but he also saved the amount of water needed to irrigate his fields. Why? Prolonged use of synthetic fertilizer strips the soil of its ability to retain water, while organic compost helps to restore this vital function.

"Compost application on my cotton crop not only increased yield per acre but also improved the quality of my cotton,"

Shah Muhammad said.

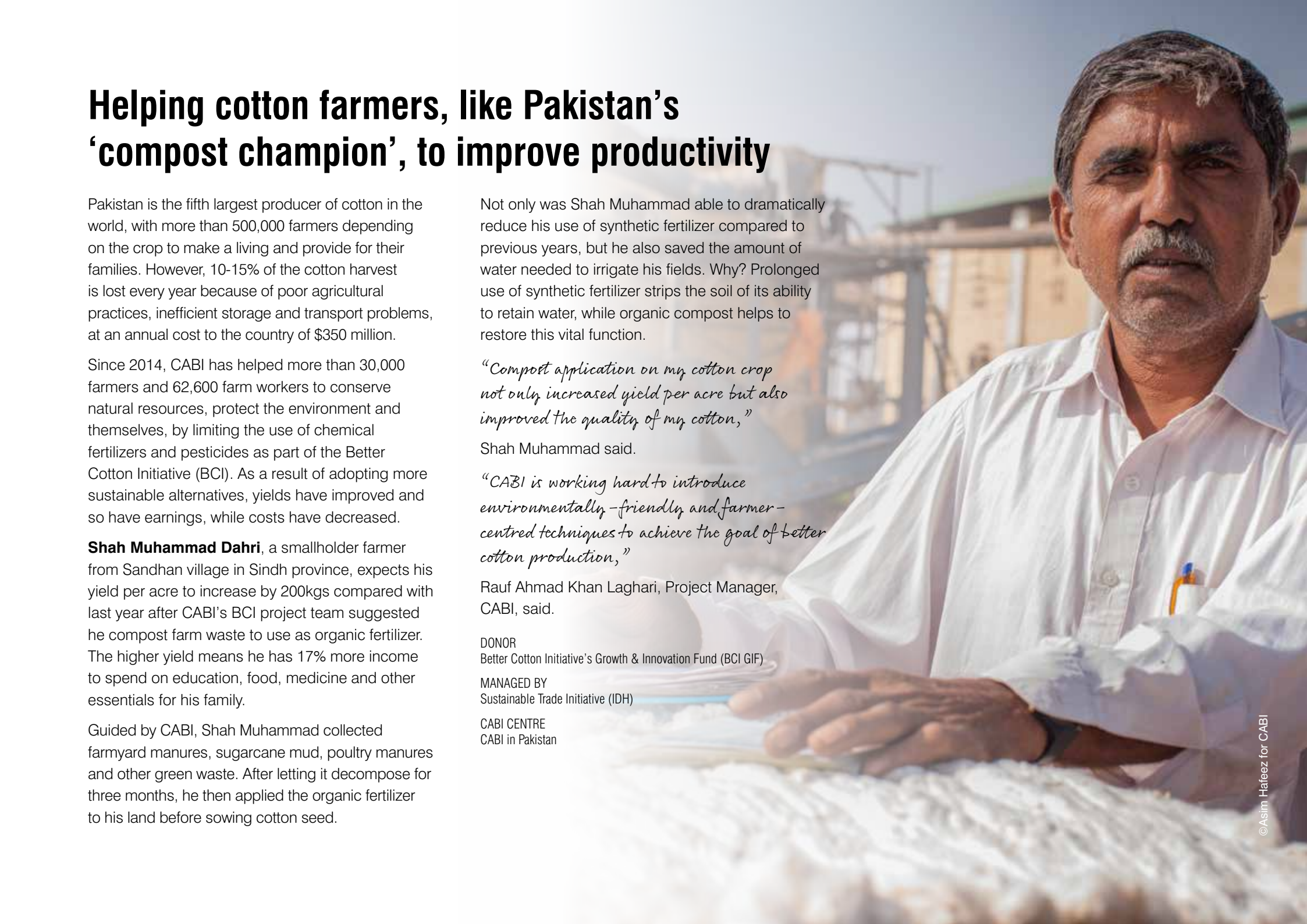
"CABI is working hard to introduce environmentally-friendly and farmer-centred techniques to achieve the goal of better cotton production,"

Rauf Ahmad Khan Laghari, Project Manager, CABI, said.

DONOR
Better Cotton Initiative's Growth & Innovation Fund (BCI GIF)

MANAGED BY
Sustainable Trade Initiative (IDH)

CABI CENTRE
CABI in Pakistan



More productivity, more profit: The fertilizer tool helping farmers to reap higher yields

Agriculture remains the economic backbone of many Sub-Saharan countries where tens of millions of people eke out a living as smallholder farmers. Yet the gap between farmers' potential versus actual yield is still significant.

Part of the problem is a reluctance to spend what little they have on expensive fertilizer to improve nutrient-poor soil. However, a new tool created out of a CABI project is starting to pay dividends in Uganda, where some farmers have seen a seven-fold rise in yields.

Before **Charles Wafula** heard about the Fertilizer Optimization Tool (FOT), he struggled to earn a living from his small plot in Buhehe, eastern Uganda. He tried planting soybean, sunflowers, cassava, groundnuts – none of them paid off.

But Charles' fortunes changed when he used the tool that helps farmers identify the most profitable crop for them to grow based on a few key factors: the size of their land, the crop's market price, its nutrient requirements and the amount of money the farmer must invest in fertilizer.

After consulting the FOT, Charles decided to spend 80,000 Ugandan shillings (approx. $22) on fertilizer, taking out a loan for half the amount. Not only was he able to harvest 7 bags of maize from an acre of land, compared with 1.5 bags previously, but thanks to a much higher soybean yield, Charles was able to invest in more fertilizer.

"I was very excited to have achieved such an output. I decided to sell part of the soybean to buy fertilizer for this season. This time I planted four acres of maize and a quarter acre of groundnuts and invested 120,000 shillings (approx. $32), up from 80,000 shillings last season,"

Charles said. The higher crop yields have also allowed Charles to fulfil a long cherished dream of sending his son to teacher training college.

"I paid five bags of maize to the college to cover part of his starting fees. The rest of the harvest I have left for home consumption."

DONORS
Alliance for a Green Revolution in Africa
Biotechnology and Biological Sciences Research Council
Bill & Melinda Gates Foundation

PARTNERS
University of Nebraska, Lincoln
National Agricultural Research and Extension Systems of the 13 countries
National Agricultural and Research Organisation

CABI CENTRES
CABI in Africa and UK

Plantwise plant clinics deliver 3:1 benefit-cost ratio in Kenya

An impact assessment conducted by the American Institutes for Research from 2014 to 2018, based on a randomized control trial, has proven that the benefits delivered by the Plantwise programme in Kenya far outweigh the costs associated with running it. The study showed that the financial benefits of Plantwise in Kenya were estimated to be over £1.5 million for maize using 2017 prices, giving a benefit to cost ratio of 3:1 and an internal rate of return of 54%.

"This study, conducted independently of CABI, confirms that Plantwise is an impactful and cost-effective approach to improving national plant health systems of countries. Not only does it make smallholder farmers more food secure and ensure safer production practices, but it also results in improved crop-based household incomes."

Dr Washington Otieno, Plantwise Programme Executive

The study confirmed that CABI's global Plantwise programme has a major impact and helps farmers in the implementing countries increase farm productivity and reduce crop losses, revealing also that Plantwise:

- Contributes to improved yields, increased crop-based household incomes and reduced pesticide use for farmers living in plant clinic catchment areas
- Improves coordination of stakeholders in national plant health systems, improving the likelihood of detecting and responding to pest outbreaks
- Enriches the knowledge of extension agents and collects data that gives detailed insights for better responses to pest damage to crops

Farmers who used plant clinics were found to be more likely to use pesticide protective equipment like gumboots, caps or overcoats, and more likely to wash themselves and their equipment after applying pesticides.

"The significant role the programme has played in filling the gap in the provision of agricultural advisory services cannot be underestimated. Plant clinics are an innovation that has made the extension staff relevant to farmers in the counties where their services had been on the decline."

Philip Makheti, Director of Crop Resources, Agribusiness and Market Development at the Kenyan Ministry of Agriculture, Livestock, Fisheries and Irrigation

DONORS AND PARTNERS
Research undertaken by the American Institutes for Research (AIR) and funded by the UK Department for International Development (DFID)

CABI CENTRES
CABI in Africa

For a list of the Plantwise donors see
www.plantwise.org/about/plantwise-donors

Helping farmers manage fall armyworm as it takes hold in Africa and spreads to Asia

CABI has been at the centre of tackling the invasive fall armyworm in Africa, where it affects 44 countries. Not stopping on the African continent, the pest has also invaded China, India, Myanmar, Thailand and Yemen, with expectations of further rapid spread through other Asian countries. Here are some of the highlights of our work to fight fall armyworm in 2018.

Evidence note

In CABI's 2018 fall armyworm evidence note, household surveys revealed that maize farmers had average losses of 26.6% in Ghana and 35% in Zambia due to the pest. Applying pesticides remained the most frequent control method used, sometimes including highly toxic products, which shows how urgent it has become to make safer options more available, especially now the invasion has spread further.

Research for sustainable management

CABI and national partners tested how effective biopesticides, botanicals and traditional methods for fall armyworm control are in a number of African countries – work which contributes to the identification of a range of sustainable, non-chemical approaches for managing this pest in future. Promisingly, surveys for natural enemies of the fall armyworm showed that at least 12 biocontrol agents already attack the invasive insect on the continent, so prospects for the biological control of fall armyworm are encouraging.

'Tech' for good

CABI supported the US government's 'fall armyworm Tech prize', which sought to encourage digital innovations that would play a role in identifying, treating and tracking the pest in Africa. As a testing partner for the prize, CABI evaluated the 20 finalists' prototypes through field testing in Uganda with focus groups of farmers, extension workers and agro-input suppliers. Of the many entrants, six were selected for cash prizes, which will be invested into improving their innovations so that they provide a benefit to all.

Outreach and information

Communication campaigns on fall armyworm used text, print, radio and video messages to support extension services and farmers managing the pest on their farm. Based on data gathered, we estimate the campaigns directly reached more than 500,000 farmers across several African countries. Studies in Uganda following one campaign showed that those who participated went on to implement an additional two fall armyworm management practices over and above those who had not.

CABI CENTRES
Global

DONORS
Department for International Development (DFID)
Netherlands Directorate General for International Collaboration (DGIS)

Rooting out parthenium weed in Pakistan

Parthenium weed is considered one of the worst weeds in the world. It has invaded nearly 48 countries in Africa, Asia and the South Pacific. It can have devastating effects on the livelihoods of millions of people causing significant harm to human health, the economy and the environment.

In Pakistan, parthenium weed is spreading rapidly across rural and urban landscapes, affecting local habitats and harming agriculture. A particularly worrying trend is the use of the parthenium for its small white flowers in the floral trade as a low cost alternative to *Gypsophilia*.

CABI's mass awareness campaign under our Action on Invasives programme in Pakistan aims to raise awareness about this noxious weed and ways to manage it safely. Through farmer training programmes, city campaigns and public service messages carried out initially in Sheikhupura, a district of Punjab province, CABI has informed people about the negative impacts of the weed. Working with local extension services, we have reached over 10,000 farmers in 438 villages, and – through the Weeding Week campaign – reached another 1,400 farmers in 24 villages.

Parthenium not only affects rural farming communities but city dwellers too as the weed can be found in public parks and roadsides. CABI set up stalls in two of Islamabad's major parks, reaching around 2,000 passers-by, who were surprised to learn about its harmful effects.

A key part of these campaigns was CABI's mini documentary that describes how to recognize Parthenium, its harmful effects on human and animal health, and how to safely manage it. After airing on three national channels at prime time over four weeks across the country, the video reached around 2.2 million people.

"The situation with parthenium weed in Pakistan is very serious. It's challenging for many walks of life and beyond the remit of the agriculture department or extension service. This is now a community pest, and it is possible to manage with the mobilisation of the community."

Dr Muhammad Anjum Ali, Director General Agriculture (Extension & Adaptive Research), Agriculture Department, Punjab

DONORS
Department for International Development (DFID)
Netherlands Directorate General for International Collaboration (DGIS)

PARTNERS
Pakistan Agricultural Research Council
Agricultural Department Punjab

CABI CENTRE
CABI in Pakistan

Space-age technology launches in Ghana and Kenya in the fight against pest outbreaks

CABI understands the growing importance of digital technology and data-driven innovation to help fight agricultural pests and diseases. With our Pest Risk Information SErvice – known as PRISE – we are combining earth observation technology, pest outbreak models and real-time field observations to deliver tailored pest alerts and actionable advice to farmers.

Based on environmental data, PRISE models the risk to crops from insect pests and plant diseases. After this analysis, tailored messages are created and made available through CABI's Plantwise network and other local extension services. A chatbot on Telegram, already used by plant doctors, sends weekly pest forecasts. A few days after each alert, users are asked to give feedback, which in future will be used to validate the model and add new data. This feedback loop means greater confidence in the forecasts.

After launching in Zambia in late 2017, PRISE was formally launched in Ghana at the British High Commission and in Kenya at a plant clinic in 2018. Local journalists attended both events and, in the case of Kenya, included a field trip for them to visit farms and see the data collection take place first-hand as well as meet partners and farmers.

Reports from the field from plant doctors and farmers so far show that farmers who are learning about pest outbreaks earlier through PRISE are able to put control measures in place before any damage occurs.

"Generally, the alerts were useful to farmers, and farmers who followed the right management options available for the pests and used proper inputs like top dressing fertilizers, their crops were not as highly affected."

Busiku, Plant Doctor, Kafue district, Zambia

"It is vital that we use the very latest in technology and work in partnership to bring the best insights on pest population behaviour right to the farmer's door."

Cambria Finegold, Global Director, Knowledge Management

DONORS
UK Space Agency
Co-finance from Plantwise

PARTNERS
Assimila – Project consortium
King's College London – Project consortium
Centre for Environmental Data Analysis – Project consortium
Plant Protection & Regulatory Services Directorate (PPRSD), Ghana – International partner
Kenya Agricultural & Livestock Research Organization (KALRO), Kenya – International partner
Ministry of Agriculture, Livestock and Fisheries, Kenya – International partner
Zambia Agriculture Research Institute (ZARI), Zambia – International partner

CABI CENTRES
CABI in Africa and UK

Safeguarding global food security through a decade of joint research and development

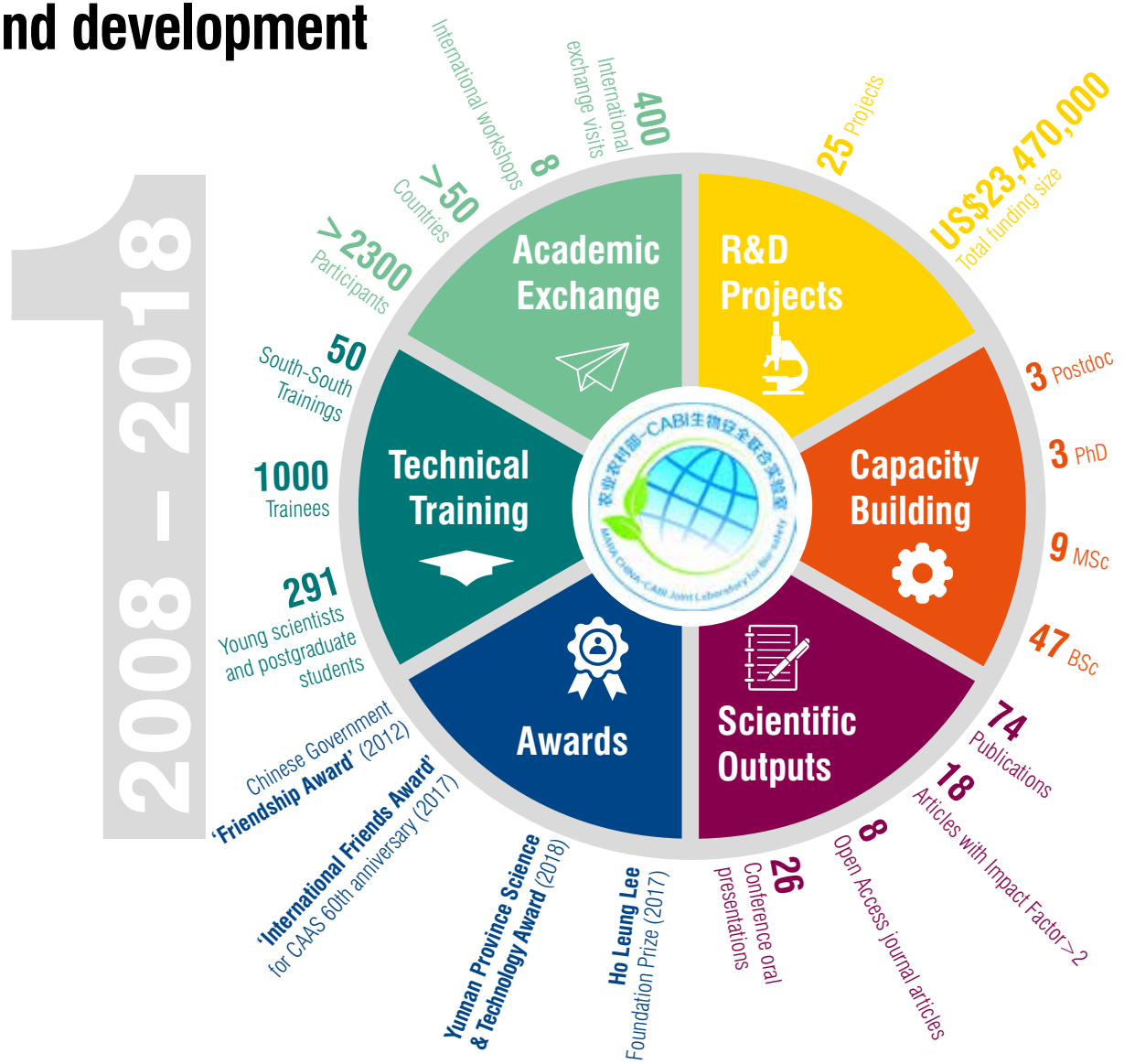
2018 marked a special anniversary for CABI and China's strategic partnership. We celebrated a decade of achievements towards food and nutritional security in China and beyond, through the work of the Joint Laboratory for Bio-safety (**Joint Lab**).

Established by CABI and the Chinese Ministry of Agriculture and Rural Affairs (MARA) in 2008, the Joint Lab is a centre for excellence in collaborative research on pest and diseases management and biosafety, particularly the prevention and control of invasive species, using techniques that minimize harm to the environment.

The work is inspired by CABI's belief that sustainable development can only be achieved if plant life is protected, pesticide use is drastically reduced and alternative, environmentally-friendly and economically sustainable management strategies are found to tackle pests, boost crop yields and lift farmers out of poverty.

"The Joint Lab's relevance and contribution to China's future green agricultural and economic development will continue as China leads the way in south–south cooperation and technology transfer."

Dr Ulrich Kuhlman, CABI's Executive Director, Global Operations and Co-Director of the Joint Lab.



New eLearning courses teach pest diagnosis and management

Based on training for the award-winning Plantwise agricultural programme aimed at farmers in developing countries, CABI has developed a unique new eLearning course: PestSmart. PestSmart promises to benefit the way businesses in the food supply chain manage plant health problems to grow more and better produce.

The course is unique in two ways: it is the first plant health eLearning product of its kind on the market, and is also a rare example of a proven innovation from the development sector being developed into a commercial product.

Since CABI is a not-for-profit organization, the profits made from PestSmart will be reinvested into the Plantwise programme – making it more sustainable and ultimately helping farmers both in developed and developing countries.

PestSmart is a practical eLearning course focusing on the skills and methodologies required for field-based diagnosis of pests and diseases. The knowledge learned on the course gives farmers and agronomists the skills they need to identify new and emerging threats to their crops, reducing risks to the food supply chain and improving productivity.

PestSmart builds on the successes of Plantwise, enabling plant health professionals to go out into the field and diagnose and manage major plant pests for the commercial sector. CABI's Chief Commercial Officer, Carol McNamara, says:

"We're delighted to launch PestSmart. So often we hear about commercial innovation trickling down into developing countries. Here, we've taken a highly successful international development programme and adapted it for the commercial sector. This 'reverse innovation' approach shows how agricultural knowledge in developing countries can be applied and distributed to developed markets."

For more information on PestSmart, go to: **www.cabi.org/elearning/pestsmart**

A non-chemical, sustainable approach to tea production

India is the second largest producer and exporter of tea in the world. This commodity is an important source of income for the country's farmers. However, tea crops suffer from a range of pests and diseases, and while pesticides are the main management solution, their use results in increased production costs and potential risks to human health.

"Though the pesticides were being blanket sprayed regularly, the problem of pests and diseases kept on damaging the yield and quality. This resulted in increased production costs but the market did not offer a high price for tea. This made it a very marginal profit. Use of pesticides was becoming like a treadmill and unavoidable."

Bibek Rajkhowa, Manager, Hoolonguri Tea Estate, Andrew Yule Tea Gardens

Since 2014, CABI has been working with Unilever to develop a plan to sustainably produce tea without using chemicals. Together, we are creating a tool kit of non-chemical, eco-friendly ways to manage tea pests. This includes improving soil nourishment, building a healthy ecosystem, establishing populations of natural pest control (other insects for example), and using natural composts and washes to strengthen the plants' health, thus reducing the use of chemicals.

As part of an Integrated Pest Management (IPM) project, CABI and partners tested ecological approaches to pest management and believe they have the potential to replace conventional pest management practices. In all locations tested, despite the absence of pesticides, pest populations were kept at manageable levels, largely comparable with 'business as usual' practices.

Alan Palmer, Global Vice President Research and Development, Tea, at Unilever, said,

"Unilever recognizes the importance of reducing the use of pesticides in the tea industry, and supports the ongoing research by CABI and partners to invest in and scale up ecological pest management practices."

DONOR
Unilever

PARTNERS
Tocklai Tea Research Institute (TTRI)
The United Planters Association of Southern India (UPASI)

CABI CENTRES
CABI in India and UK

Peppercorn Harvest in Vietnam ©Binh Dang for CABI

Helping peppercorn farmers in Cambodia and Vietnam get a better price for their produce

Premium markets in western countries have created a lucrative opportunity for small-scale family farmers growing peppercorn in developing countries like Cambodia and Vietnam. Many are now farming this valuable commodity crop.

But a host of problems mean they struggle.

Stubborn soil-borne diseases cause farmers to overuse pesticides, so their peppercorn exceeds pesticide Maximum Residue Limits (MRLs) and is non-compliant for sale into top-end markets. Poor post-harvest practices can also mean the peppercorn is contaminated with debris. The lack of clear information about the best practices to fix these problems, coupled with a complex supply chain, frustrates the situation.

CABI is working in partnership with the Vietnam Peppercorn Association (VPA) and The Western Highlands Agriculture & Forestry Science Institute (WASI) to find ways to improve farmers' access to information around best practice. We are helping them with the adoption of Integrated Pest Management (IPM), which aims to reduce their reliance on pesticides and overcome problems of non-compliance due to MRLs.

We are currently in the discovery phase of the project, and starting to analyse value chains in order to better understand the peppercorn supply chain. This helps us identify where the problems are – from farm to market – and, therefore, the best interventions to take.

In future, we will train staff to improve their skills in diagnosing and responding to pest problems. With training in IPM, staff will be able to make informed decisions based on tried and tested pest management principles.

Ultimately, our goal is to improve farmer livelihoods and give farmers more financial security by helping them to tap into high-end markets. By reducing the use of pesticides, as well as the costs associated with them, farmers can increase the quality of their produce and make their businesses more profitable and more sustainable.

PARTNERS
Vietnam Peppercorn Association (VPA)
The Western Highlands Agriculture & Forestry Science Institute (WASI)

CABI CENTRES
CABI in Malaysia and UK

Award-winning SciDev.Net recognized for its trusted journalism

SciDev.Net further cemented its reputation as the world's leading source of news and analysis on science and technology for global development, winning two awards for its outstanding work in 2018.

In February 2018, the news service was honoured by the Egyptian government for helping to found and support Egyptian Science Week, an annual event to highlight how science can solve problems in agriculture and the environment.

A month later, SciDev.Net picked up the prestigious Award for Written Work from the International Society for Neglected Tropical Diseases, for a series of articles raising awareness of a range of global health issues including malaria, elephantiasis and dengue.

"It's fantastic the Society has recognized SciDev.Net's coverage of pressing and neglected health issues in the global South, and just as importantly the innovative solutions that come from within countries themselves," said Anita Makri, an editorial consultant at SciDev.Net.

In October 2018, SciDev.Net chalked up another major achievement by becoming the only science publication to join the Trust Project, a consortium of more than 120 top news organizations, including The Economist and The Washington Post. The Project promotes high-quality, trustworthy journalism, helping readers and search engines alike to differentiate between credible reporting and fake news.

Another milestone saw SciDev.Net launching Script, an online training course which aims to teach journalists how to report science in an engaging, accurate way, while giving scientists the tools to communicate their research effectively.

"We think science affects everything that we do in society, but for it to be able to be useful to society, the information needs to get out there in a way that is interesting to people and in a way that is understandable. We believe these free online courses go a long way to helping both journalists and scientists in this regard," said Charles Wendo, Script's training coordinator.

SciDev.Net also relaunched its popular Spotlight series which explores some of the most pressing issues in global development. The first in the quarterly series focused on snakebites, which affect around 5.4 million people a year, many in some of the poorest countries.

DONORS
Swedish International Development Cooperation Agency (Sida)
São Paulo Research Foundation (FAPESP)
Robert Bosch Stiftung
The Rockefeller Foundation
Inter-American Institute for Global Change Research (IAI)
Bill & Melinda Gates Foundation

© Jacob Silberberg, PANOS

CABI at the cutting edge of science

Since its beginnings as an entomological committee in 1910, CABI has been contributing to the world of scientific discovery.

In 2018, CABI used the very latest technology to identify a biological control for the devastating fruit fly *Drosphila suzukii* which has become a serious threat to over 150 wild and cultivated fruits, including blueberries, cherries and strawberries as well as the fruits of ornamental plants.

Dr Michael Reeve and Dr Lukas Seehausen used Matrix-Assisted Laser-Desorption and Ionisation Time-Of-Fight Mass Spectroscopy (MALDI-TOF MS) to distinguish between different populations of the parasitoid wasp *Ganaspis* cf. *brasiliensis* (obtained from China and Japan) that may help determine which could be more beneficial in fighting the fruit fly.

In 2018, CABI scientists also carried out the first major study of potential biological controls that could be used to fight the fall armyworm, which has appeared in sub-Saharan Africa, threatening the precarious livelihoods of many small-scale farmers.

The pest attacks around 100 species of plant such as rice, sorghum and sugarcane, but is known to favour maize – a staple in the diet of many African households. With the ability of adult moths to fly over large distances and spread quickly, the fall armyworm has caused up to US$6.3 million worth of crop losses in just 12 countries.

CABI scientists also made the first discovery of the Asian samurai wasp (*Trissolus japonicus*) in Europe, publishing their findings in the Journal of Pest Science.

Native to Japan, China and Korea, the wasp – which kills the eggs of the marmorated stink bug (*Halyomorpha halys*) – was discovered in apple orchards in south-eastern Switzerland. Its discovery raises hopes of an end to the damage done by the stink bug, which inflicted US$60 million worth of damage to Georgia's hazelnut crop in 2016 alone.

For a full list of research papers, see 'Staff publications' at the end of this annual review.

New, modern corporate office reflects commitment to biodiversity and the environment

CABI's long-awaited move from its current offices to a new, state-of-the-art building is on track for 2020.

For the past 33 years, CABI's corporate office has been located in what was a girl's school, built in the 1960s, in Oxfordshire in the UK. However, the building has begun to show its age and requires a high level of maintenance compared with an energy-efficient, purpose-built office.

In November 2018, CABI completed the sale of land at its current site, a move that will allow it to build an environmentally efficient corporate office, while giving property developer CALA Homes the opportunity to bring 91 much-needed homes to the area.

At the heart of the project is CABI's commitment to encouraging biodiversity and protecting the environment. The new premises, which will serve as a base for up to 180 members of staff, aims to have in place carbon emissions standards that are far better than those required by current regulations.

Design plans include solar panels on the roof to capture the sun's energy and generate electricity. There are also plans to cultivate a wild flower meadow and plant sedum on the roof to attract insects and birds. The new grounds, which are situated in an Area of Outstanding Natural Beauty, will host an array of flowers, plants and trees to further enhance biodiversity.

As an organization that works to improve people's lives by providing information and applying scientific expertise to solve problems in agriculture and the environment, it was imperative that the new building reflects CABI's guiding ethos.

"The development will be an attractive and energy efficient working environment – an appropriate corporate office for an international organization. At the same time, it will be a model of sustainability and modern design – something that everyone in the community can be proud of," said CABI CEO, Dr Trevor Nicholls.

From its origins as a small research committee established in 1910, CABI has grown into an internationally recognized development organization with 49 member countries and 463 staff globally.

It is hoped that CABI's new corporate office will mark a further period of growth in its mission to build capacity, improve agricultural practices and create greater prosperity for farmers around the world.

THANK YOU

CABI's ability to improve lives worldwide is made possible by the generous contributions of the many members, donors and partners we work with. For this, we want to say a big thank you.

Your ongoing support has enabled us to help…

Better Cotton project in the village Khudabad Chandia in Mityari, Sindh, Pakistan ©Asim Hafeez

UKaid
from the British people

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development and Cooperation SDC

USDA

Ministry of Foreign Affairs of the Netherlands

UK SPACE AGENCY

BILL & MELINDA GATES *foundation*

USAID
FROM THE AMERICAN PEOPLE

defra
Department for Environment Food and Rural Affairs

Ministry of Agriculture and Rural Affairs (MARA)
People's Republic of China

idh
the sustainable trade initiative

Australian Government
Australian Centre for International Agricultural Research

Science & Technology Facilities Council

IFAD

JURA CH
RÉPUBLIQUE ET CANTON DU JURA

Governance

CABI Board

The governing board oversees CABI's programmes and guides management on operational and strategic issues.

Review Conference

CABI's high-level governing body is the Review Conference of member countries, which reviews CABI's work programmes and determines its broad policies and strategies.

Executive Council

Representatives from each member country meet to monitor CABI's affairs and implement Review Conference resolutions. The Council approves the annual budget, the admission of new members, appointment of auditors and key policy decisions.

Liaison Officers

Each member country has at least one Liaison Officer. Their role is to provide a crucial link between their country and CABI.


Dr Lutz-Peter Berg


Dr Ismahane Elouafi


Prof Dame Anne Glover


Mr Roger Horton (Chair)


Mr Andrew Jack


Mr Akhter Mateen


Dr Trevor Nicholls (CEO)


Professor Ruth Oniang'o


Mr Rob Sloley (CFO)


Mr Paulus Verschuren


Dr Prem Warrior

CABI's Regional Consultations pave the way for solutions to key issues affecting agriculture and the environment

To understand the challenges affecting agriculture in our 49 member countries, CABI holds regular Regional Consultations to identify priority areas that could benefit from our expertise. Together with our member countries and partners, we develop strategies to address key issues and ensure they are properly funded and translated into effective programmes and projects.

CABI's **Americas and Caribbean Regional Consultation** in Ottawa, Canada, brought 12 member countries together to discuss invasive species and food security. As with all of the 2018-19 Regional Consultations, this meeting provided useful input for the revisions of CABI's Medium Term Strategy 2019-2021. It reaffirmed five priority areas, including trade and market access, plant health systems, and biodiversity and ecosystems, while placing greater emphasis on practical actions to empower women, employ youth and address climate change.

At CABI's **Asia-Pacific Regional Consultation** held in Beijing, China, representatives from 12 member countries discussed ways to strengthen value chains and trade links as part of efforts to improve global food security. The meeting, hosted by the Chinese Ministry of Agriculture and Rural Affairs (MARA) and the Chinese Academy of Agricultural Sciences (CAAS), gave CABI the opportunity to update delegates on its work to increase agricultural productivity, add value, improve access to markets and diversify rural economies.

"Both industrial and developing countries are facing challenges associated with climate change uncertainties, international trade conflict, malnutrition, global food insecurity and poverty alleviation. International collaboration, especially agricultural collaboration, has therefore become more important than ever in term of research, trade, and the use of resources."

Prof Tang Huajun, President of CAAS and Member of the Leading Party Group of MARA

Forging strong partnerships was the major theme of CABI's **African Regional Consultation** in Gaborone, Botswana. Delegates heard how governments, researchers, scientists, public and private sector companies, farmers and extension workers all have important roles to play in working towards the UN's Sustainable Development Goal of Zero Hunger as well as the fight against pests and diseases, which threaten to scupper the goal.

"Further partnerships between policy makers, researchers and technical experts will be required to ensure systems are in place to prevent the risks of pests spreading between countries. After all, pests know no boundaries."

Hon Patrick Pule Ralotsia, Minister of Agriculture Development and Food Security, Botswana. Outcomes from the Regional Consultations are inputted into CABI's high-level governing body, the Review Conference of member countries, which reviews CABI's work programmes and determines its broad policies and strategies. CABI's next Review Conference will take place in September 2019.

CABI's global role

*Associate Member

CABI is an inter-governmental, not-for-profit organization governed through a United Nations treaty-level agreement. We work with countries that represent over half of the world's population, or over four billion people. Many people in developing countries are smallholder farmers.

Much of our work focuses on them. Each of our **49 member countries** has an equal role in the organization's governance, policies and strategic direction.

Our membership structure means that CABI's work delivers development and research projects and scientific publishing products that strengthen and complement existing national capabilities, helping to improve people's lives worldwide.

Since its beginnings as an entomological committee in 1910, our organization has grown to the Commonwealth Agricultural Bureaux in 1947, to CAB International in 1987, to its present structure today. The diagram shows when members have joined throughout our long journey.

FINANCIALS

©Binh Dang for CABI

Statement of comprehensive income

for the year ended 31 December 2018

	2018 £'000	2017 £'000
continuing operations		
income		
sales and project income	34,877	33,214
member country contributions	1,306	1,303
CABITAX recovery	1,217	1,248
miscellaneous income	172	195
	37,572	35,960
expenditure		
staff costs	(9,950)	(9,945)
direct project costs	(18,892)	(17,465)
production	(3,150)	(3,321)
facilities and maintenance	(1,734)	(1,697)
sales and distribution	(511)	(632)
travel	(670)	(702)
depreciation and leasehold amortisation	(856)	(882)
consultants, freelancers	(657)	(567)
restructuring costs	(80)	(171)
expected credit losses of member country contributions	(95)	27
associated company profit	22	189
course of construction impairment	–	441
profit on foreign currency exchange	263	143
other costs	(853)	(924)
	(37,163)	(35,506)
operating surplus / (deficit) before interest	**409**	**454**
interest receivable	14	5
	14	5
operating surplus / (deficit) for the year before exceptional items	**423**	**459**
gain on sale of property	4,223	–
operating surplus / (deficit) for the year	**4,646**	**459**
other comprehensive income / (deficit) items that may be subsequently reclassified to operating surplus / (deficit)		
cash flow hedges	(322)	342
movement between funds	(75)	(100)
other gains (losses) on defined benefit pension schemes	9,691	(9,917)
	9,294	**(9,675)**
total comprehensive surplus / (deficit) for the year	**13,940**	**(9,216)**

Financials

CABI's total income at £37.6m returned to growth in 2018 with a 4.5% increase driven by the CABI programmes, Action on Invasives and Plantwise, as well as projects managed from CABI's regional centre in Pakistan. In challenging market conditions, Publishing showed headline growth of 3%, arising from a mix of organic sales increase and the impact of foreign exchange.

Operating surplus (before exceptional items) decreased slightly to £423k with the positive gains from the generation of additional income being off-set by one-off property consolidation costs in India and a reduction in the profit-share from Conidia Bioscience Limited.

In 2018, CABI recorded an exceptional gain of £4.2m on the partial sale of the Wallingford land and property to CALA Homes. which increased total operating surplus to £4.6m. In February 2015, CABI signed a contract with CALA Homes to develop part of the Wallingford site. The funds generated will allow the construction of a new corporate office building on the land remaining in CABI's ownership.

The UK pension liability, included on the CABI balance sheet with the annual movement shown in 'other comprehensive income/(deficit)', reduced in 2018 because of slightly reduced bond yields in the year. However, the liability remains a significant financial challenge for the organization, but one we expect to manage with the support of our member countries.

The total cash balance increased significantly to £11.5m through a combination of cash received form CALA Homes relating to the sale of the Wallingford land, an increase in the funding received from donors, and income generated from ongoing operations.

In summary, 2018 was a positive year for CABI financially. We were able to once again generate an operating surplus as well as grow revenue and the cash balance.

Robert Sloley, CFO

Statement of financial position

for the year ended 31 December 2018

	2018 £'000	2017 £'000
assets		
non-current assets		
land and buildings	12,425	12,430
plant and equipment	1,406	1,592
intangibles	472	555
intangibles - goodwill	113	113
investments accounted for using the equity method	797	727
	15,213	15,417
current assets		
inventories	1,757	1,195
trade and other receivables, net of provisions:		
– sales receivables	2,794	2,593
– sums owing by project sponsors	1,108	3,543
– from member countries	3	222
other financial assets:		
– derivative financial asset	–	86
– cash and cash equivalents	11,511	6,481
other receivables	2,514	1,273
	19,687	15,393
total assets	**34,900**	**30,810**
equity and liabilities		
equity		
revaluation reserve	(4,255)	(4,255)
cash flow hedges	236	(86)
designated fund	(75)	(100)
accumulated deficit	82,375	96,637
total equity	78,281	92,196
liabilities		
non-current liabilities		
post-employment benefits	(98,580)	(108,271)
	(98,580)	(108,271)
current liabilities		
sales income received in advance	(3,719)	(3,859)
member contributions in advance	(3)	(9)
sums held on behalf of project sponsors	(6,811)	(7,131)
trade and other payables:		
– trade payables	(1,635)	(1,590)
– other payables	(2,197)	(2,146)
other financial liabilities		
– derivative financial liability	(236)	–
	(14,601)	(14,735)
total liabilities	(113,181)	(123,006)
total equity and liabilities	**(34,900)**	**(30,810)**

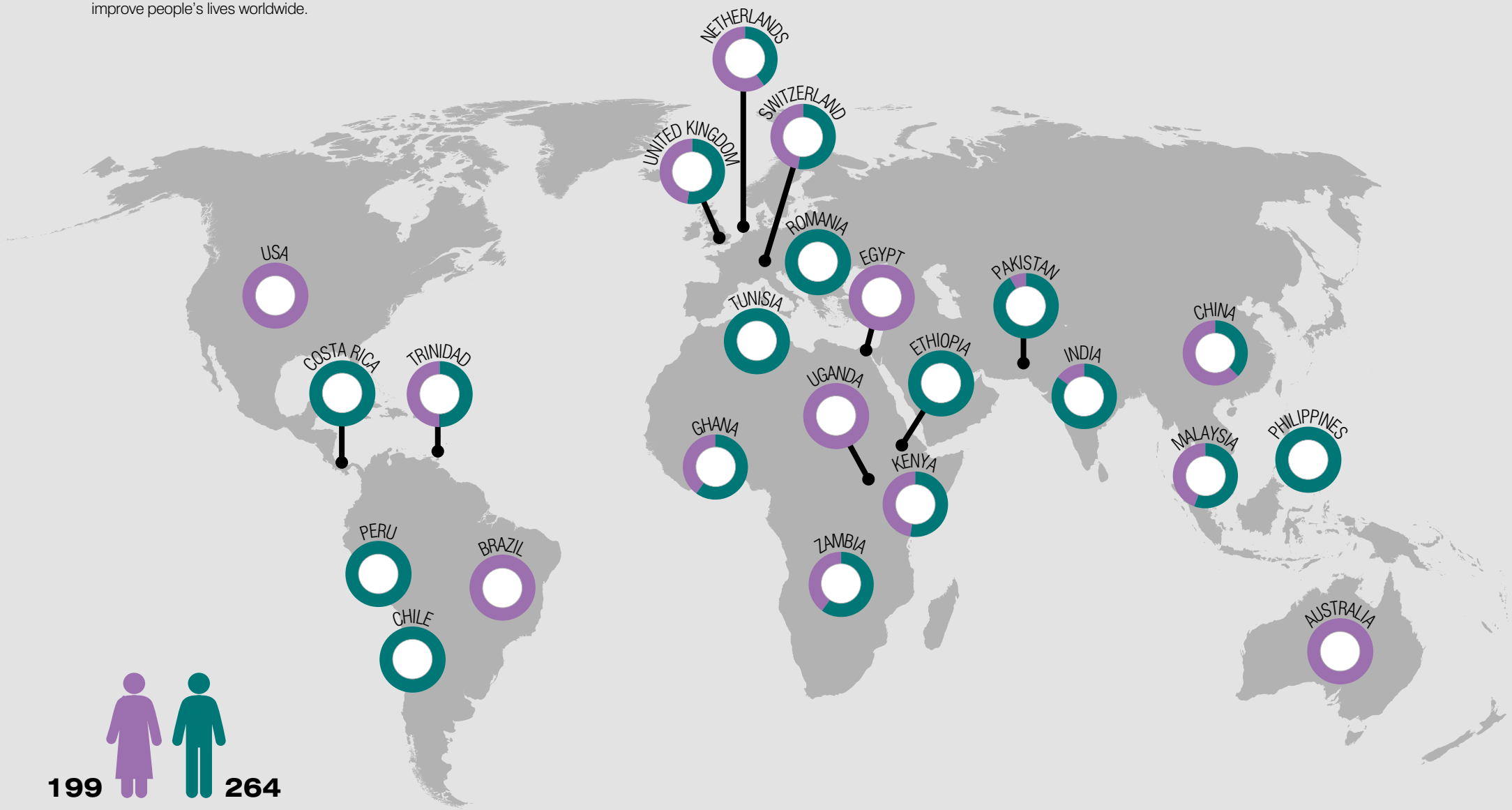
Statement of cash flows

for the year ended 31 December 2018

	2018 £'000	2017 £'000
cash flows from operating activities		
cash generated from operating activities	1,807	436
net cash generated from operating activities	1,807	436
cash flows from investing activities:		
payments to acquire tangible fixed assets	(965)	(903)
payments to acquire intangible assets	(1)	(48)
gain on sale of other tangible assets	4,223	–
interest received	14	5
Initial investment for joint venture in Pakistan	(48)	–
acquisition of subsidiary, goodwill	–	(113)
net cash used in investing activities	3,223	(1,059)
net increase / (decrease) in cash and cash equivalents	**5,030**	**(623)**
NOTES TO THE CASH FLOW STATEMENT		
(i) reconciliation of operating surplus to net cash inflow from operating activities		
operating surplus before interest	309	354
depreciation charges	856	882
share of associated company (profits)	(22)	(189)
loss on disposal of property, plant, equipment	384	2
(increase) / decrease in inventories	(562)	560
decrease / (increase) in trade and other receivables	2,453	(1,606)
increase in trade and other payables	96	820
decrease in income in advance	(466)	(199)
(increase) in other receivables	(1,241)	(188)
cash generated from continuing operations	1,807	436
(ii) movement in net cash during the year		
net cash at 1 January	6,481	7,104
net cash at 31 December	11,511	6,481
movement in net cash during the year	**5,030**	**(623)**

CABI staff

At the heart of CABI's successes are the experts who make it happen. From entomologists to plant pathologists, from content editors to publishers, we have the scientific expertise to help improve people's lives worldwide.



Staff publications

Available open access

Books, proceedings and manuals (3)

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Costa, A., Sivapragasam A., and Thanarajoo S.S. (2018) "Pest-Smart Practices and Early Warning System under Climate Change (A Manual for Rice and Other Crops)". Published online on CCAFS website and available for free at https://cgspace.cgiar.org/handle/10568/97537.

Haelewaters, D., Clercq, P. De, Haas, J., Howe, A.G., Roy, H.E., **Shaw, D. [R.]** and Brown, P.M.J. (eds) (2018) IOBC-WPRS Working Group "Benefits and Risks of Exotic Biological Control Agents" Proceedings of the Third Meeting at Bornholm, Denmark 13th to 15th May 2015. *IOBC-WPRS Bulletin /Bulletin OILB-SROP* 137, 1–66.

Peer-reviewed papers (136)

Agbodzavu, M.K., Lagat, Z.O., Gikungu, M., **Rwomushana, I.**, Ekesi, S. and Fiaboe, K.K.M. (2018) Performance of the newly identified endoparasitoid Cotesia icipe Fernandez-Triana & Fiaboe on Spodoptera littoralis (Boisduval). *Journal of Applied Entomology* 142(7), 646–653. https://doi.org/10.1111/jen.12514

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