



CABI Medium Term Strategy

2017–2019

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plantwise

MODULO DE ASISTENCIA TÉCNICA CLÍNICA DE PLANTAS



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1. Executive Summary

This Medium Term Strategy (MTS) for the period 2017-19 builds upon the foundations laid by the previous MTS and continues to move CABI towards achieving its long-term vision as being **“the number one “go to place” for insightful and practical science-based knowledge about agriculture and the environment”**. This document provides the top level strategy and is supported by more detailed strategy papers (available on request) covering the following:

- International Development
- Knowledge Business
- Plantwise
- Science
- HR
- Monitoring and Evaluation
- Gender (Workplace, Projects and Programmes, Gender Policy).

The development of this strategy has been guided by a series of regional consultations held with our member countries during 2015 and 2016. It is also framed to show clearly how CABI will contribute to the delivery of the sustainable development goals (SDGs), particularly SDGs 1, 2, 4, 12, 15 and 17. The detailed analysis of our member country needs and logframes for delivery of actions over the period 2017 – 2019 are included as Appendices 1 and 3 respectively. Key trends impacting on our plans over the period are likely to be as follows:

- Economic uncertainties due to lower oil prices, slowing global growth and the European refugee crisis
- Demographic changes, with a growing world population requiring more food with higher protein content
- At the same time, the average age of farmers is increasing as the younger generation leave the land for opportunities in the cities
- Rapid uptake of mobile and smartphones in the developing world provides exciting opportunities for 2-way communication at scale
- Greater focus not just on food production but also upon its nutritional content, safety and distribution through commercial value chains
- Cyclical shifts of donor funding and focus away from traditional agricultural development
- Greater emphasis on South-South collaboration and public-private partnerships to achieve long-term development goals

In the face of these trends, CABI's strategic priorities will be to:

- Improve livelihoods by helping farmers to trade more, with particular emphasis on engaging and empowering women and youth
- Increase food & nutrition security by bringing science from the lab to the field
- Put know-how into people's hands, with mobile ICTs as a key channel for 2-way exchange of information
- Enhance sustainability and climate resilience of farming systems, in rural and urban environments
- Support sustainable utilization and conservation of biodiversity and ecosystems considering crop diversification and off-farm livelihoods
- Strengthen capacity for development and governance of agricultural innovation systems at local, national and regional levels

These priorities will be delivered through a series of action plans developed for each of our key themes (areas of focus). Plantwise will remain CABI's flagship programme, building upon the successful establishment of the knowledge bank and plant clinics in over 34 countries worldwide. The next 3 years

will require further significant funding support from key donors to move the programme to scale and long-term sustainability, building closer linkages with the commercial sector in the majority of operating countries.

We will also establish a second major programme in Invasive Species – seeking to reduce the economic and livelihood impacts of the worst invasive species in Africa and Asia. Although we have seen significant demand from member countries to provide animal as well as plant health services, we do not have the capability to deliver these on the ground and we will therefore restrict our activities to information provision, particularly in relation to zoonoses, food safety, trade and animal welfare and, subject to securing donor funding or identifying a market opportunity, for a commercial product.

Our success in contacting and interacting at scale with a diverse audience of agricultural actors through our mobile agro-advisory services, Plantwise and the African Soil Health Consortium underline the strategic importance of knowledge and information within CABI's long-term vision. The global demand for better agricultural information is evidenced by the engagement of senior policy actors in GODAN. Therefore, we will use ICTs creatively to support both the distribution and collection of information and data in the most convenient way for the customer and in the most accurate and granular way for further analysis and value-addition. The ability to consume and use open data so as to provide value-added and paid-for services is increasingly important and CABI will need to strengthen its skills in data mining, analysis and synthesis to take advantage of the wide variety of information available.

CABI's traditional publishing markets in the academic and research communities will continue to be a core activity and key profit generator during the lifetime of this strategy and beyond. Market conditions remain challenging, with low year-on-year growth (3-4%), a global squeeze on public sector spending, and the domination of a small number of very large players (e.g. Elsevier, Springer Nature and Wiley). The development of the new CAB Direct 4 (CD4) platform has strengthened our new product development skills and, once CD4 is launched in 2016, these will be used to generate new products aimed at end-users and professional information buyers in adjacent markets.

We have made a step change in the capacity of the organisation to adopt gender sensitive approaches in our projects as well as to monitor and evaluate the results we achieve so as to be able to demonstrate both the human and economic impact of our work. This evolution will be continued in the current MTS by strengthening the social science and economic capability of the organisation so that we are able to design our projects from the outset to be more gender responsive and more amenable to rigorous measurement of impact (via baseline studies and establishment of control groups wherever possible). CABI has been active in the Tropical Agriculture Platform (TAP), contributing to the Common Framework on Capacity Development for Agricultural Innovation Systems (CDAIS) and we have therefore adopted the framework as our core approach.

CABI already delivers Sustainable Intensification and Climate Smart Agriculture approaches. We have become a member of both the Global Alliance on Climate Smart Agriculture (GACSA) and the Global Research Alliance on Greenhouse Gases in Agriculture (GRA) with the aim of aligning our work with the objectives and recommended best practices of both alliances. We will seek to support existing initiatives or identify new opportunities for Climate Smart Agriculture programmes. We will also invest in CABI's science base to strengthen our capacity to predict and respond to changes in the distribution of pest, and diseases as a result of climate change through more effective modelling, measurement of impact, and development of IPM or biological control strategies.

Although we can identify a range of good growth opportunities, the organisation is also likely to face a more challenging operating environment over the next three years as a result of the following:

- Funding from all donors is likely to become tighter, with European donors particularly affected by the Middle East refugee crisis
- Core Publishing sales revenues are declining and we need to invest to deliver innovation and new products
- Key individuals in management, science and publishing will be leaving the organisation due to retirement over the next 5 years
- Our efforts to release funds by rationalizing our UK property base are significantly hampered by the UK planning system
- The recovery plan for the deficit in our UK Defined Benefit Pension Scheme will be a significant financial load on the organisation

2. Context

2.1. Global challenges

In September 2015, the world community adopted the Sustainable Development Agenda 2030 which sets out a 15 year worldwide action plan for sustainable development. The actions referred to as the sustainable development goals (SDGs) represent ambitious targets to be delivered by 2030 and have a direct relevance to our work. Furthermore, in December 2015 at the UNFCCC COP21 in Paris, the world agreed to set a goal of limiting global warming to no more than 2°C above pre-industrial levels and to pursue efforts to limit this to 1.5°C. Additionally, the 2015 World Economic Forum also identified 10 major global challenges, of which six are relevant to our work: agriculture and food security, economic growth and social inclusion, environment and resource security, international trade and investment, future of the internet, and lastly gender parity. Development cooperation is going to be increasingly focused on these major global challenges and it will be vital for CABI to demonstrate how we contribute to their delivery

The key SDG's relevant to CABI are:

SDG	Priority Areas	Priority Issues
1	No Poverty	End poverty in all its forms everywhere
2	Zero Hunger	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture
4	Quality Education	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
12	Responsible Consumption and Production	Ensure sustainable consumption and production patterns
15	Life on Land	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
17	Partnerships for the Goals	Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Our actions will also support achievement of the SDGs on Gender (SDG 5) and Climate Change (SDG 13) but the specific targets of these SDGs are mostly directed at policy areas where CABI has no expertise.

2.2. Economic uncertainty

Slowing growth in some of the key emerging economies, combined with downward movements in the prices of oil and other commodities, mean that there will be greater economic uncertainty and tighter public spending worldwide in the period of this Medium Term Strategy. In addition, key donors in Europe are facing increasing pressure on aid and development budgets as a result of the Middle East refugee crisis.

2.3. Demographics

We continue to face the challenge of feeding a world population which is predicted to be as high as 10 billion people by 2050, with a burgeoning middle class demanding more food, especially with greater animal protein content. Population is increasingly concentrated in urban areas and, particularly in Africa, a large proportion are under 30. In contrast, the farming population is ageing and faces labour shortages as the younger generations move to cities in search of jobs and opportunities. Therefore, the key challenges facing many countries are: to attract the youth to take up farming; to make more productive

use of the female and youth groupings within rural communities (in both farm and non-farm jobs); and to establish reliable supply chains to serve the growing demand for safe and nutritious food in urban centres.

2.4. Food and Nutrition Security

There is now a broad consensus that food security is not just about delivering minimum calorific requirements through basic staples such as maize, wheat and rice. Food security is now seen to encompass nutritional quality as well as calorific quantity with greater emphasis on dietary diversity from plant and animal sources, possibly supplemented through bio-fortification. There is also greater emphasis on food safety throughout the supply chain to prevent the sale or consumption of food that is contaminated with chemicals, micro-organisms or heavy metals which could threaten human and animal health.

2.5. Donor requirements

International donors increasingly see themselves as investors, aiming to achieve beneficial impacts at scale. As a result, they are seeking to achieve development objectives through organisations who can demonstrate evidence of positive outcomes and improved livelihoods across large geographical areas or population groups. Value for money is increasingly important, not just in terms of economic efficiency but also effectiveness in leveraging additional funding, building partnerships and delivering results at scale. In agriculture, it is often challenging to do this within short (3-5 year) timescales and, as a result, there is some donor fatigue following the high levels of investment in agricultural research in the period 2009 -14 after the food price spikes of 2007-9. There is now a greater risk that some donors may place greater priority on health, education or infrastructure investment in the period of this plan. Nevertheless, CAB International remains of the firm view that agriculture is a powerful driver for economic and social growth as well as an essential pre-requisite for global food and nutrition security.

The face of development cooperation is also changing with donors seeking to fund alliances or consortia in order to achieve impact at scale. Such arrangements may broaden the reach of a programme but can also increase the administrative and transactional costs for the individual partners involved. Increasingly, we are seeing South-South and triangular cooperation becoming more prominent, complementing North-South forms of interaction.

2.6. Private sector involvement

There is growing recognition that the long-term sustainability of many development initiatives is dependent upon establishing a financially rewarding business model for their ongoing delivery. As a result, there is an increasing trend towards the establishment of public-private partnerships to deliver major programmes, where public sector stakeholders may bear the cost and risk of setting up and piloting new initiatives but the private sector then takes on the opportunity/responsibility for scaling up and scaling out proven approaches. These private partners may range all the way from local small and medium enterprises (SMEs) to major global food businesses.

However, businesses have different priorities from donors, with greater emphasis on profit maximisation rather than capacity building. Their preferred modes of involvement are also very different, often relying on their own staff to provide support in kind rather than cash. The heterogeneity in small-scale agriculture is also a challenge for commercial supply chains. Smallholder farmers often find it difficult to produce to the required quality, quantity and safety standards; nor can they always deliver the continuity of supply that the market demands. However, if these challenges can be overcome through good agricultural practice and better processing for improved quality, then significant progress can be made in opening up access to local, national and regional markets as well as international trade.

3. Key trends and drivers

The economic and environmental sustainability of agriculture are critical factors in the delivery of SDGs 1, 2, 12, 13 and 15. Activities leading to, influencing, or having impact on reduction of crop losses and protection of ecosystem services will have a significant impact on the resilience of agriculture and food production. Therefore, we see that the following trends will be key drivers of our activity over the next few years:

- **Climate smart agriculture** – Recognising the need to improve food security and nutrition in the face of climate change, climate smart agriculture seeks to help governments, farmers, scientists, businesses, and civil society to act at scale, contributing towards three outcomes:
 - Sustainable and equitable increases in agricultural productivity and incomes;
 - Greater resilience of food systems and farming livelihoods to climate change and other shocks; and
 - Reduction and/or removal of greenhouse gas emissions associated with agriculture (including the relationship between agriculture and ecosystems), where possible.
- **Pest movements** - Climate change, trade, tourism and population flows can influence pest distributions and ranges, resulting in movement of insect pests, weeds or crop diseases across boundaries and into new environments.
- **Urbanisation, land use change and commercialisation of farming** – There will be greater pressure on farmers, policy makers, and resource managers to seek solutions that will help them adapt to new challenges. These challenges will also create new job opportunities in downstream processing and non-farm activities. There is an increasing need to understand “what works”, so the creation and management of evidence bases and research repositories will be necessary for both evidence-based policy and practice but there will be a premium on the ability to make sense of it and to turn it into actionable and practical advice.
- **Declining agricultural biodiversity** – The trend in losses of diversity at the landscape level (species diversity) and within agricultural species (genetic diversity) may, in part, be attributable to agricultural intensification leaving production systems vulnerable and dependent on the continuous use of external inputs. Changing agriculture and food production in ways that ensure improved sustainability and a healthier and more nutritious food supply involves the increased use of biodiversity for food and agriculture. Crops must be able to cope with greater incidence and severity of extreme climate and weather conditions.
- **Mobile technology** - Mobile phones had achieved 92% penetration in the developing world by the end of 2015, and the growth in smartphone usage is strongest in these areas. Ericsson estimates that 80% of all mobile data traffic will be from smartphones by 2020, with the developing world accounting for 80% of all new subscriptions. SMS and voice subscription services remain popular, with app usage growing rapidly. This allows farmers access to validated information about agricultural best practice, and to market information on local, national and regional markets as well as opening the door to international trade. The true potential of mobile communication, only just beginning to be tapped, is its potential for data-rich two-way exchange of information at scale.
- **International treaties** – Global issues such as the preservation and use of biodiversity, use of pesticides, and phytosanitary protection require the establishment of policy and practice, in the form of international agreements, treaties, and other instruments, at all geo-political levels. Observance of these treaty requirements then requires changes in agricultural practice to be communicated through extension systems and put into use by farmers.
- **Big and Open data** – Increasingly large volumes of data are being generated through research activities in the field of agriculture and the environment. The open data movement is leading to this data becoming more widely available with the aim of boosting innovation, transparency and information sharing. A growing number of organisations in agritech are developing data businesses and, where not directly using that data themselves, are sharing machine-readable data with a wide variety of SMEs in collaborations to develop new services, leveraging people and resources to create new business models. Organisations will be valued not only for their data and

information but also for the specialist know-how (or “algorithms”) that turn that data into actions and into value for the customer.

- **Education budgets** - traditional publishing markets in the academic and research communities will remain challenging, with low year-on-year growth (3-4%), the domination of a small number of very large players (e.g. Elsevier, Springer Nature and Wiley), and a global squeeze on public sector spending. In developed economies, library budgets for content acquisition remain flat, if not decreasing, and, in the face of free alternatives such as Google Scholar, abstracting and indexing products often lose out to those which offer full-text. The shift from print to digital is nearing its conclusion in many market sectors.
- **Value-for-Money** – For donors, required to justify their budgets, this is about both economic efficiency and development effectiveness. Overhead rates are being squeezed to encourage low indirect cost burdens in implementing agencies but donors are particularly looking for impact at scale by leveraging co-funding from other sources and creative partnering with national systems, NGOs and international centres like CABI. In universities, librarians are increasingly focused on the need to measure usage and monitor the impact of digital content. This has diversified acquisition budgets towards the purchase of analytic software and discovery engines, resulting in reduced budgets for original content. This creates an opportunity for publishers to enhance their traditional products, or develop new ones, which deliver added value to end users.

4. CABI – What we do

4.1. Mission and Values

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'. The principal beneficiaries of CABI's scientific research programmes are farmers (men, women and youth) gaining access to sufficient safe and nutritious food - as well as improved livelihoods from better market access - through sustainable, climate resilient agriculture in healthy ecosystems. CABI's scientific research programmes are mainly funded by development agencies, national and state agencies, farmer associations, foundations, universities, and the private sector.

We are increasingly operating as "one CABI", bringing together our unique combination of world-class scientists, hands-on development experts and specialist scientific publishing skills to deliver large scale programmes. The past few years have seen a gradual re-engineering of the way we deliver services in a "one CABI" fashion, most notably through the transformational Plantwise programme, but also as a result of the global recognition that the management and appropriate delivery of relevant knowledge is fundamental to achieving development outcomes. Internal staff surveys show that the value of this approach is widely understood and appreciated within the organisation and highlights the increasing strategic importance of knowledge and information within CABI's long-term vision.

4.2. Vision

In 2013, the CABI Review Conference adopted a Vision Statement. This is the second Medium Term Strategy directed towards achieving those aims and good progress is being made towards their achievement:

CABI will be the number one “go to place” for insightful and practical science-based knowledge about agriculture and the environment.

External Impact

We will know when we are having this impact since we will be:

- making a positive difference to the lives of over 100 million people who will benefit from the knowledge gained from us and apply their own expertise to feed themselves, their families and their communities
- acknowledged as having made a key contribution to reducing crop losses by at least 50% in the countries where we work.
- providing data and scientifically validated information for major strategic initiatives in agricultural and environmental development
- recognised as a thought leader in international agricultural research for development and environmental sustainability, therefore sought by governments, companies and international organisations for our inputs and expertise
- considered as one of the world's top development organisations for agriculture



Internal Transformation

This will require significant change internally and so we must:

- be as comfortable and as effective working in the corporate world as with the public sector
- demonstrate a single CABI culture where everyone feels valued for the contribution they make and respected for the diversity of skills they bring to the organisation
- operate to the same standards of quality and efficiency across our global locations, underpinned by mutual respect and understanding
- make mobile delivery front and centre in all of our projects, products and services
- embrace technology as an enabler and invest in smart systems and processes at local and global levels
- be agile in both nature and process as we respond to new opportunities or challenges
- continue to deliver projects on the ground in order to keep us attuned to the needs of those who benefit from our work
- develop socio-economic analysis and impact assessment into new core skills
- operate from modern, environmentally efficient facilities

4.3. Comparative Advantages

CABI's strength lies in its objective, science-based approach with a unique combination of hands-on research and high-quality publishing expertise. In recent decades, this has been augmented by greater involvement in putting research into use through development cooperation projects worldwide, implementing sustainable agricultural practices and raising the incomes of poor rural farmers. This is reflected in the growing importance of the social and economic sciences in CABI's science strategy.

CABI is recognised as a world leader with a strong scientific reputation in identification, diagnosis, prevention and control of plant pests and diseases. Working with member countries, CABI's discovery, evaluation and use of biological control agents is a major activity contributing to the successful management of many pests and weeds, as well as a platform for the development and implementation of integrated pest management contributing to sustainable agricultural production around the world.

In addition to this specific well of scientific expertise, CABI has a **broad core competence in the communication of science**, particularly to put research findings into practical use with farmers through national extension systems. Recently, Plantwise has received widespread recognition for its contribution to strengthening national agricultural extension systems. CABI depends on its strong international network of relationships that keep its finger on the pulse of what is important in the world and to its member countries. Its unique system of governance by nearly 50 member countries keeps it in touch with governmental priorities, while staff and partners working on projects around the world are experiencing daily the concerns and challenges of farmers working on the ground.

Innovation has been an essential aspect of CABI's research and publishing throughout its history of more than 100 years, keeping CABI relevant to its member countries. We have, for example, played important roles in developing the science of different biological control approaches, particularly weed biological control and the use of fungi as biopesticides (e.g. for locust control), new pest risk assessment methods for managing the spread of non-native species, and a test kit for fungal fuel contamination.

5. Key Changes since the last Medium Term Strategy

5.1. Achievements

During the period of the previous Medium Term strategy (2014-16), CABI has made significant progress towards the achievement of its long-term vision in a number of areas:

- The Plantwise programme has been successfully established in 34 countries and has reached over 4.5 million farmers with information which they feel is useful and has helped them get higher yields. There has been good progress towards long-term sustainability in a number of countries
- We have also been successful in securing other major projects outside Plantwise, such as the African Soil Health Consortium project funded by the Bill and Melinda Gates Foundation
- We have developed a broader base of major donors and a deeper understanding of our key donors
- In both Africa and Asia, we have developed a strong position in capacity-building for biosecurity and phytosanitary systems
- There is now broad recognition amongst donors and the international development community of CABI's ability to put research into use at scale by communicating effectively with extension workers and farmers to achieve real change in agricultural practice
- CABI has taken a leadership role in international partnerships through the Association of International Research and Development centres in Agriculture (AIRCA), the Tropical Agriculture Platform (TAP) and the Global Open Data for Agriculture and Nutrition (GODAN) Initiative
- Our Member Country base remains strong and committed with several new countries in the process of joining (Costa Rica, Cameroon, Afghanistan, Turks and Caicos Islands)
- Internally, CABI has achieved a step-change in its capacity for gender mainstreaming, monitoring and evaluation of impact
- Recognising the importance of ICTs in reaching and communicating with a broad audience base and delivery of knowledge services, CABI's Knowledge Business was created by merging the traditional Publishing business unit with the global IT team
- Financially, the organisation has delivered good revenue growth and strong profitability over the period

5.2. Challenges

Going forward into this next Medium Term Strategy we must overcome a number of challenges if we are to continue to deliver against Member Country expectations, donor demands and customer needs, while at the same time maintaining a robust financial performance:

- Although we have many potential growth opportunities and a wide range of demands from our member countries it will be important for the organisation to maintain focus and clarity of purpose on the areas where it has clear competence and the highest chances of success.
- Funding from European donors is likely to become significantly tighter as they seek to meet the resource needs of the Middle East refugee crisis.
- Our core Publishing sales revenues are beginning to decline after a number of years of slow growth. It will be imperative to minimize the erosion of current sales and deliver innovation and new products through the Knowledge Business.
- Maintaining a commercial Publishing business alongside a substantial open access/open data portfolio will be a delicate balancing act. We will need to adopt a variety of business models, e.g: payment for projects, "freemium", cross subsidy, provision of services or platforms.

- Although we have made some progress in linkages with the private sector through our Trade and Commodities theme, these remain relatively small-scale and it will be important for us to develop bigger and stronger public-private partnerships during the next 3 years.
- In 2015, CABI adopted the concept of Enterprise Architecture (EA) to chart the way towards the digital transformation of its business, identifying the technology capabilities required to deliver clearly articulated business outcomes. We are making good progress with the CABIcore project which underpins this but further significant investments, organisational changes and sound business decisions will be needed to complete the transformation of our knowledge platform.
- Our scientific research and technology base needs significant investment to maintain a world-class position
- Key individuals in management, science and publishing will be leaving the organisation due to retirement over the next 5 years so succession planning and talent management will be critical to maintain continuity
- Our efforts to release funds by rationalizing our UK property base are significantly hampered by the arcane local government planning system of the UK
- As a result of UK pension regulations, our UK Defined Benefit Pension Scheme has to report a large deficit (£59.5 million) and support a recovery plan which leads to a significant financial drain on the organisation (£1.5 million per annum from 2017, growing at 5% each year thereafter)
- While CABI's financial performance has significantly improved, we still have limited investment capacity to support the development of people, infrastructure or market presence and all our growth must come organically since we do not have a corporate structure that would allow growth through acquisition or significant borrowing

6. Responding to our Member Countries

Our governance and expertise marry the interests of developed, middle income and developing member countries. We make a difference in developing countries by applying our skills to address food security, and in developed countries by using applied research to develop new biocontrol options targeting pests and weeds that threaten biodiversity, industry (e.g. forestry pests threatening timber sources) and agricultural economies (e.g. pests and weeds affecting crop production).

Triennial regional consultation meetings have become an important activity in CABI's calendar, giving member countries an opportunity to shape and own CABI's plans. In the regional meetings held in 2015/16, the issues and priorities that were expressed were largely aligned with the priority areas from the previous round of consultations held in 2012/13.

Key themes emerging were as follows:

- Building resilience in farming systems so as to mitigate or adapt to climate change and other shocks (climate smart agriculture)
- The need for a greater focus on nutritional content or economic value of crops, with greater diversification of crops away from just carbohydrate staples
- Broadening the range of farmer advisory services to cover all aspects of good agricultural practice, including soil and seed health
- Greater demand for animal health and production information, recognising that many of the farmers we serve raise livestock and/or fish as well as crops
- Giving farmers greater access to markets and value chains, including the business skills and awareness of regulations/standards to enable them to do so effectively
- Greater emphasis on food safety issues, particularly mycotoxin contamination as well as drug, pesticide or heavy metal residues and the risk of zoonoses
- Information and support on non-farm rural occupations (e.g. leisure and tourism)
- The need for consideration of broader landscapes issues, including the prevention and management of invasive species encroachment

Cross-cutting over all of this were three key areas:

- Promoting inclusive local, national, regional and international partnerships to strengthen the capacity for innovation and implementation of better, climate smart agricultural practice
- Leveraging the power of ICTs to gather, as well as to deliver, information and data at scale
- Engaging, empowering and employing women and youth

The consolidated outcomes of all the consultations have been aligned to the new SDGs (see Appendix 1) and form a part of this Medium-Term Strategy. SDGs 1 (Poverty), 13 (Climate Change) and 17 (Partnerships) are seen as the overarching integrative goals to which all others contribute. On the basis of their titles, SDGs such as SDG 5 (Gender) and SDG 13 (Climate Change) are relevant to CABI but the specific targets of these goals are mostly related to government policy or other aspects where CABI cannot make a direct contribution. However, both of these key areas are addressed within our contributions to the specific targets of other Goals.

Although not discussed in depth at the Regional Consultations, CABI's database products, compendia and book publishing activities were seen as continuing to be highly important, both to CABI and to member countries. This speaks to CABI's contribution to the achievement of SDG 4 (Quality Education). Our Publishing products were recognised as a highly visible standard bearer of the CABI brand, a critical source of financial support for CABI to deliver its overall mission and a vital educational resource for the continuing professional development of the current generation of agricultural and environmental scientists, as well the growth of future generations. Member countries were very positive about the free-of-charge access to selected CABI products that was available to them as a membership benefit and about the impact of the RUFORUM (Regional Universities Forum for Capacity Building in Agriculture) arrangement, giving free access and training on usage of CABI compendia and CAB Abstracts to 19 agricultural universities across Africa.

7. Theory of Change

The use of a Theory of Change diagram is becoming commonplace in the international development community as both a communication tool and a framework against which to develop monitoring, evaluation and impact analysis. It is most simply applied at the level of individual projects. However, we believe that the development of a Theory of Change for CABI as a whole is important in order to communicate to staff, donors, partners and member countries how we will go about making a difference and contributing to the delivery of the Sustainable Development Goals.

- The current version of our Theory of Change is shown at Figure 1, reflecting the ambition contained in the CABI Vision to make a positive difference to the lives of over 100 million people who will benefit from the knowledge gained and apply their own expertise to feed themselves, their families and their communities. The underlying assumptions are given in Appendix 2.

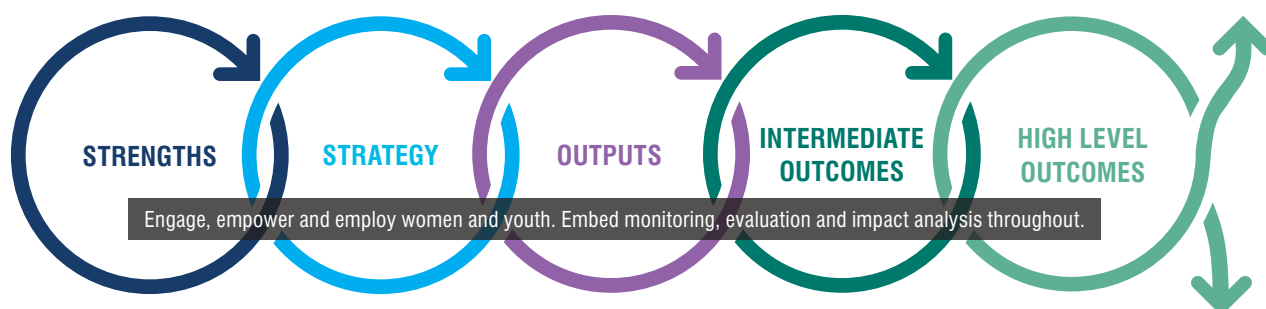
7.1. Narrative

The top level narrative of this Theory of Change is as follows:

- **Achievement of SDGs 1 & 2** (No Poverty and Zero Hunger) by 2030 requires us to address the problems faced by smallholder farmers so as to help them adopt sustainable, climate resilient farming practices to grow more and better quality food, earn more, and make better use of the total human capital (men, women and youth) in their communities.
- **CABI has unique strengths** that can contribute to solving these problems and will deploy them in order to:
 - Create, manage, curate and disseminate information in the most appropriate formats and via the most effective channels to reach policy-makers, scientists, extension workers and farmers
 - Improve food security and help farmers trade more of their crops through adoption of climate smart good agricultural practices.
 - Support farmers by increasing their capacity to grow better quality crops and fight pests and diseases.
 - Protect livelihoods, agriculture and the environment from invasive species and other threats.
- **Our strategic priorities will be to:**
 - Improve livelihoods by helping farmers to trade more of what they grow, through reducing losses and improving market access
 - Increase food and nutrition security by bringing science from the lab to the field
 - Put know-how into people's hands
 - Enhance the sustainability and climate resilience of farming systems
 - Support sustainable utilization and conservation of biodiversity and ecosystems
 - Strengthen capacity for innovation and governance at local, national and regional levels

Positive action to engage, empower and employ women and youth will run throughout all we do, alongside strategies to monitor, evaluate and measure the impact of our work

VISION: Reduce poverty and hunger for 100 million farmers (men, women and youth) through access to sufficient safe and nutritious food, as well as improved livelihoods from better market access, through sustainable, climate resilient agriculture in healthy ecosystems.



DRIVEN BY AND RESPONSIVE TO needs and priorities of member countries, bridging and linking their capabilities.

DEEP AND BROAD INFORMATION BASE and data covering agriculture, environment, health, veterinary and tourism

SCIENTIFIC STRENGTH AND REPUTATION in identification and management of plant pests*

TRACK RECORD OF EFFECTIVE PROJECT DELIVERY and innovative approaches to context-specific science communication

IMPROVE LIVELIHOODS by helping farmers to trade more

INCREASE FOOD & NUTRITION SECURITY by bringing science from the lab to the field

PUT KNOW-HOW into people's hands

ENHANCE SUSTAINABILITY and climate resilience of farming systems

SUPPORT SUSTAINABLE UTILIZATION AND CONSERVATION of biodiversity and ecosystems

STRENGTHEN CAPACITY for innovation and governance at local, national and regional levels

KNOWLEDGE DELIVERED to agricultural and environmental scientists in academia, corporates and government

TRADE enabled by improving capacity to meet standards

SUSTAINABLE, CLIMATE-SMART AND NUTRITION SENSITIVE agriculture implemented, evaluated and scaled

CAPACITY INCREASED to develop and use Integrated Pest Management (IPM) and biocontrol for crop pests* and invasive species

ICTS LEVERAGED for 2-way information exchange at scale for farmers and extensionists

MULTIPLE COMMUNICATION CHANNELS integrated to develop new advisory approaches to reach more farmers

NEW WAYS OF WORKING promoted between organisations in the public and private sectors

GREATER LINKAGE TO HIGHER VALUE SUPPLY CHAINS (on and off farm)

IMPROVED INFORMATION AND SUPPORT for rural households

IMPROVED YIELDS and quality of crops

MAJOR PEST* THREATS MANAGED MORE EFFECTIVELY

STRONGER PLANT, SOIL AND SEED HEALTH SYSTEMS

INCREASED CAPACITY for evidence-based decisions and policies

EFFECTIVE, INNOVATIVE PARTNERSHIPS

INCREASED INCOMES from better market access

INCREASED QUANTITY, QUALITY, SAFETY and nutritional content of food

ENHANCED SUSTAINABILITY and climate resilience of farming systems

SUSTAINABLE UTILISATION AND CONSERVATION of biodiversity and ecosystems

SYSTEMS BETTER ABLE TO ANTICIPATE, MITIGATE AND ADAPT to shocks

THE PROBLEM: 40% of crops are lost to pests* resulting in low incomes and poor food and nutrition security. Smallholder farmers are most vulnerable to climate change and the impact of invasives. Farmers need better access to information and inputs to build a business, grow more diverse and better quality crops, connect to higher value markets, and adopt more sustainable practices. Furthermore, the potential of women and youth in their communities is under-utilised.

8. Delivering the Sustainable Development Goals

The table below summarises the linkage between CABI's Strategic Objectives as described in the Theory of Change above with the SDGs and the way in which the Priority Actions, derived from our Member Country Consultations, address specific targets within the SDGs:







Table 1		Aligning CABI's Priority Actions to the Sustainable Development Goals	
SDG	CABI Strategic Objectives	Priority Actions	Specific SDG targets
 <p>End poverty in all its forms everywhere</p>	Improving livelihoods by helping farmers to trade more	<ul style="list-style-type: none"> • Improve communication methods, particularly via ICTs, with development stakeholder groups for greater technology uptake and adoption of improved farming practice • Provide advice and support for farmers to improve market access along value chains • Promote Climate Smart Agriculture practices that reduce greenhouse gas emissions, adapt to changing conditions and improve resilience. 	<p>1.4</p> <p>1.4</p> <p>1.5</p>
 <p>End hunger, achieve food security and improved nutrition and promote sustainable agriculture</p>	Increasing food and nutrition security by bringing science from the lab to the field	<ul style="list-style-type: none"> • Food Supply <ul style="list-style-type: none"> ◦ Strengthen capacity of plant health systems to reduce pre- and post-harvest losses ◦ Build robust seed systems, including improved genetic materials, availability of neglected crops, and improving self-saved seeds. ◦ Enhance access to quality controlled agricultural inputs (seeds, fertilizers, chemicals) ◦ Support extension services to enable farmers to make informed decisions at farm level • Food Safety <ul style="list-style-type: none"> ◦ Develop databases on legislative and regulatory requirements in key markets ◦ Detection and prevention of mycotoxins and heavy metals in food chains ◦ Farmer training on minimal safe and effective use of pesticide ◦ Information on animal health and welfare, zoonotic diseases, safe use of veterinary drugs • Nutritional Quality <ul style="list-style-type: none"> ◦ Promote agricultural diversification and the use of indigenous crops. ◦ Support nutrition sensitive agriculture through awareness raising, policy development, food / diet advice, and information on food preparation, nutraceuticals and bio-fortification 	<p>2a</p> <p>2.5</p> <p>2.5</p> <p>2a</p> <p>2.3</p> <p>2.4</p> <p>2.4</p> <p>2.5</p> <p>2.4</p> <p>2.4</p>
 <p>Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all</p>	Putting know-how into people's hands	<ul style="list-style-type: none"> • Maintain a strong core Publishing programme targeted at academic, commercial and government scientists in the fields of agriculture, human and animal health • Ensure equal access for all women and men to good quality, affordable technical, vocational and tertiary education, including university • Develop new products and services to support lifelong learning and professional development in agricultural and environmental sciences • Support technical and vocational training through use of ICTs to increase the number of youth and adults who have relevant skills for employment, decent jobs and entrepreneurship, both on and off farm, in rural communities • Offer secondment and teaching opportunities through linkage between CABI centres, local universities and member countries 	<p>4.3</p> <p>4.3</p> <p>4.4</p> <p>4.4</p> <p>4.9</p>

Table 1		Aligning CABI's Priority Actions to the Sustainable Development Goals	
SDG	CABI Strategic Objectives	Priority Actions	Specific SDG targets
 <p>Ensure sustainable consumption and production patterns</p>	<p>Enhancing sustainability and climate resilience of farming systems</p>	<ul style="list-style-type: none"> • Expand the scope of CABI's support to advisory services to include soil health, selection of crop and seed varieties. • Build resilience in farming systems at all levels to better adapt to climate change and other shocks • Support cash crops, high value horticulture, fodder, fuel, fibre production and ornamentals • Through partners, provide information to improve livestock management, aquaculture, animal health and welfare • Provide information and training resources to support sustainable agro-tourism and other non-farm rural employment, particularly for women and youth 	<p>12.2</p> <p>12.2</p> <p>12.2</p> <p>12a</p> <p>12b</p>
 <p>Ensure sustainable consumption and production patterns</p>	<p>Enhancing sustainability and climate resilience of farming systems</p>	<ul style="list-style-type: none"> • Improve prevention and management of invasive species • Build capacity to develop and deploy biological control agents, biopesticides and biofertilizers • Adopt and promote the Nagoya Protocol • Build a coalition of funding partners to prevent, eradicate or manage the worst invasives • Through partners, support integrated water and land management • Adopt landscape approaches to balance agricultural and environmental priorities 	<p>15.5</p> <p>15.5</p> <p>15.6</p> <p>15a</p> <p>15.5</p> <p>15.5</p>
 <p>Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development</p>	<p>Building capacity for innovation and governance at local, national and regional levels</p>	<ul style="list-style-type: none"> • Facilitate knowledge transfer in South-South interactions involving member countries • Support lifelong professional education and development of agricultural and environmental scientists worldwide through publication of and access to authoritative information resources. • Build individual, institutional and regional capacity to develop and govern agricultural innovation systems • Stimulate the creation of farmer organisations, developing entrepreneurial and commercial skills, risk management, value addition, and access to affordable credit • Develop public-private partnerships when appropriate • Enable national and international services with information and research data management, open data and big data analysis 	<p>17.6</p> <p>17.8</p> <p>17.8</p> <p>17.17</p> <p>17.17</p> <p>17.18</p>
	<p>Cross-cutting:</p> <ul style="list-style-type: none"> • Engage, empower and employ women and youth • Embed monitoring, evaluation and impact analysis in all activities 		

9. Key Themes and Action Plans

To focus our core strengths and competencies on the global challenges described above, our work will be organised in five themes that provide coordination for delivery of the strategic objectives supporting CABI's mission and contribution to the SDGs. Individual themes contribute to the delivery of more than one Strategic Objective so their main areas of focus and strategic relevance are summarised below (detailed logframes for each Theme are attached as Appendix 3):

Theme	Focus	Supports Strategic Objectives to:
Trade and Commodities	Improves the productivity, quality, safety and profitability of smallholder crops, including coffee, cocoa, high value horticulture and cotton, in order to improve market access.	<ul style="list-style-type: none"> Improve livelihoods by helping farmers to trade more Increase food and nutrition security by bringing science from the lab to the field
Development, Communications and Extension	<p>Improves access to and use of knowledge, including the Plantwise and Nutrition programmes, through a blended mix of communications and participatory training approaches.</p> <p>Supports capacity development for agricultural innovation systems, enabling the translation of research results and new technologies into practical application, by farmers.</p>	<ul style="list-style-type: none"> Increase food and nutrition security by bringing science from the lab to the field Strengthen capacity for innovation and governance at local, national and regional levels Enhance sustainability and climate resilience of farming systems
Invasive Species	Promotes management of invasive species to benefit human and animal health, agricultural productivity (crop and pasture production) and associated livelihoods, while also reducing the threats they pose to ecosystems and biodiversity.	<ul style="list-style-type: none"> Support sustainable utilization and conservation of biodiversity and ecosystems Enhance sustainability and climate resilience of farming systems
Knowledge Management	Develops products and processes that support access and sharing of existing and new knowledge principally based on ICT applications.	<ul style="list-style-type: none"> Strengthen capacity for innovation and governance at local, national and regional levels Put know-how into people's hands
Global Scientific Publishing	Publishes comprehensive secondary research databases such as CAB Abstracts and Global Health, as well as books, online Internet Resources and multimedia Compendia for specialist segments such as Veterinary Medicine, Forestry, Leisure and Tourism, Crop Protection and Aquaculture.	<ul style="list-style-type: none"> Put know-how into people's hands Strengthen capacity for innovation and governance at local, national and regional levels

9.1. Trade and Commodities

Rationale

Commodity or cash crops contribute to food security and the improvement of rural livelihoods, especially for female farmers, since they generate hard cash allowing them to buy food as well as pay for healthcare, education and other livelihood options within the household. However, the spread of global food businesses is reshaping the governance of food systems, and smallholder agriculture is poorly prepared to overcome the barriers to producing the quality and quantity required to improve their trade potential. For transformation from subsistence farming to successful enterprise, co-operation is needed to improve access to knowledge, finance, technology, and markets. Partnership is crucial. CABI is working with member country policymakers (producer and consumer countries) and with other value chain partners, including the private sector, to leverage public-private partnerships in order to improve compliance and, hence, market access.

We are improving productivity through reduced pest loss, increasing the efficiency of value chains by improving stakeholder linkages and communication and helping producers through more targeted capacity building to address market needs. Food safety and traceability through value chains are becoming increasingly important, as reflected in the SDGs linking producer and consumer agendas. Private sector engagement will continue with manufacturers and retailers, export and trade associations and with co-operatives (as well as farmer themselves) to ensure entrepreneurial training for a more business-like approach to farming. We are helping to organise co-operatives to become more successful SMEs, better equipped to access finance as well as acting as training hubs for best practice. Our emphasis will be on building capacity in these local SMEs to develop new supply chains through skill development rather than concentrating on multinationals. Similarly, we are working with processors to promote best post – harvest practice. Engagement with agro-input suppliers and manufacturers will continue to ensure access to quality inputs and reduction of harmful substances in production and storage of food.

Key Activities/Priorities

The theme will work with public and private sector partners to improve market access by raising the productivity, quality, safety and profitability of smallholder crops including coffee, cocoa, high value horticultural produce and cotton through the following actions:

- Raising productivity of crops by developing and advocating more effective pest management methods and disseminating best practice information to promote future sustainability and climate resilience
- Promoting better quality produce by introducing new post-harvest and processing technologies, developing capacity and increasing access to information
- Increasing value chain efficiency through better stakeholder interaction and communication, and building sanitary and phytosanitary capacity to expand trade and strengthen biosecurity
- Increasing compliance with food safety regulations through capacity building and improved access to information to promote better food production and processing for the benefit of all consumers

CABI will continue to build strong relationships with regional bodies and regional trade blocks, particularly in Africa and Asia especially around agendas of trade and biosecurity.

Links with the Knowledge Business, particularly in the application of ICTs, will be strengthened to create new products and services, including new databases and the delivery of commodity-specific content through mobile platforms and services.

9.2. Development, Communications and Extension

Rationale

Sharing information and knowledge through different communication channels is an important component in achieving change. While access to knowledge is necessary, it is often not sufficient to achieve change. Male and female farmers' decisions to use new technology and practices depend not only on their own knowledge and skills but also on the knowledge and actions of a large number of other stakeholders including agro-advisory service providers, input suppliers, market agents, private sector, government and others. CABI has, over a number of years, embraced innovation approaches that seek to influence system change by working with stakeholders to find new and more efficient ways of working together. CABI critically analyses barriers to knowledge uptake, and the application of knowledge by farming communities, working with partners to understand and minimize such barriers. We use multi-stakeholder participatory approaches to build the capacity of our partners to use specific knowledge ("research into use") and to respond to emerging problems ("innovation capacity").

Key Activities/Priorities

The theme will support improved access to and use of knowledge by:

- Facilitating clusters of partners to deliver multi-media (e.g. print, radio, mobile, electronic) scale-up campaigns designed to reach different members (men, women, youth) of smallholder farming families to support practice change
- Rolling out and extending the Plantwise approach to strengthen plant health systems which can effectively deliver knowledge-based, demand-driven services to farmers and other stakeholders
- Building capacity for integrated crop management and institutionalizing IPM approaches, targeting education, policy and extension
- Strengthening seed systems to deliver new and niche seed varieties (e.g. NERICA rice) and high-value under-utilised crops (e.g. African indigenous vegetables)
- Broadening the scope of CABI's advisory services to include soil health, building on the work of OFRA and ASHC
- Supporting agricultural diversification and the use of indigenous crops to increase nutritional content and climate resilience

CABI has been active in global initiatives such as the Tropical Agriculture Platform (TAP), contributing to the Common Framework on Capacity Development for Agricultural Innovation Systems (CDAIS) through CABI representation in the TAP Steering Committee, Global Task Force and Capacity Development Expert group. A number of areas of CABI's work represent practical examples of implementation of the framework including: strengthening plant health systems in its Plantwise programme; establishment of farmer led seed systems to deliver quality seed in the Good Seed Initiative; and building national capacity to research and implement biocontrol-based IPM. We have therefore adopted the CDAIS framework as our core approach for such work.

9.3. Invasive Species

Rationale

Invasive Species (IS) pose one of the greatest threats on this planet to biodiversity, crop and pasture production, human and animal health, water resources, and economic development. Negative impacts are more acute in the developing world, where most people are totally dependent on natural resources for their survival. The livelihoods of vulnerable rural communities, including female-headed households, are being seriously undermined by incursions of the world's worst pests - destructive invasive species. These invasives are regional or global in impact, so effective management requires coordinated actions on a regional basis. CABI has the experience of creating effective regional partnerships which can provide 'critical mass' to reduce the direct economic and environmental damage caused and prepare for shifts in IS distribution arising as a result of climate change, trade flows, tourism or population movements.

Key Activities/Priorities

The Invasives theme will promote and support improved management of invasive species to benefit human and animal health, agricultural productivity (crop and livestock production), and associated livelihoods while also reducing the threats they pose to ecosystems and biodiversity by:

- Raising awareness of IS impacts, combined with effective advocacy
- Developing capacity to manage and control them more effectively in order to improve agricultural production and enhance biodiversity conservation
- Collating and synthesising evidence to contribute to the development of policies that improve management of IS
- Compiling and sharing, in appropriate formats, the information needed by those tackling IS
- Building capacity in the development and implementation of integrated pest management systems, including the use of biological control agents and biopesticides, as alternatives to chemicals

Building upon our strong track record in invasive species management and strengthening plant health systems, CABI seeks to protect and improve the livelihoods of 50 million African and Asian farming families affected by IS, through an environmentally sustainable and regional approach focusing on three areas:

- (i) Stakeholder engagement;
- (ii) Invasive pest management solutions; and
- (iii) Community mobilisation (for example with farmers' groups and women's groups)

Partners will be engaged in IS prevention, early detection and rapid response as well as control and restoration of ecosystems. This will be supported by the development of an open access information exchange resource, storing best practice management advice, distribution and economic damage risk forecasts, policy reports, relevant selected partners' content, and links. We will seek funding from donors and investors of \$50m over 5 years to deliver this programme.

9.4. Knowledge Management

Rationale

Knowledge Management projects and services have become an increasingly important contributor to net revenue and profit within CABI's Knowledge Business over the course of the previous Medium Term Strategy. Climate change, land use change, urbanisation and commercialisation of farming will accelerate the need for evidence as farmers, policy makers, and resource managers seek solutions that will help them adapt to new challenges. CABI is in a unique position to play a central role in the management of agricultural and environmental knowledge. Our relationships with member countries and our international development work give us a keen understanding of user needs, while the skills, infrastructure, and content developed through our publishing business form a solid foundation for building knowledge systems that respond to these needs. Technology is again a major driver in this area, with mobile technology in particular creating opportunities to reach a broader audience in developing countries. Systematic reviews provide a robust and rigorous framework for evaluating and synthesising evidence, and "lighter touch" methods for synthesis will also prove useful in some cases.

Key Activities/Priorities

CABI will leverage its high quality content and relevant domain expertise, using modern ICTs to reach users at scale. We will continue to develop our position and reputation by integrating knowledge products and activities across all of our work, building on stronger links between the Knowledge Business and International Development. We will continue to evolve the Plantwise Knowledge Bank and to develop supporting information resources for large scale CABI programmes such as Invasive Species or Trade and Commodities, plus other initiatives as opportunities arise.

In order to grow the Knowledge Management project portfolio over the period of this strategy, we will undertake the following activities:

- Embed Knowledge Management as a core component of CABI's international development initiatives, seeking further opportunities for knowledge products as part of larger, donor-funded initiatives.
- Consolidate and mainstream the use of mobile across CABI projects and programmes, using appropriate ICTs for both information dissemination and data collection via mobile services and apps.
- Integrate Direct2Farm and mNutrition with the Plantwise Knowledge Bank to create Plantwise Mobile (mPlantwise)
- Strengthen our capabilities in data analytics, synthesis and visualisation to enable the creation of insight, products and services through blending CABI's proprietary information with the increasing wealth of open data in agriculture and nutrition.
- Develop a next-generation library of materials for the Africa Soil Health Consortium, migrating all content into CABICore
- Position ourselves as the Knowledge Management partner of choice for other organisations engaged in agricultural development efforts such as the members of the AIRCA consortium and the CGIAR, plus other global development programmes.

- Develop policy-relevant analysis such as systematic reviews, rapid evidence assessments, systematic maps, and synthesis reviews.
- Continue to develop and maintain research repositories and evidence bases for the academic market, professionals and those with roles in generating research outputs, increasing the impact of research by making it discoverable and readily accessible.

9.5. Global Scientific Publishing

Rationale

Scientific publishing continues to be a core activity and the major source of operating profit, supporting CABI's overall mission and its development activity. CABI's traditional publishing markets in the academic and research communities will continue to be a key focus during the lifetime of this strategy, although market conditions remain challenging, with low year-on-year growth (3-4%), the domination of a small number of very large players (e.g. Elsevier, Springer Nature and Wiley), and a global squeeze on public sector spending. The shift from print to digital is nearing its conclusion, with some 90% of CABI's traditional publishing revenue now coming from online publications. All of CABI's websites and subscription products are optimised for delivery to a mobile device; increasingly, we anticipate that some markets will become "mobile by choice" and our innovation and product development focus will anticipate this trend.

Key Activities/Priorities

Following a period of investment in modern, flexible content management and delivery technology, CABI launched the fourth generation of its online platform, CAB Direct (CD4) in July 2016. This platform underpins the growth strategy for the traditional publishing business, providing an attractive alternative for the 70% of our CAB Abstracts and Global Health customers who currently make their purchases through a 3rd party vendor. Switching these users to CD4 will increase both the revenue and profitability of the Publishing business. CD4 will also provide the infrastructure to support a new portfolio of products aimed at end-users and adjacent professional information-buying markets.

Key strategies within the for-profit publishing business are:

- Continue to invest in digital delivery platforms and user-centred product development to increase efficiency and build a pipeline of new products for our core market and for adjacent professional end-user markets.
- Protect and maximise profit from the library market by streamlining the product portfolio, encouraging migration from third party vendors to CABI's own CD4 platform and maintaining high standards of editorial quality and product delivery
- Create and communicate a compelling roadmap of enhancements and upgrades to the CD4 platform in order to maintain its competitive market position and value proposition
- Increase the full-text component of the CAB Abstracts and Global Health databases, aiming to secure the rights to distribute the full-text of 15% of new database records (approximately 60,000 new items per annum)
- Increase commissioning and publication of unique full-text content through the books, reviews and Compendia programmes, aiming to increase the turnover of our book programme to £2.6m per annum, and Compendia subscriptions to £1m per annum by 2019
- Explore book list acquisition on an opportunistic basis, subject to overall financial constraints.
- Invest in the global sales team in growing markets (e.g. Africa, Middle East, Latin America, Eastern Europe, Central Asia)
- Develop opportunities to obtain value from data drawing on the scientific expertise of our research staff and GODAN networks to deliver interpretation, analysis, and contextualisation
- Optimise the skills and resources of the publishing programme to support international development projects and leverage investment made in content and technology through project activities to develop unique new revenue-generating products and services

10. Plantwise

Rationale

Plantwise will continue to be CABI's flagship programme during the period of this Medium Term Strategy. Plantwise has made much progress since 2011 and has been introduced to 34 countries, supported by over 160 partners, including governments, advisory services, NGOs, farmers, and other plant health stakeholders. Within CABI, it has been transformative by demonstrating the power of working as "one CABI", resulting in greater teamwork between all centres and functions worldwide. Externally, Plantwise has also stimulated plant health stakeholders to work together in new ways to create stronger and more effective systems, while still allowing the exact nature of such systems to vary from country to country.

It is estimated that over 9.7 million farmers have already been reached directly through plant clinics, plant health rallies and mass extension campaigns, and indirectly through farmer-to-farmer exchange. Independent external evaluations have been positive about the impact of the programme and farmer studies in Ghana, Malawi, Rwanda, Pakistan and Sri Lanka have shown satisfaction with the clinic service averaged around 95%, while 80-90% of the clinic attendees applied the advice provided and, on average, 80% felt that their yields increased as a result of the advice given.

The Plantwise Knowledge Bank open access database has grown substantially in terms of content and tools and there are now over 12,000 factsheets and 3,300 interactive maps on 3,500 pests. Visitor numbers grew at a rate of 65% in 2016 compared with the year before with approximately 1 million visits since launch, with over one third of this from Plantwise partner countries. There are over 253,000 plant clinic records which can be used to analyse key statistics such as percentage of women farmers, top crops grown and key pest problems.

Key Activities/Priorities

We have developed a sustainability roadmap for partners to assess their progress towards robust and long-term sustainability of Plantwise in their countries. This shows that most countries are in the consolidation phase while some are in the process of scaling up and showing signs of greater sustainability, as evidenced by adoption and funding by national or local governments. However, others still have some way to go so it is critical that we secure further funding to extend implementation of the programme building upon the good progress so far. Plantwise is now **seeking to raise a second major tranche of funding (~\$50 million)** in order to carry the programme through to 2020. We will seek to **reach over 30 million farmers (women and men)** through plant clinics, plant health rallies, mass extension campaigns (including mobile communications, radio, television, printed media, etc.). We will reach 6 million directly and a further 24 million farmers will be reached through spill-over effects as farmers share new knowledge with neighbours and family.

Moving forward, the programme will focus on achieving long-term sustainability through:

- Consolidating national plant clinic networks with strengthened support from diagnostic and advisory experts
- Improving linkages to relevant private sector stakeholders to increase effectiveness and sustainability
- Ensuring that monitoring and evaluation processes are in place to collect evidence of outcomes and impact from programme activities
- Leveraging existing investments in mobile to develop ICT-based tools for more efficient collection and analysis of data as well as wider dissemination of high quality information
- Developing products and services based on new business and content models, allowing open access and fee-for-service resources to exist side-by-side, thereby generating income to replace donor funding for the maintenance of the knowledge bank services

At the 2016 Donor Forum meeting, it was agreed that CABI needs to focus on the key Plantwise attributes and on those countries where there is good traction so that the benefits of current investments can be demonstrated. For impact at scale, we need to focus on countries where progress is good, rather than move to many more other countries. Where additional middle-income countries are interested in Plantwise, we should seek to do this on the basis of paid-for consultancy to transfer expertise rather than including them as a donor-funded Plantwise country. In particular, Plantwise needs to focus impact evaluation on those countries that are of main interest to donors (SSA, SE Asia), developing a consistent approach to capturing baseline data and

then demonstrating progress against a consistent set of output and outcome indicators which are linked to the agreed Plantwise impact pathway within our strategy.

We will also seek to link the Plantwise programme more closely with national and international university partners following successful experiences in a number of countries. In particular, universities need to be linked into the broader plant health system of Plantwise countries so that they can act as diagnostic back-up and referral centres for the clinic networks. In addition, they can often provide students to act as, or to assist, plant doctors as part of their studies and training. Opportunities will be pursued to evolve Plantwise training materials, particularly the simulation games, into commercial educational products supporting degree and masters courses in plant pathology, agriculture and horticulture.

11. Cross-cutting Issues

11.1. Climate Smart Agriculture

The key challenge facing agriculture is to improve food security and nutrition for a growing world population in the face of climate change. The responses to these challenges are often referred to as Climate Smart Agriculture and/or Sustainable Intensification which recognize the urgent need to act at scale and to contribute towards three aspirational outcomes:

- Sustainable and equitable increases in agricultural productivity and incomes;
- Greater resilience of food systems and farming livelihoods; and
- Reduction and/or removal of greenhouse gas emissions associated with agriculture (including the relationship between agriculture and ecosystems), where possible

There is a need to help governments, farmers, scientists, businesses, and civil society as well as regional bodies and international organisations to adjust agricultural, forestry and fisheries practices, food systems and social policies in order to deliver these objectives. CABI appreciates the importance of these changes and has become a member of both the Global Alliance on Climate Smart Agriculture (GACSA) and the Global Research Alliance on Greenhouse Gases in Agriculture (GRA) with the aim of aligning our work with the objectives and recommended best practices of both alliances. Through networking within these alliances we will seek to support existing programmes or identify new opportunities for Climate Smart Agriculture initiatives. In doing so, we will build upon current CABI programmes which have strong climate smart dimensions:

- Plantwise supports climate-smart agriculture by helping farmers increase their agricultural productivity and incomes without using any additional land, while minimizing environmental damage by reducing levels of hazardous pesticides. By giving farmers the knowledge they need to grow more and lose less, we increase yields per unit of CO₂ emissions and also help improve their resilience to climate shocks. Indirectly, by reducing the pressures on land for farming, our activities can reduce emissions due to the conversion of forests to agricultural land.
- Our activities in seed systems for African Indigenous Vegetables are helping farmers adopt more nutritious and climate resilient cropping systems
- Through the African Soil Health Consortium (ASHC) and Optimising Fertilizer Recommendations for Africa (OFRA), CABI is promoting methods of Integrated Soil Fertility Management, encouraging the application of organic fertilizers and optimizing the use of chemical fertilizers so as to increase carbon sequestration while also reducing emissions of carbon dioxide, nitrogen oxides, and methane.

11.2. Gender

CABI is fully committed to support SDG 5 – Achieve gender equality and empower all women and girls. In particular, we seek to ensure, through our operating policies and project delivery, that we prevent discrimination and promote women's full and effective participation with equal opportunities for leadership at all levels of decision-making. Although not explicitly mentioned under each section, it should be noted that where we are referring to farmers (poor, smallholder etc.) this is taken to mean women, men, young and old farmers, and that our implementation plans will mainstream these gender issues in the most appropriate way for each particular programme. These imperatives cut across all that we do, both internally and externally, so CABI has developed 3 documents to lay down the ways in which we will operate. These are:

- The CABI Workplace Gender Strategy
- The CABI Project and Programme Gender Strategy
- The Plantwise Gender Strategy

All 3 documents will be updated and refreshed to take account of the progress made and lessons learnt over the period 2014-2016. In particular, we will:

- Continue to monitor gender balance and pay differentials across all centres in CABI to ensure that we maintain a workplace that is free from discrimination and gender bias and to take action as necessary to improve our performance against key indicators
- Ensure that our policies, pay, operating practices, recruitment and promotion are gender sensitive.
- Build upon experience and best practice from our efforts to ensure that gender is mainstreamed as far as possible in our project work, in particular seeking to understand the role gender plays in access to information and the ability or freedom to implement new technologies or ways of working
- Seek to develop more gender sensitive and gender responsive approaches in our projects, coupled with the necessary monitoring, evaluation and impact analysis to assess the effectiveness of these approaches
- Build upon the information now available through the Plantwise Knowledge Bank (POMS) to gain insights into gender issues and to develop ways of making Plantwise clinics and data more accessible to women and youth in aspects such as:
 - Is the advice given by men and women plant doctors different?
 - How does the proportion of male and female clients served differ between men and women plant doctors?
 - Are men and women receiving different advice for the same problems?
 - Do men and women have differential access to the inputs recommended by plant clinics?

11.3. Monitoring and evaluation

Ensuring that our work is effective and will ultimately contribute to the delivery of our vision requires a continuous process of monitoring and evaluation (M&E). During the period of the previous MTS we have put in place a well-designed monitoring, evaluation and social research system providing accountability for our work as well as ensuring that it is relevant, delivered efficiently, and that we learn from what we are doing to improve our project and programme delivery on a continuous basis. We are increasingly seeking to structure projects from the outset so that they can generate robust evidence of impact.

The basis of our systematic approach is evidence collection in five areas:

- Progress tracking of activities and outputs against set targets
- Process evaluation to assess the efficiency and performance of project implementation
- Evidence collection on outcomes, impact and causality
- Learning through joint critical reflection with our partners on project implementation

- Context analysis to assess how country or regional contexts affect implementation

These are supported by capacity building to promote the uptake of suitable M&E practices by our partners. This work will contribute to delivering and assessing project outcomes, and generating understanding of change, trends and issues that influence our work. The learning culture within CABI will be strengthened, enabling us to be more responsive to our partners and member countries for improved project delivery.

CABI has a well-established organisation-wide M&E strategy that assesses progress from the bottom up, with projects contributing to the theme outputs (see Appendix 2), our key performance indicators, CABI's strategic goals, and the relevant SDGs. In all our work we seek to answer these key questions:

- Are we doing what we said we would do? – are we delivering the project outputs and objectives?
- Are we doing the right things? – are we carrying out the correct activities to solve the identified problem?
- Are we making a difference? – is our intervention having the expected positive effect for our beneficiaries?

To provide continuous evidence of CABI's outcomes and impacts (the last two questions), we will carry out the following across the range of CABI's work.

- **Case studies:** high quality studies showing outcomes/impacts at scale, tracking food security, climate, gender and nutrition as appropriate.
- **Impact studies:** in-depth studies using rigorous methodologies to demonstrate the impact of CABI's work against the pre-project situation ensuring gender analysis is embedded throughout the study.
- **Dissemination of evidence:** effective dissemination of findings, with the communication team, to ensure the impact of CABI's work is widely understood by our member countries, stakeholders, and donors.

11.4. Mobile

We will transition Mobile from being a business development activity to become a mainstream component for delivery at scale within all of our programmes. Mobile technology is creating opportunities to reach a broader audience in developing countries and the growth in smartphone usage is strongest in these areas. We have opportunities to use it creatively to support both the distribution and collection of information and data in the most convenient way for the customer and in the most accurate and granular way for further analysis and value-addition so as to create a mobile platform that others will pay to join or deliver.

Already, CABI has developed data collection, training, and information delivery apps for extension workers as well as a Plant Doctor simulator to enhance Plantwise training. We will re-brand our Direct2 Farm activities into the Plantwise identity, using this brand as far as possible to develop mobile agro-advisory services, extending the reach of our plant clinic networks. Data and data management will also be increasingly important, with data being collected not only via surveys and apps, but also via remote sensing, drones, and Internet of Things (IoT) devices such as sensor networks. Therefore, the priority actions are to:

- prioritise and develop Plantwise-branded mobile services;
- promote a Technical Assistance service exploiting our recognised strong position in extensive, high-quality agricultural content;
- franchise CABI content to selected partners on a non-exclusive basis;
- identify and implement sustainable charging models and simultaneously maintain and expand farmer pre-profiling for customised advisory services; and
- accelerate a one-CABI assessment of how we can respond to and exploit impending changes in the mobile sector away from simple text- and voice-driven services into operation in a rich media user-interface environment driven by apps and data analytics.

11.5. Open Data

Open data (data that can be freely used, re-used and redistributed by anyone) is a tremendous resource that is as yet largely untapped in helping to solve practical problems for the agriculture and nutrition sectors. To do so means making data accessible online, putting it in standard digital forms which are machine-readable, and having terms or licenses that allow anyone to reuse the data. CABI, as host of the Secretariat of the Global Open Data for Agriculture and Nutrition Initiative (GODAN), is already known and respected in this arena. In our donor funded science and development business, there is an increasing expectation that any funded publications and data be made open as a condition of funding. CABI has already made key commitments to opening its data under its Knowledge Management policies:

- Use of appropriate licences on all our data; default use of open data licences on research and development data
- Increase openness of data by technical means using non-proprietary formats and making data machine readable
- Open our thesaurus to provide a descriptive framework for the world's science and technical information
- Advocate for increased openness of pest data

A data inventory will be developed which will indicate current and future licence options for the key assets. In each case, we will determine where assets will sit on the data spectrum from closed, to shared, to open. The Data Strategy for CABI will incorporate open data and also cover issues of data management, preservation, and use. We will develop pilot open data projects that address key problem areas, looking for quick wins in areas where open data can lead to business services and products. In doing this, we will:

- Nurture GODAN to be a successful programme that acts as a flagship of our open data competences over the next four years; learn insights from the programme and apply in CABI
- Develop new skills, identify capacity gaps and key investments (with measures of ROI) to generate insight, products and services
- Focus on solutions for core markets (e.g. plant and soil health) first, adjacent markets next (e.g. nutrition), and only beyond where a compelling business case can be demonstrated, seeking to learn by doing through pilot projects, some of which will lead to scale up
- Explore business models for open data enterprises: payment for projects, “freemium”, cross subsidy, provision of services or platforms
- Work through our GODAN partnerships and the UK Agritech centres to identify strategic alliances to co-develop, cost and benefit share in new projects, products, and services
- Develop projects and consultancies to improve scientist data publishing, working through the data value chain, identifying data publishing plans, platforms, archiving options, donor requirements
- Make our own data machine-readable and well-described, aiming to publish Linked Open Data for all key CABI datasets by 2019
- Open the CAB Thesaurus and integrate with the Global Agricultural Concept Scheme (GACS). Use open semantic frameworks to index and identify data of interest and improve CABIcore

11.6. Microbial and Molecular Services

Microbiology (particularly mycology) is an area in which CABI has a strong reputation, and this will be significantly strengthened by next-generation sequencing and the recently acquired Matrix Assisted Laser Desorption/Ionization Time of Flight Mass Spectrometry (MALDI-TOF MS) system. We aim to gain expertise and reputation in the genomic, epigenomic and proteomic analysis of agriculturally and/or environmentally significant viruses, bacteria, yeasts, fungi, nematodes, insects, and plants; the analysis of pollen, in air samples, water samples, and on insects, by DNA sequencing; and the analysis of nematode and insect gut microbiomes, seeking to better understand their influence in agriculture and the environment. We will maintain the capacity to carry out UKAS-accredited DNA-based identifications for commercial customers, CABI projects, and member countries.

This cross-cutting service supports the characterisation, preservation and identification of microbial resources to maximise their utilization and to limit their detrimental effects in agricultural and industrial production by:

- Providing a validated mechanism for identifying critical microbes in agriculture, industry and environmental studies
- Supplying reliable, authoritative information sources to support microbial identification and diversity
- Providing tailored services to support in-depth analyses of microbial strains in supply chains
- Utilising next generation sequencing to better understand microbial community composition in soil, the rhizosphere, plant tissue, water, and environmental samples, gaining a deeper understanding of its impact upon agriculture and the environment
- Maintaining and making available microbial diversity
- Supporting and facilitating the utilization of microbial resources across member countries
- Enhancing microbiological and biotechnology capabilities in partner organizations and industries
- CABI will monitor key developments and opportunities in proteomics and metabolomics to search for and, where possible, set up mutually beneficial collaborations within which CABI provides access to samples of agricultural or environmental significance. The development of novel antimicrobials is likely to receive significant funding over the coming years and, given the existing culture collection, CABI possesses a key asset that could be leveraged in order to secure some of this funding. Strategic partnerships will also be sought for the discovery of novel active compounds or organisms to carry out industrial biotransformations in the pharmaceutical, food and agriculture sectors.

12. Regional Strategies

CABI has a truly global presence through its network of 8 major centres and 16 supporting offices around the world. However, the opportunities, challenges and operating environments are very different in the major geo-political regions. We have therefore developed regional approaches which adapt CABI's core strategy to the local regional situations.

12.1. Sub-Saharan Africa

Sub-Saharan Africa will remain a key focus for the major international development donors and will therefore be at the centre of growth and investment for the organisation, building upon the strengthened presence we have established through our Regional Centre in Nairobi and supporting offices in Ghana and Zambia. Through these offices, we will undertake work addressing member countries' priorities, build stronger relationships with in-country donor desks, and seek to grow the base of member countries within Africa, particularly in the francophone regions. With the appointment of a dedicated sales manager based in our Regional Centre in Nairobi, we also intend to establish closer links to academic and research institutions who have a need for our information resources. For the duration of this Medium Term Strategy, we do not intend establishing any additional offices.

Our thematic focus will continue to support national and regional strategies and priorities in the areas of trade and market access, plant health and invasive species management, seed system development and agricultural diversification, and communication for development. In all these areas our aim is to improve the use of scientific knowledge, by acting as a bridging organisation between the many different actors involved. Capacity development of individuals, organisations, and systems will continue to be at the heart and all we do.

Partnerships remain critical to our success. As well as our many national partners, we aim to enhance our collaboration with sub-regional research organisations (e.g. ASARECA, CORAF, CCARDESA), economic communities (e.g. COMESA, ECOWAS, SADC), private sector, foundations and African Union bodies such as NEPAD, IAPSC and FARA. We will also continue to work with international organisations having similar goals, including the members of CGIAR, and AIRCA, AGRA, RUFORUM and the African Development Bank.

12.2. Middle East and North Africa

CABI has no physical presence and no significant track record of activities in this region. As a result, we have not been able to attract sustained interest of any member countries. The recent appointment of a Publishing sales manager based in the region should help us raise our profile and understand the opportunities better. One area of potential interest is in the Gulf States who are actively pursuing agricultural expansion policies in order to provide food security and safety for their populations after their oil resources have run out. Opportunities are likely to be in short term consultancy projects focused around capacity building in plant health quarantine and food safety systems. During the course of this Medium Term Strategy, we will develop and deliver these opportunities from our centres in the UK and Pakistan. Partnerships with FERA and Camden BRI are likely to be important to meet the needs in this area.

12.3. Asia

The Asian Region is very diverse in terms of the economic maturity and agricultural development requirements of its constituent countries – ranging from the major growth economies of China and India, through middle income and emerging economies such as Malaysia, Philippines and Vietnam to countries like Pakistan, Afghanistan, Bangladesh, Myanmar, Laos and Papua New Guinea that are still recipients of significant development funding. Our Centres in India, Pakistan, China and Malaysia are well-placed to serve these distinct sub-regional groupings and we do not plan to broaden our geographical footprint or significantly increase our headcount within the term of this plan. Brunei represents a different and rare type of opportunity where there is limited technical capacity but consultancy services are paid from the national budget.

Our regional strategy reflects this diversity with a strong and growing presence in both China and India, particularly focused around our joint lab activities in China and the intention to establish a similar presence in India. We will also transfer our Corporate IT Development to India on the basis of cost-effectiveness. Both China and India have significant, high quality national agricultural research systems, making it difficult for CABI to add value in these countries. However, there are opportunities in relation to needs to put local research into use more effectively and a growing awareness of the economic and environmental impacts of invasive species. Through the linkages with the national research organisations we can act very successfully as a bridging organisation in South-South or Triangular cooperation, as we have done, for example, using EU funds to put Chinese expertise and technology into use in the Mekong Basin and DPRK.

In the middle income and emerging countries, farming is moving rapidly to a more commercial footing and our major opportunities are likely to be in the Trade and Commodities area, particularly in partnership with the private sector, to help farmers access higher value market opportunities and adopt integrated crop management approaches. In the earlier stage developing countries, donor-funded projects will remain the major source of income, with a focus on Plantwise and other aspects farmer training in sustainability and climate resilience.

12.4. Latin America and the Caribbean

CABI has a long record of successful project delivery and a significant number of member countries in Latin America and the Caribbean. These vary from major agricultural economies like Chile and Colombia through to small island economies like the Bahamas and Montserrat. The plant clinic concept was developed in this region and Plantwise is strong in a number of countries, but these now need to move to the final phases of sustainability with funding provided by the national governments. New funding for work in this region is hard to obtain since major donors (apart from EU, UNEP-GEF and USDA) have generally pulled away from agriculture, considering most countries to fall into the middle income bracket. The CABI footprint is highly fragmented with Publishing sales managers based in Chile and Peru as well as small operations in Brazil, Costa Rica and Trinidad. Invasive Species and SPS/regulatory activities are the most promising areas of activity, with support from UNEP-GEF, USDA and the possibility of new donors such as IADB and CARICOM. A review of our current operations in the area will be required once a fund-raising strategy is finalised. We will also continue our efforts to expand our CABI membership portfolio in the region with a view to developing new strategic and operational partnerships with national institutions. This, in turn, will help to guide CABI's decision on how and where to consolidate its future operational presence in the region.

12.5. Europe and North America

Our centres in UK and Switzerland provide the core of CABI's research activities with a strong scientific reputation in identification, diagnosis, prevention and control of invertebrate pests, plant diseases, and weeds. The teams in these centres have long-term and well-established working relationships with CABI member country research institutions and have built up a reliable network of funding sources from the UK, Switzerland, EU, US and Canada. Increasing problems of invasive species, combined with fewer options for use of pesticides and herbicides, particularly in Europe and North America, should continue to offer good opportunities for our work in these areas.

We do not expect to expand our physical presence to additional countries in Europe – indeed we are seeking to consolidate in the UK. We will focus investment into broadening and improving the technology base of our current centres in line with the recommendations of CABI's science strategy. We will also seek to replicate the successful model of the Swiss centre in building links to national and overseas universities for research student placements and further development of joint research projects and publications. New project funding opportunities have been secured in Switzerland through putting research into use through large scale development cooperation projects and programmes. The UK Global Challenge Research Fund, which seeks to direct a greater proportion of government research funding towards overseas development activity, offers a significant new funding opportunity and a framework for broadening our base of collaboration with UK institutions who see CABI as a very good partner for putting their research into use.

13. Stakeholder Relationships

13.1. Membership

As an international organisation, our 48 member countries are at the very core of driving and influencing CABI's mission and direction. The close senior level relationships that we have established in many of our member countries are key to the long-term success of the organisation. CABI's membership spans high, middle and low income countries, as do the regional centres. CABI's governance and expertise marries the interests of developed and less developed member countries. Each member country has an equal role in CABI's governance, policies and strategic direction, in addition to enjoying a number of privileges and services relating to our scientific expertise, products, and resources. Our key actions to develop relations with our member countries are as follows:

- **Deeper engagement of existing member countries in CABI's governance and programme delivery** through regular visits to Executive Council representatives in the UK, nominated Liaison Officers in country and interaction with relevant ministries or government departments. In particular, we will seek to ensure that member countries are taking full advantage of the benefits available to them and that senior officials have a better awareness of CABI, its capabilities and the work it is doing in their country. Through this process we will seek to improve the collection rate of outstanding fees and ensure member countries are aware of their obligations under the CABI Treaty, particularly in respect of the liabilities of the organisation.
- **More effective leverage of member country support** to secure additional financing through the in-country offices of major donors.
- **Acting as a bridging organisation** to extend the reach of national capability from our member countries, and promote greater collaboration amongst member countries, particularly through South-South and Triangular cooperation.
- **Expansion of the member country base.** We will seek to expedite the applications currently underway from Costa Rica, Cameroon, Afghanistan, and Turks and Caicos, and move The Netherlands from Associate into full membership. In addition, we will continue to build the support for CABI membership in key target countries, particularly Brazil, Indonesia, Sweden, Norway, and Germany. Expressions of interest received from countries where we are delivering projects will be followed up as the opportunities arise.
- **Greater usage of alternative membership categories.** We will use the Associate Country mechanism to involve prospective member countries in our consultation and governance meetings as early as possible while the lengthy formal process of ratifying full membership takes place. The Affiliate Member category will be used more extensively to support Strategic Development Partnerships (see below) with other organisations, companies and international bodies.

13.2. Partnerships

CABI will develop three levels of partnership in line with its commitment to support SDG 17:

- a) **Alliances** – long-term relationships with complementary international organisations directed primarily at shared advocacy on issues of global importance, through which we seek to raise our organisational profile and impact. These alliances may not always involve working together on funded projects. For the period of this Medium Term Strategy we see the following alliances as being high priority:
- **CABI will continue to be an active participant in AIRCA** (the Association of International Research and Development Centers for Agriculture, www.airca.org). AIRCA is a nine-member alliance (CABI, AVRDC, CATIE, CFF, ICBA, ICIMOD, ICIPE, IFDC, INBAR) focused on increasing food security by supporting smallholder agriculture and rural enterprise within healthy, sustainable, and climate-smart landscapes. All have a proven track record of research, development and implementation, working closely with farmers, extension systems, national research institutes, non-governmental organizations (NGOs), and the private sector, across a wide range of crops and ecosystems.



- **Membership of the Global Alliance on Climate Smart Agriculture (GACSA) and the Global Research Alliance on Greenhouse Gases in Agriculture (GRA)** to align our work with recommended best practices and identify new opportunities for Climate Smart Agriculture initiatives.
- **Support for the GODAN** Initiative and successful hosting of the Secretariat.
- **Contribution to the Tropical Agriculture Platform (TAP)**, in particular through supporting the dissemination of the Common Framework on Capacity Development for Agricultural Innovation Systems (CDAIS)

b) Strategic Development partnerships – major programme-based linkages for implementation in particular geographic regions, cropping systems or business sectors. Our goal will be to build long-term partnerships that will endure beyond the timespan of a single project, with the major targets as follows:

- **Establishing meaningful public-private partnerships with national and international food or retail businesses** to support smallholder market access along value chains, including SPS compliance, development of standards and improvement of food safety. Our reciprocal Affiliate Membership with Camden BRI is an important element
- **Building on existing relationships with Regional Organisations**, covering both development research (e.g. FARA, AGRA, ASARECA, CORAF, APAARI, CACCARI) and economic cooperation (e.g. COMESA, ECOWAS, SADC, ASEAN) given the growing importance of these bodies in administering and directing development funding.
- **Strengthening our collaboration with CGIAR centres and leading UK research institutions** (particularly IITA, CIAT, CIMMYT and IRRI as well as FERA, CEH and Rothamsted in the UK) with CABI providing support as an implementation partner in the next generation of CRPs to help put research into use more effectively.
- **Facilitating South-South and Triangular cooperation** by linking member country needs, capabilities, and funding. We have done this successfully using expertise from China to deliver projects in DPRK, the Mekong basin and Africa as well as the collaboration in the Australia-Africa Biosecurity Fellows Programme. Future opportunities are likely to arise from the “one Belt, one Road” initiative of China as well as increasing involvement of India in technology transfer to Africa.

c) Local Implementation partnerships - CABI, like any organisation, cannot do everything on its own, so developing and maintaining partnerships that help to maximise our impact on the ground is critical. At a project level, our work is undertaken through many different partnerships, ranging from informal working arrangements with farmers' groups to strategic alliances and commercial agreements. Our intergovernmental status means we have particularly strong links with national research, extension and other institutes and agencies but our partners also include educational organisations, non-governmental and community-based organisations, the private sector, development agencies, regional bodies, and other international agricultural research centres.

In line with our commitment to support SDG 17, we will ensure that the following principles are observed in these implementation partnerships:

- Our partners will receive fair and adequate funding from the project to carry out the tasks required of them
- We will build and strengthen capability and capacity in individuals and institutions for the long-term development and governance of agricultural innovations systems
- Our work will create or reinforce linkages between researchers, universities, government departments, extension systems, and farmer associations
- CABI will use appropriate care and due diligence in disbursing donor funds to ensure that such funds are fully applied to the agreed project deliverables so that fraud, corruption or misuse are avoided or detected if they do occur

13.3. Corporate Communications

CABI's vision calls for step change in our approach to deliver an extensive campaign of engagement with our existing key stakeholders as well as to widen our reach to audiences who are less familiar with CABI's work, but could become significant influencers or key stakeholders.

This will be achieved through:

- Deeper and more frequent engagement of those audiences identified as engaged, less-engaged and disconnected
- Research on each of the audiences in these categories to define relevant channels and messages for each, and a baseline study to assess current audience perceptions
- Investment in a key spokesperson trained in the media and public speaking to blog, engage with journalists, and speak at conferences and events on behalf of all of CABI's work
- Launch of an annual high level event with private sector and international government participation, e.g. in 2017 one on sustainable value chains that support smallholder producers
- Production of surveys, white papers and opinion pieces to broadcast via social media and traditional press

These activities represent an overlay to the 2017-19 budget and Marketing Communications strategy and the extent to which we will be able to undertake all aspects of these activities will be dependent upon business performance and budget availability.

14. Organisation and Infrastructure

14.1. Staff development and motivation

Staff costs comprise over 70% of CABI's total operating costs and it is therefore imperative that staff should be motivated, effective and efficient. The overall results from our annual Staff Survey show that 89% of staff would recommend CABI as an employer with 80% believing that morale is good. To achieve the objectives of our Medium Term Strategy, we will seek to maintain the current high level of staff engagement and motivation, while also taking greater advantage of the global footprint of our regional centres.

Key priorities to achieve this will be:

- **Creation of a Global Resource Plan**, to define future capacity needs in terms of numbers, skills and location
- **Capability development**, at the level of individuals and teams to ensure that we have the skills to deliver our future strategy
- **Talent planning** for a pipeline of future leaders and experts to address retirement and promote the long-term sustainability of our activities
- **Maintenance of a high performance culture** to ensure that CABI meets its strategic business objectives through its people

CABI's HR Strategy will be updated for the period 2017-19, setting out in detail how we plan to meet these key objectives across the full range of HR support to the business. The HR Strategy will be designed to:

- Continue the growth of skills, experience and capabilities amongst our existing staff
- Complement this with the recruitment of new staff where specific skills, experience and capabilities are required (eg social science and development communications)
- Maintain, and regularly review, succession and talent management plans covering all senior level and operationally critical roles
- Encourage staff to achieve a good work/life balance through implementation of our Stress Policy and ensuring staff are aware of the Global Employee Assistance Programme
- Ensure that the salary, incentives and benefits package offered by CABI is competitive at the median level with similar organisations in both the public and private sectors
- Keep track of the impact of these changes through the annual staff survey as well as exploring issues in more detail

There are a number of enablers which will support delivery of the HR strategy:

- **HR resources and structure** – appropriate number and location of HR staff to support our global operations and reflect the diversity of our business.
- **HR technology and systems** – review current systems and use of technology to maximise the efficiency and effectiveness of our HR team and provide relevant analytics to support the business.
- **Policies and processes** – maintain a set of flexible policies and processes which promote good employee relations and support line managers and staff in people management.

14.2. Digital Business transformation

The increasing availability of mobile phones in the developing world and the exponential increase in the amount of data being generated from research and innovation has created the challenge of “mass customisation” – delivering the right information, to the right user, at the right time, in the right format, and for the right price (or maybe for free). Information must be enriched with appropriate metadata to

enable discoverability while platforms and data must use common standards in order to leverage the trend towards Linked Open Data. Therefore, CABI needs to be able to deploy a wide range of modern information and communication technologies, and to re-imagine itself as a digitally-enabled organisation. It needs to generate, manipulate and analyse large quantities of data, create user-friendly tools and solutions that combine technology with authoritative content, managing and communicating knowledge over an ever-increasing mesh of mobile devices and delivery channels. Digital business strategy focuses on technology-enabled business innovation - leveraging people, business and resources to create new business models and opportunities within the context of this strategic plan to deliver:

- Business agility and the ability to react quickly to changes in the business or IT environment
- Innovation in business capability and in the way we use technology
- The effective use of our resources, building only those applications which are unique to CABI and procuring commodity functions
- Data security and the need to respect the intellectual property rights of our partners and customers
- The importance of our users' experience and our commitment to build services from the "outside in"

CABI has already made significant progress along the road towards its own digital transformation, driven initially by the needs of the publishing programme but more recently also encompassing the use of technology and knowledge-based outputs in development projects such as Plantwise, the Africa Soil Health Consortium, and CABI's mobile agro-advisory services. The CABIcore programme, which has been running since the beginning of 2014, envisions a digital future for CABI, where all knowledge is discoverable and accessible for all potential applications, rather than being locked up in silos built for one purpose only. Our IT Architecture roadmap identifies the key technology initiatives which will be implemented over the next three years. Key milestones include:

- Continued development of the CABIcore architecture, to connect currently disparate items of information and data within a semantic framework, in support of new knowledge products for the commercial market and for the international development community
- Implementation of an automated indexing toolkit to improve the efficiency and consistency of the database production workflow and its subsequent use in new product development
- Development of a new editorial system, to allow CABI staff and external authors to create new content efficiently and accurately
- Integration of the Plantwise and Direct2Farm databases into the CABIcore architecture, increasing flexibility and simplifying support
- Digitisation of legacy knowledge from CABI's science and development programmes in order to unlock new insights and solutions
- Creation of a "data innovation" team, exploring opportunities to create new value from CABI's (and others') knowledge assets
- Phased upgrading of all corporate support systems to deliver efficiencies, data integration, enhanced reporting and decision support
- Establishment of effective collaboration platforms for internal and external users

14.3. Science Strategy

The CABI Science Strategy has been developed, taking into consideration the research achievements under the CABI Medium Term Strategy 2014-2016 as well as the recommendations of the external CABI Science Review 2015. The Science Strategy provides scientific objectives and defines priority research focus areas to support the delivery of the CABI Medium Term Strategy, 2017-2019, providing long-term context for shorter-term decisions in programme development, planning and resource allocation. The Science Strategy has identified priority research areas so that CABI can:

- Assess the impact of pests (invertebrate pests, plant diseases and weeds)
- Improve prediction and prevention methods for pests
- Evaluate safe and effective integrated pest management (IPM) and biological control practices
- Design and validate new extension approaches and communication tools
- Develop ecosystem management approaches for invasive species

Complementing CABI's priority research areas, we anticipate several cross-cutting issues which will provide significant inputs to the research such as evidence of outcome and impact, gender and diversity, management and analysis of big data sets, advanced technology, plus communication. Although CABI's research capacity in biological science is well established, capacity in social and economic science will need to be strengthened to deliver the planned outcomes at scale.

Quality and quantity of research is currently addressed as one corporate KPI, i.e. annually at least 100 publications (peer-reviewed and not peer-reviewed), of which 30 are in journals with an impact factor of >2. However, CABI is also piloting the use of altmetrics to monitor individual publications and their uptake in different ways and by different stakeholders. By 2020, CABI will normally publish its research open access and will make the supporting data for its research publications openly available.

14.4. Infrastructure

During the period of this Medium Term Strategy, the main focus of activity will be to rationalise our UK footprint. We have signed a contract with CALA Homes, a major UK housing developer, for re-development of the Wallingford site and, although the planning process has been complex and protracted, we still hope to obtain full planning consent by the end of 2017 so construction of the new building can begin. Design details for the headquarters building are now being progressed with the objective of creating a facility of sufficient size to cater for up to 200 staff. We plan for the project to be entirely self-funded through the sale of the land for housing.

We have also held several meetings with the Centre for Ecology and Hydrology (CEH) in Wallingford regarding the possibility of re-locating our Egham activities to their site which can accommodate all of our requirements for laboratory, greenhouse and quarantine facilities. This would bring all our UK staff into one place (albeit not on a single site) allowing us to sell the Egham site for housing to maximise value. The net proceeds from the sale of the site, after relocation and associated costs, of several million pounds could potentially be used to contribute to the UK pension scheme to manage the deficit.

Recent expansion of our centres in Kenya and India has given us sufficient office space to cope with expected growth in staff numbers over the period of this plan. However, we would like to expand our operational and scientific presence in Africa and will seek to identify appropriate partners (e.g. KALRO, icipe) with whom we could share/rent suitable laboratory space. In addition, having signed an MoU with the Government of Zambia in 2015, we established a Southern Africa satellite office in Lusaka in mid-2016.

15. Financial Plan 2017-19

15.1. Net revenue

The objectives of the financial plan are to continue to grow net revenue, operating surplus and cash reserves, to provide investment for product development, and to increase payments to reduce the UK pension scheme deficit.

£'000	Actual 2015	Outcome 2016	Budget 2017	Plan 2018	Plan 2019
Knowledge Business	13,028	14,258	14,126	14,231	14,802
International Development	16,767	18,228	18,537	19,904	21,379
Corporate	1,396	1,385	1,680	1,760	1,750
Net Revenue	31,191	33,870	34,343	35,895	37,931
Growth % pa	7%	9%	2%	5%	6%

An average net revenue growth of c5% p.a across the plan period is driven by the continuing growth in International Development income with funding (as yet unsecured) for the Invasive Species Programme being a major driver. The annual contribution from member countries remains a key element of CABI's International Development income as does the Plantwise Programme, where ensuring in-country sustainability and demonstrating outcomes and impact remain key objectives. For the Knowledge Business there is a mixed picture with a recovery in publishing sales creating some growth. This is driven by product development and a favourable foreign exchange environment. However, the project income in Knowledge Business, after an exceptional period of growth in 2015-16, is expected to experience some decline over the 2017-19 plan period. For these reasons, the revenue growth rate for 2017 had been planned at a conservative level.

15.2. Operating Surplus

£'000	Actual 2015	Outcome 2016	Budget 2017	Plan 2018	Plan 2019
Knowledge Business	4,211	3,689	4,687	4,806	5,155
International Development	432	523	648	797	827
Corporate	(3,959)	(3,560)	(4,833)	(4,956)	(5,244)
Operating Surplus/(deficit)	684	653	502	648	738
Growth % pa	(33)%	(5)%	(23)%	8%	14%

After a decrease in 2017, reflecting significant investment in a high level communications campaign, the operating surplus increases in years 2018 -19 as a result of the growth in publishing sales within the Knowledge Business and continued steady progress in the financial performance of International Development. In total, Corporate costs increase in 2017 as a result of changes to the internal recharge mechanism (reducing the extent of recharges to simplify financial management, which thereby increases business unit surpluses), the impact of one off foreign exchange gains secured in 2016 are unlikely to be repeated in 2017, and an increase in the UK pension deficit reduction payments to c£1.6m by 2019 (from £1.25m in 2016). In response to the feedback from member countries at the Review Conference, additional investment is budgeted in 2017 to enable the profile of CABI's work to be raised.

15.3. Capital Expenditure and Cash Flow

Capital expenditure is budgeted at £0.75m for each year of the plan, which is a reduction from the £1m+ expenditure of the previous four years but closer to the longer term run-rate. Product development investment in publishing, although reduced from prior years, continues to be the primary investment over the plan period. The redevelopment of the Wallingford site, likely to be cash neutral, and the potential sale of the Egham site, which will be cash positive, have not been included in the plan given the uncertainty on timing and outcomes, but the resolution of matters relating to property in the UK remains a key area of focus.

The total cash balance is clearly dependent on the level and timing of donor income but is anticipated to be in excess of £8m during the period of the plan and, within the total amount, the aim is to increase the CABI internal cash reserve from c£2m to c£3m. In 2016, the liability for the UK Defined Benefit Pension Scheme (now closed to all accrual) increased significantly as a result of further lowering of the yield on government bonds as a result of Brexit. It remains very difficult to predict how this situation will evolve and we have therefore forecast the future liabilities with a return to more historic levels.

15.4. Balance Sheet

£'000	Actual 2015	Outcome 2016	Budget 2017	Plan 2018	Plan 2019
Fixed Assets	14,993	14,978	14,943	14,966	15,186
Cash	10,840	7,104	8,891	9,759	10,605
Other Current Assets	7,172	7,501	7,361	7,673	8,108
TOTAL ASSETS	33,005	29,583	31,195	32,398	33,899
Total Equity	(47,280)	(82,995)	(48,719)	(49,284)	(49,758)
Pension Liability	62,309	98,369	64,533	65,645	66,757
Other Current Liabilities	17,976	14,209	15,381	16,037	16,900
TOTAL EQUITY AND LIABILITIES	33,005	29,583	31,195	32,398	33,899

In summary, the key financial challenges for CABI in the 2017-19 plan are as follows:

- to deliver the Plantwise programme and ensure its sustainability and impact over the longer term.
- to attract significant funding for the Invasive Species Programme while continuing to extend the breadth and depth of donor support in International Development.
- to grow the levels of income and profitability from publishing by continuing to invest in product development and leveraging the full breadth of CABI's content.
- to manage the pension deficit while ensuring that sufficient funds remain available to invest for income growth from business activities.
- to build cash reserves and thereby enhance CABI's financial resilience.
- to achieve a successful resolution to matters relating to UK property.

16. Risk

CABI remains committed to operating with high standards of integrity and ethical behaviour. Our governance will be driven by our member countries and overseen by the Board in a manner that is transparent to our members, donors, partners, and staff. This will be supported by rigorous processes of independent evaluation, external audit and internal audit (to be delivered on a sub-contract basis by KPMG).

CABI will continue to maintain risk registers for each of its operating centres and all business functions, defining the detailed internal and external risks faced by the relevant unit, specifying the person(s) responsible for managing or mitigating those risks and quantifying the residual risk after mitigation. These risk registers will be reviewed at least annually as part of the budgeting process. The Executive Management Team looks at, and manages, a top level strategic risk register, which is reviewed annually by the Board. Strategic risks are defined as those externally driven events which could have a significant impact on the ability of CABI as a whole to survive and succeed over the medium and longer term.

Our internal audit from BDO and the EU Pillar Assessment both reported that considerable progress has been made in CABI's risk management processes and governance. The current strategic risks, their impact, likelihood of occurrence, and direction of travel are shown below (to be updated at the end of 2016):

	Impact				
Likelihood	Low	Low/Med	Med	Med/High	High
High					
Med/High			8 ↑		7 ↑
Med		6 ↔		↑ 2 3 ↔	
Med/Low					
Low		5 ↔	4 ↔		1 ↔

Risk 1. Loss of reputation, and impact on funding and revenue; with the upside of business growth if we grow our reputation via Plantwise, etc.

Risk 2. Loss of publishing revenue, whether due to general market and funding pressure, competition or changing information delivery channels.

Risk 3. Long-term sustainability of Plantwise.

Risk 4. Over-reliance on Plantwise, neglect of other areas.

Risk 5. Staff retention and motivation.

Risk 6. Property, including VAT and financial risk, and staff motivation impact.

Risk 7. Pension – increasing size of deficit.

Risk 8. Mobile – failure to deliver damages reputation or risks unsustainability.

17. Financial Plan


This section will be completed through the 2017-19 budget round, due to take place in October 2016.



The final version of the MTS will be reviewed by the Board and then recommended to Executive Council for final approval, in early 2017.


Appendix 1

Linking Member Country Requests to the Sustainable Development Goals

Linking Member Country Requests to the Sustainable Development Goals		
Appendix 1	Key Targets	Member Country Requests
SDG  End poverty in all its forms everywhere	<p>1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology, and financial services, including microfinance</p> <p>1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate- related extreme events and other economic, social and environmental shocks and disasters</p>	<ul style="list-style-type: none"> Improve communication with development stakeholder groups for greater reach, frequency and impact of messaging to stimulate technology uptake and deliver new knowledge to farmers using mixed methods (including mass media such as mobile and social media as well as extension approaches based on face-to-face interactions), gender inclusive approaches for all stakeholder groups, particularly use of ICTs (including e-M&E; e-statistics and e-vouchers) Build resilience in farming systems at all levels to better adapt to climate and other changes, including the management of a range of biophysical stressors including pests (IPM), water (IWM), and soil nutrients (INM), and early warning and rapid response systems for newly emerging/key pests and diseases
 End hunger, achieve food security and improved nutrition and promote sustainable agriculture	<p>2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition, and non-farm employment</p> <p>2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters, and that progressively improve land and soil quality</p> <p>2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed</p>	<ul style="list-style-type: none"> Provide advice and support for farmers on aspects such as GAP compliance, Phytosanitary standards and compliance, advice on crop diversification (e.g. HVH), post-harvest management, improving quality of agricultural inputs, access to market information, improved technology, improved range management for livestock Stimulate the creation of farmer organisations, developing entrepreneurial and commercial skills, risk management, access to affordable credit Strengthen support for food safety, including information on legislative and regulatory requirements, prevention of mycotoxins, maximum residue levels, heavy metal contamination, animal health and welfare, zoonotic diseases, and the safe use of veterinary drugs Promote Climate Smart Agricultural practices that reduce greenhouse gas emissions, adapt to changing conditions and improve resilience Expand the scope of CABI's support to advisory services to include soil health, selection of crop and seed varieties, integrated water and land management, animal health and welfare Promote agricultural diversification and the use of indigenous crops

Linking Member Country Requests to the Sustainable Development Goals		
Appendix 1	Key Targets	Member Country Requests
SDG		
	<p>2.a Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development, and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries</p>	<ul style="list-style-type: none"> • Strengthen seed systems, including aspects such as improved genetic materials, availability of neglected crops, and improving self-saved seeds • Promote access to quality controlled agricultural inputs (seeds, fertilizers, chemicals) • Support plant health systems, including aspects such as improved diagnostic skills at all levels, informed advice on new resistant varieties, seed selection, and GM crops, informed policy leading to an improved regulatory and legislative environment, optimizing links between different sectors
 <p>Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all</p>	<p>4.3 Ensure access for all women and men to affordable and quality technical, vocational and tertiary education, including university</p> <p>4.4 Substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship</p> <p>4.9 Substantially expand globally the number of scholarships available in developing countries, in particular least developed countries, small island developing states, and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes in developed countries and other developing countries</p>	<ul style="list-style-type: none"> • Maintain a strong core Publishing programme targeted at academic, commercial and government scientists in the fields of agriculture, human and animal health • Ensure equal access for all women and men to good quality, affordable technical, vocational and tertiary education, including university • Develop new products and services to support lifelong learning and professional development in agricultural and environmental sciences • Support technical and vocational training, through the use of ICTs, to increase the number of youth and adults who have relevant skills for employment, decent jobs and entrepreneurship, both on and off farm, in rural communities • Offer secondment and teaching opportunities through linkage between CABI centres, local universities and member countries

Linking Member Country Requests to the Sustainable Development Goals		
Appendix 1	Key Targets	Member Country Requests
SDG  Ensure sustainable consumption and production patterns	<p>12.2 By 2030, achieve the sustainable management and efficient use of natural resources</p> <p>12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses</p> <p>12.a Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production</p> <p>12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products</p>	<ul style="list-style-type: none"> Support farmers for informed decision-making at the farm level through strengthened extension services able to advise on IPM in high value and staple crops, rational use of agrochemical inputs, including biofertilizers, biotechnology applications for pests and diseases, including biopesticides and biological control agents Develop better approaches to manage pollinators, soil health and ecosystem services supporting agriculture Support cash crops, fodder, fuel, fibre production, and ornamentals Contribute to improved food security at all levels by the application of technology including new crop varieties to improve efficiency and productivity, reduction of post-harvest losses through improved storage, post-harvest processing and preservation Promote the development of nutrition sensitive agriculture through support to aspects such as awareness raising and policy development, human health & food safety, advice on nutraceuticals and bio-fortification advice, food preparation, food /diet diversification Provide information and training resources to support sustainable agro-tourism and other non-farm rural employment, particularly for women and youth
 Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage	<p>15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species</p> <p>15.6 Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed</p> <p>15.a Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems</p>	<ul style="list-style-type: none"> Improve prevention and management of invasive species using national and regional approaches, including capacity building in remote diagnostics, strengthen capacity for management and control of terrestrial and aquatic invasives Develop capacity to use microbial resources, for e.g. pharmaceutical and nutraceutical production, biopesticides, composting and waste management Adopt the Nagoya Protocol, and promote its use, in support of CBD Build a coalition of funding partners to prevent, eradicate or manage the invasive insects and weeds constituting the greatest threats to food security, livelihoods and biodiversity

Linking Member Country Requests to the Sustainable Development Goals		
Appendix 1	Key Targets	Member Country Requests
SDG forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss		
 Ensure sustainable consumption and production patterns	<p>17.6 Enhance North-South, South-South and Triangular regional and international cooperation on and access to science, technology and innovation, and enhance knowledge sharing on mutually agreed terms, including through improved coordination amongst existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism</p> <p>17.8 Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology</p> <p>17.17 Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships</p> <p>17.18 By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data</p>	<ul style="list-style-type: none"> Facilitate knowledge transfer in South-South interactions involving member countries Build individual, institutional and regional capacity to develop and govern agricultural innovation systems Reinforce linkages between the scientific community, universities, government, and farmer associations Develop public-private partnership to support smallholder market access along value chains, including SPS compliance and standards harmonization, food safety Assist national services with information and data management, e.g. publication of and access to authoritative information resources, archiving and managing research, production and statistical data, awareness-raising, and policy development for open and big data policies



Appendix 2

Assumptions Underlying Theory of Change

Appendix 2 Assumptions Underlying Theory of Change

- Causal links between outcomes at different levels
 - Country level capacity to implement trade standards has a major influence on the ability of countries to profit from regional and international trade
 - Better informed scientists in academia, corporates and governments can more effectively engage with and lead actions to deliver positive change in development contexts
 - Pests, diseases and weeds are a primary cause of low yields and poor productivity
 - Agricultural markets provide opportunities and are large enough to absorb new/quality products
 - Data collected at grassroots will drive actions in plant health, seed and soil systems
- Operational assumptions about the context and strategic options
 - There is a key role for an organisation that combines scientific expertise with the ability to bridge the gap between science and development
 - Mobile technology will become increasingly available in developing countries with decreasing cost making technology and data available to rural smallholder families
 - Good science can be applied in both developing and developed countries providing local context, including policy and institutional frameworks, are taken into account
 - Technical and scientific expertise must be matched with expertise in development and in delivering social change for effective development to take place
 - Member countries continue to recognise value contributed by CABI actions
- Paradigm or 'worldview' assumptions about the drivers and pathways of change
 - Collection, management and use of big data will become a key driver for countries seeking to grow and become part of global networks
 - Appropriate global incentives will evolve that encourage and facilitate sharing of big data by developing countries
 - Information is necessary but not sufficient for change to take place; additional activities are needed to facilitate use of information
 - Trade is a key driver for change in developing countries and there is potential for participation of poor smallholders
- Assumptions about the belief systems at play within society, informing judgements about the appropriateness of different strategies for that context.
 - Implementation of new approaches must be adapted to account for local belief systems in order to reach target beneficiaries
 - Greater participation of women and youth in agricultural systems can lead to improved benefits for smallholder farming families
 - Developing country scientists and other stakeholders currently fear sharing data, but are open to change behaviour if clear benefits can be demonstrated
 - Data collected at grassroots level will increasingly be sought to inform decision-making at regional and national levels
 - Policy and decision-makers respond to evidence of positive impacts of actions for their constituents

Appendix 3

Thematic Logical Frameworks

Development, Communications and Extension			
Thematic Goals	Thematic Outcomes	Thematic Outputs	Output Indicators
Increased incomes from better market access	1. Uptake at scale of research results	Scale-up campaigns implemented reaching thousands of farmers	Communication channels deployed (radio, mobile, print etc.) Nos. of farmers reached Nos. of farmers changing behaviour Nos. of farmers benefiting from change
		Evidence collected of how different family members receive and share information	Reports/papers/case studies describing studies carried out
		Evidence of complementarity of different communication approaches	Reports/papers/case studies describing studies carried out
		Communication products targeting intermediaries and farmers produced and shared	Nos. of products posted in online repositories
Increased quantity, quality, safety, and nutritional content of food	2. Local stakeholder networks strengthened and providing ICM solutions	Locally adapted IPM packages, including use of biocontrol agents, developed	IPM package descriptions and training materials
		Individual training of farmers and national staff of stakeholder organisations involved in ICM and plant health systems	Training manuals and training/project reports MAS students completing course Case studies on training outcomes
		Facilities producing biocontrol agents operating	Project reports
		Methodologies for production and utilization of insects as livestock feed developed and piloted	Protocols for methods and approaches; Reports on pilot testing
Enhanced sustainability and climate and resilience of farming systems	3. PHS stakeholders working together in new ways	Plant clinic networks established and serving farmers	No. of countries and clinics and clinic attendance
		Plant health system stakeholders working together more effectively to deliver services	Country progression according to sustainability roadmap
		Advice on management of big problems identified at clinics shared widely with farmers	Nos. of farmers reached in mass communication activities
		Data collected at clinics is managed and used to inform actions of different stakeholders in the plant health system	Stories of change illustrating examples of where clinic data is used to inform actions
Systems better able to anticipate, mitigate, and adapt to shocks	4. Increased utilisation of good quality seed	Evidence demonstrating quality	Reports/papers/case studies describing studies carried out
		Stakeholders working together in new ways to deliver quality seed of improved varieties using a variety of delivery pathways	Reports/cases studies and policy briefs providing evidence of seed systems complementing the formal mainstream production
		Increased production of improved varieties of seed	Volumes of seed produced
		Deployments of new varieties matching community needs	Nos. of new varieties introduced
		Local seed businesses established	Nos. of local seed businesses

Trade and Commodities			
Thematic Goals	Thematic Outcomes	Thematic Outputs	Output Indicators
<p>Increased incomes from better market access</p> <p>Increased quantity, quality, safety and nutritional content of food</p> <p>Enhanced sustainability and climate resilience of farming systems</p>	1. Decreased pest losses in focus crops	Pest loss information collected and reported	Reports/papers/case studies carried out
		Effective management methods developed and disseminated to farmers	No. of pests for which methods developed
		Improved access to validated information on pest management and productivity	No. of synthesised knowledge tools produced; No. farmers reached
		Farmers adopt recommended methods on pest management	No farmers following recommendations
		Evidence of reduced pest losses and increased productivity	Reports/papers/case studies describing studies carried out
		Methods for improving quality developed	No. of new methods developed
	2. Better quality produce from smallholders	Improved access to validated information for better quality and communicated to producers	No. farmers reached
		Farmers adopt recommended practice for quality	No farmers following recommendations
		Evidence of improved quality attracting higher premiums	Reports/papers/case studies carried out
		Evidence of improved family incomes	Reports/papers/case studies carried out
		More goods being traded regionally	Reports/paper/case studies produced; Volumes of focus traded goods increased
		Reduced post-harvest pest losses	Reports/papers/case studies describing studies carried out
	3. Increased efficiency of value chains	Improved interactions between stakeholders in selected value chains demonstrated	Reports/papers/case studies carried out
		Methods established to address value chain inefficiencies and improve communication	Reports/papers/case studies carried out
		Evidence collected of enhanced regional and international trade in our focus commodities	Reports/papers/case studies carried out
	4. Increased compliance with food safety regulation	Access to validated information on compliance improved	Validated information produced and disseminated
		Producers adopt good practice for meeting food safety requirements	No. of producers adopting the practices; Proportion of produce meeting standards
		Capacity of food safety regulators developed	No. regulators trained

Invasive Species			
Thematic Goals	Thematic Outcomes	Thematic Outputs	Output Indicators
Increased income from better market access	1. Affected stakeholders are aware of and act upon invasive species information	Scientific publications increasing	Number of publications up by 5 per year
		CABI-derived media coverage of issues and actions increasing	Increased media coverage, increasing by 20% per year
		Communications strategies developed with national and regional partners	Communication strategies developed and implemented
		Awareness materials and campaigns developed and run with national and regional partners	Posters, pamphlets, brochures, etc. developed as part of awareness campaigns
Increased quantity, quality, safety and nutritional content of food	2. Relevant stakeholders have enhanced capacity to collaborate effectively and efficiently across borders	Stakeholders working through established regional IAS coordination units and biocontrol working groups	Regional biocontrol working groups, regional coordination units
		Regional and national IAS strategies developed with relevant stakeholders	Regional IAS strategies developed and printed/published, and possibly endorsed by Governments
		Knowledge and technologies shared with national and regional partners	Communication strategies developed and implemented
		Capacity development of relevant staff	e-learning modules developed
Enhance sustainability and climate resilience of farming systems	3. IAS policy and associated enabling policies and regulation strengthened and/or developed		Postgraduate students registered and supervision on-going
			Staff knowledge increased through on-the-job learning
			Integration of IS training into learning institutions
		Regional and national IAS strategies developed with relevant stakeholders	Regional IAS strategies developed and published
Sustainable utilisation and conservation of biodiversity and ecosystems	4. Invasive and potentially invasive species are identified, monitored and managed	National Invasive Species Strategic Action Plans developed in conjunction with risk analyses, cost recovery mechanisms, early detection, and rapid response plans	NISSAPs, risk analyses, EDRRs, cost recovery mechanisms developed, printed and produced
		Ecosystem management plans developed for key ecosystems	Ecosystem management plans developed and issued, and possibly implemented
		Cost recovery systems developed to facilitate implementation of policy or management strategy	Cost recovery systems developed and operational
		Best management practices available for key pests	Best management methods developed and disseminated
System better able to anticipate, mitigate and adapt to shocks		IS management decision, making evidence produced	ID guides, distribution maps, predictive models, socio-economic surveys, publications
		More use made of biological control for worst pests	Biocontrol agent introduction applications
			Biocontrol agent releases

Knowledge Management			
Thematic Goals	Thematic Outcomes	Thematic Outputs	Output Indicators
<p>Evidence-based decisions and policies</p> <p>Farmers have better information and support</p>	<p>1. Knowledge delivered to agricultural and environmental scientists in academia, corporates, and government. Core publishing business remains relevant, responsive to customer needs, and profitable for CABI</p>	Internal Evidence-based Review programme delivered	No. of published Evidence-based Reviews
		Pipeline of specific new products with defined revenue potential	Roadmap approved by EMT/Board and new products launched as per plans
		Services to support evidence-based decision-making	Nos. and revenue potential of new services
		All database and book targets (commissioning and publishing) achieved	Nos. of records added and titles published and commissioned
		Publishing profitability maintained through revenue growth and/or cost savings	Net profit target
		Put the customer at the centre of product development with excellent user experience and support	Nos. of UX testers, UX plans and surveys. move to levels 3 and 4 in UX framework.
		Knowledge product to support invasive species strategy specified and developed, incorporating ISC	ISC maintained as open access, open data
		Next-generation materials library for the Africa Soil Health Consortium developed, migrating all content into CABlcore and making it available as open and linked data	Launch dates, Nos. of visitors
		Plantwise Knowledge Bank maintained and enhanced, migrating content to CABlcore and making it available as open and linked data	Nos. of visitors; Nos. of factsheets;
		Tools and training provided through PWKB to allow greater autonomy in data processing and analysis in-country	Countries operating their own plant clinic monitoring and decision making.
<p>Effective, innovative partnerships</p>	<p>2. Multiple communication channels and ICTs, leveraged for 2-way information exchange at scale to develop new extension approaches</p>	Mobile mainstreamed across CABI's programmes	Nos CABI projects incorporating mobile
		Scale up the use of tablets for information delivery and data collection in Plantwise, and other programmes	No of countries with all active plant doctors using tablets
		Other approaches to information dissemination and communication piloted, including social media, radio, and other mass media	Likes, Followers, Audience figures

Knowledge Management (cont)			
Thematic Goals	Thematic Outcomes	Thematic Outputs	Output Indicators
Systems better able to anticipate, mitigate and adapt to shocks	3. All CABI knowledge and data accessible internally and externally using modern, flexible, digital platforms	CABcore programme roadmap delivered	Go-live achieved for all components
		Data Strategy developed and communicated.	Process adopted by all CABI staff
		Open Access and Open Data policies and strategies agreed and implemented	No. of OA publications and No. of Open Data platforms and projects
		Roadmap to deliver specific business outcomes agreed and prioritised	Budget approval to deliver upgraded corporate system capabilities
		New CAB Direct platform roadmap for future enhancements and customer migration strategy	Share and value of database subscriptions/revenue from CD platform
		Support provided for CABI-wide M&E systems and tools	M&E system specified and implemented
Evidence-based decisions and policies Farmers have better information and support Effective, innovative partnerships Systems better able to anticipate, mitigate and adapt to shocks	4. New ways of working promoted within and between organisations	Through GODAN, an open agricultural and nutritional data ecosystem that facilitates increased supply and use of agricultural and nutritional open data for enhanced accountability and transparency, improved service delivery, innovation, and economic growth	Launch dates, % of projects on system
		Data business developed, with a focus on opportunities to add value to data through interpretation, analysis, and contextualisation	No. proposals developed, no. projects won
		CABI positioned as the Knowledge Management partner of choice for other organisations engaged in agricultural development efforts	No. proposals developed, no. projects won, no. partnerships

Appendix 4

Summary of Key Actions and Critical Milestones (2017 – 19)

Theme	Key Actions	Critical Milestones	Timing
Corporate	Renew corporate IT systems for greater effectiveness and efficiency	<ul style="list-style-type: none"> Financial Planning HR Management CRM 	<ul style="list-style-type: none"> 2017 2018 2019
	Resolve regulatory issues around UK Pension Plan	<ul style="list-style-type: none"> Acceptance of 2014 Recovery Plan by Pensions Regulator Reach agreement with Pension Protection Fund over eligibility and size of levy 	<ul style="list-style-type: none"> 2017 2017
	Develop a UK property strategy that can win planning approval and bring all UK staff into one location	<ul style="list-style-type: none"> Agree 2017 Recovery Plan with Trustees Final decisions on Wallingford Agree preferred site for Egham and/or Wallingford relocation Egham sale 	<ul style="list-style-type: none"> 2018 2017 2018 2019
Trade and Commodities	Raise productivity of key crops by developing and advocating more effective pest management methods and disseminating best practice information to promote future sustainability and climate resilience	<ul style="list-style-type: none"> Best practice tools and recommendations developed Best practice methodologies delivered Process established for monitoring adoption of best practices 	<ul style="list-style-type: none"> 2017 2018 2019
	Promote better quality produce by introducing new post-harvest and processing technologies, developing capacity and increasing access to information	<ul style="list-style-type: none"> Protocols developed to support best practices for post-harvest and processing New technologies delivered to stakeholders Socio-economic studies established to assess impact of interventions on livelihoods 	<ul style="list-style-type: none"> 2017 2017 2019
	Increase value chain efficiency through better stakeholder interaction and communication, and building sanitary and phytosanitary capacity to expand trade and strengthen biosecurity	<ul style="list-style-type: none"> New knowledge tools developed Process established for monitoring of improved stakeholder linkages Increased regional trade in focus commodities demonstrated 	<ul style="list-style-type: none"> 2017 2018 2018
	Increase compliance with food safety regulations through capacity building and improved access to information to promote better food production and processing for the benefit of all consumers.	<ul style="list-style-type: none"> New training tools developed to address food safety concerns in value chains Delivery of food safety curricula and training Process established for monitoring compliance of value chain participants for food safety regulations 	<ul style="list-style-type: none"> 2017 2018 2018

Theme	Key Actions	Critical Milestones	Timing
Development, Communications and Extension	Expand work in development communications supporting ISFM through ASHC and associated projects (SILT, UPTAKE, GALA)	<ul style="list-style-type: none"> Up to 3 scale-up campaigns implemented annually on ISFM-related topics through ASHC and associated projects annually At least 150,000 farmers reached annually At least 30,000 farmers adopt new practices annually New ASHC materials library launched At least 6000 web hits and 2000 downloads annually At least three papers submitted 	<ul style="list-style-type: none"> Annually Annually Annually 2017 Annually 1 paper p.a.
	Implement research to understand farmer behaviour in sourcing and sharing information and effect of combining communications approaches targeting different family members on awareness and adoption		
	Local stakeholders networks strengthened and ICM solutions developed and established	<ul style="list-style-type: none"> Locally adapted Integrated Pest Management packages including use of biocontrol agents developed Farmers and national staff of stakeholder organisations involved in ICM and plant health systems trained Biocontrol agent production units in a number of countries operating independently of project funds Stakeholders, including intermediaries, supporting farmers trained in IPM approaches in a number of countries Students completing MAS course held in Switzerland 	<ul style="list-style-type: none"> Apple IPM 2018 2019 2019 2018
	Implementation of the Good Seed Initiative	<ul style="list-style-type: none"> At least 1 case study and 2 papers New funding sourced to support seed system work - including seed systems for diversification of agriculture and seed not suited to formal seed system and links with nutrition Improved seed systems used to facilitate crop diversification for farming families Farmers adopt new crops as a result of increased access to seed - by end of 2019 Farming families improve nutrition security through better access to diverse crops 	<ul style="list-style-type: none"> 2018 2017 2018 2019 2020

Theme	Key Actions	Critical Milestones	Timing
Invasive Species	Based upon the Plantwise network and ICT approaches, develop an information infrastructure and tools for delivery of information and insights at scale supporting local identification, prevention, and management of major invasive species	<ul style="list-style-type: none"> Knowledge delivery infrastructure scoped according to end user needs New information tools developed to support risk analysis and regulation, complementing Plantwise processes Two-way feedback mechanism in place, tracking invasive species distribution and management, monitoring impact on the ground 	<ul style="list-style-type: none"> 2017 2017 2018
	Initiate regional, national and local collaborations across sectors to agree plans and inform policy for the management of invasions	<ul style="list-style-type: none"> Key government and non-government agencies collaborating at local levels in target countries Stakeholder consensus on action plans, including which invasive species should be included. Process established for monitoring compliance with national and international policy/agreements and addressing regulatory issues 	<ul style="list-style-type: none"> 3 countries by 2017 5 countries by 2018 5 countries by 2019
	Develop sustainable management plans for the key invasive species for target countries/regions, including training to develop and strengthen partner capacities	<ul style="list-style-type: none"> Risk mitigation and prevention protocols and tools developed with master training in place to build capacity Surveillance protocols developed in line with international guidelines, strengthened by Plantwise and citizen science Training curricula and protocols developed to support large-scale delivery of packages of best practice solutions Biophysical studies showing impact of early detection and control of biological invasion conducted and published to inform policy 	<ul style="list-style-type: none"> 2017 2018 2018 2018
	Facilitate local production, release and monitoring of plant protection products compatible with IPM, encouraging business plans that contribute to local employment opportunities	<ul style="list-style-type: none"> Situation baseline endorsed by target countries to underpin individual country action plans going forward Management plans for multiple invasive species in target country/region mapped against community context and local capacity to support implementation Socio-economic studies implemented to assess impact of early detection and control of biological invasions 	<ul style="list-style-type: none"> 2017 2017 Q1, 2018
	Continue to expand implementation of biological control agents	<ul style="list-style-type: none"> Average 1 new petition and 2 releases per year Achieve 2 new releases in Europe, 2 in Americas and 4 in Africa by end of plan 	<ul style="list-style-type: none"> Ongoing 2019
	Regional and national IAS strategies with associated communication plans developed	<ul style="list-style-type: none"> Average 2 strategies per year Achieve 5 national and 1 regional strategy by end of plan 	<ul style="list-style-type: none"> Ongoing Q4 2019
	Increase CABI derived media coverage and scientific publication level for IAS	<ul style="list-style-type: none"> 30 media articles in 2017, increasing by 20% p.a thereafter Social media uptake doubling every 18 months 50 CABI authored papers in 2017, increasing by 10% p.a. 	<ul style="list-style-type: none"> Ongoing Ongoing Ongoing

Theme	Key Actions	Critical Milestones	Timing
Knowledge Management	Knowledge product to support invasive species strategy specified and developed, incorporating ISC	<ul style="list-style-type: none"> Pilot product to support programme conceptualised and tested with donors and users New tools launched and full-version, including 3rd party content, released Legacy invasives content digitised and added to CABIcore Knowledge toolkit used by all partner countries for data and information exchange 	<ul style="list-style-type: none"> 2017 2018 2017 2019
	Next generation materials library for ASHC developed, migrating all content into CABIcore and making it available as open and linked data	<ul style="list-style-type: none"> ASHC database fully integrated into CABIcore and library version 1 launched ASHC materials available as Open Linked Data Evidence of impact and increase in usage 	<ul style="list-style-type: none"> 2017 2018 2019
	CABI positioned as the KM partner of choice, securing contracts to provide services to support evidence-based decision making for other organisations engaged in agricultural development	<ul style="list-style-type: none"> Participation in 2-3 new projects/consortia per annum to provide KM services 	<ul style="list-style-type: none"> 2017-19
Global Scientific Publishing	Pipeline of specific new products created with defined revenue potential	<ul style="list-style-type: none"> Horticulture Compendium launched New online resource to support Sustainable Tourism Development approved and in development Commercial Plantwise spin-outs identified and launched Pipeline grows by 2-3 new products per annum 	<ul style="list-style-type: none"> Q1 2017 2017-18 2017-18 2017-19
	All database and book targets achieved	<ul style="list-style-type: none"> Target subscription renewal rates achieved 60% of database subscriptions delivered via CAB Direct New books commissioned grows from 100 in 2017 to 120 in 2019 New books published grows from 65 in 2017 to 85 in 2019 Book programme used as springboard for growth in full-text content development and product innovation 	<ul style="list-style-type: none"> 2017-19 By 2019 2017-19 2017-19 2017-19 Ongoing
	CABIcore programme roadmap delivered	<ul style="list-style-type: none"> Plantwise KB and ASHC integration completed New database production system designed and implemented, based on MarkLogic technology All CABI legacy content migrated to CABIcore Automation and machine learning exploited to generate new knowledge and insight and made available for new product development Initial ontologies available in key domains (plant health, soils) 	<ul style="list-style-type: none"> 2017 2017-19 By 2019 2018-19 2017

Theme	Key Actions	Critical Milestones	Timing
Global Scientific Publishing continued...	Data strategy developed and communicated	<ul style="list-style-type: none"> Data strategy published Science data life cycle and process designed and rolled out All CABI data available to CABIntore and accessible via APIs Public access to subsets of plant clinic and distribution data; data exploited in forecasting and modelling activities 	<ul style="list-style-type: none"> Q1 2017 2017-2018 By 2018 By 2019
	New CAB Direct platform roadmap for future enhancements and customer migration strategy	<ul style="list-style-type: none"> 18 month roadmap fully costed and planned for roll-out, including new features and functionality as well as new content and products Key customer migrations achieved Quarterly software released/delivered 	<ul style="list-style-type: none"> Q1 2017 Annually Annually
Plantwise	Increase/maintain the number of countries benefiting from Plantwise technologies, products and knowledge	<ul style="list-style-type: none"> 13,500 factsheets delivered online and/or offline (cumulative) 20 countries operating their own plant clinic data management system 19 countries using plant clinic data for decision, making Digital devices used in 25 countries for capturing plant clinic data and exchanging plant health information 800,000 plant clinic records stored in POMS (cumulative) 	<ul style="list-style-type: none"> 2019 2019 2019 2019 2019
	Increase number of male and female farmers access to new technologies, products and knowledge on plant health	<ul style="list-style-type: none"> Cumulative 5 million farmers reached directly and 20 million indirectly with timely and locally relevant information and advice on plant health 6,700 plant doctors trained (cumulative) 3,000 plant clinics in operation across Africa, Asia and the Americas 3,000 Pest Management Decision Guides and Factsheets for Farmers locally developed and validated (cumulative) Private sector-supported plant clinics piloted in 13 countries Knowledge bank open access content accessed by 2,400,000 people (cumulative) ICT/Mobile services and/or social/mass media campaigns used to disseminate targeted messages to key stakeholders or beneficiaries with a minimum of 3 distinct campaigns in 9 countries (cumulative) 	<ul style="list-style-type: none"> 2019 2019 2019 2019 2019 2019
	Increase/maintain the number of strategic partnerships with national and regional institutions to support adoption and scaling up	<ul style="list-style-type: none"> 25 data sharing agreements signed with national partners National fora/ steering committees or their functional equivalents operating to oversee coordination 32 countries 	<ul style="list-style-type: none"> 2019 2019

Theme	Key Actions	Critical Milestones	Timing
Plantwise continued...	Documentary evidence to support (i) learning (ii) scale-up (iii) gender mainstreaming and (iv) adoption of plant clinic advice, resulting in improved plant health management and hence reduced crop losses, increased productivity and, crop-based household income	<ul style="list-style-type: none"> Basic and systematic M&E taking place in 32 countries (cumulative) Gender outreach plans implemented in 32 countries 7 region-specific external evaluations conducted (cumulative) 2-3 country-specific impact assessments finalised (cumulative) 3 papers published on lessons learned through Plantwise implementation Findings from 12 case studies conducted across countries in Africa and Asia (cumulative) used to inform adjustments in programme implementation necessary for continual improvement Impact pathway developed and used to guide evaluations needed to provide evidence of impact on food security and household incomes in 5 countries (cumulative) 	<ul style="list-style-type: none"> 2019 2019 2019 2019 2019 Annual 2019 2019
	CABI's science research published, disseminated and monitored	<ul style="list-style-type: none"> 100 publications; 30 in journals with impact factor > 2 CABI Science Report to monitor publications and other scientific outputs At least 3 publications/evaluation reports measuring impact Altmetrics defined to measure impact of publications Open access CABI Scientific Outputs Portal (CSOP) complete from 2000 to date 100% of CABI first and corresponding author journal publications available open access 	<ul style="list-style-type: none"> Annual Annual 2018 2019 2019 2019
Science	CABI's leading position in biological control maintained	<ul style="list-style-type: none"> At least 50 BCAs studied across all CABI centres 5 introduction applications submitted by national partners BIOCAT up to date, expanded, analysed and made available 	<ul style="list-style-type: none"> Annual 2019 2019
	CABI's science base, skills and resources strategically strengthened, including use of new technology, social and economic science and gender awareness.	<ul style="list-style-type: none"> 6 social or economic scientists employed in at least 3 centres and 10-15 CABI scientists trained At least 21 research students and 52 interns employed across CABI At least 12 publications using gender disaggregated data At least 12 publications demonstrating the application of new tools/technology 	<ul style="list-style-type: none"> 2019 2019 2019 2019

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