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CABI Medium Term Strategy

2014–2016

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KNOWLEDGE FOR LIFE

Contents

1. Executive Summary

Through the Vision 2020 process, endorsed by the 2013 Review Conference, CABI has now developed a picture for the longer term evolution of the organisation, together with a set of goals to measure progress towards delivery of that vision. This paper lays out the first steps we will take along the pathway to Vision 2020 over the next 3 years. The main paper provides the key top-level strategy, with Appendices providing more detailed thematic strategies and logframes to support monitoring and evaluation.

CABI will ensure that all its work is gender sensitive so, 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. The key strategic goals for the organisation are reduce risks for smallholder farmers against a background of climate change so as to:

- Help smallholder farmers to sustain or increase their incomes and improve their livelihoods.
- Contribute to greater food and nutritional security worldwide.
- Promote innovation and build capacity to adopt more sustainable agricultural practices.
- Protect the environment, through maintenance of ecosystem services and conservation of biodiversity.

We see continued evolution of the organisation towards integrated ("one CABI") solutions for delivery of knowledge to solve problems in agriculture and the environment. We will embrace new technologies, products and research outputs to deliver our strategic goals. The key drivers and manifestations of change will be the following:

- Mobile delivery of information and interaction with our customers will become a key element of our projects, products and services.
- Improving food security will be about nutritional quality, as well as quantity of food.
- We will be increasingly working with businesses in the private sector as well as with the public sector.
- We will improve our ability to measure and evaluate the outputs and outcomes of our work and demonstrate their impact on hunger, nutrition and farmer incomes.

Within the timeframe of this plan, we expect to retain the current structure of Publishing and International Development business units which allow good focus on our historic customer bases, largely comprised of academic librarians and international donors respectively. This structure is not so well suited to emerging new opportunities, addressed through programmes such as Plantwise, Tradewise and Mobile, which are more of a "one CABI" nature. Until these become more mature, we will appoint dedicated business development individuals but support delivery with resources drawn from the core businesses as and when appropriate on a project team basis – as we have done for Plantwise.

The associated 2014-2016 Budget and financial plan for CABI anticipates net revenue growth of 5-10% per annum. As we grow our International Development activities, we anticipate that they will achieve a break-even position and, together with continued downward pressure on Corporate overheads, this will allow us to retain a greater proportion of the profit from our Publishing business so we expect an increase in CABI's overall operating surplus by 10-20% p.a., taking it into our target range of 5-10% of net revenue.

Our key imperatives over the plan period are to deliver the Plantwise programme, to extend the breadth and depth of donor support in ID, to build a stronger business base with the private sector and to maintain the levels of income and profitability from the existing Publishing portfolio and to develop and innovate new revenue streams through better management and commercialisation of CABI's rich content collection.

2. Context

A growing world population, combined with economic and social development, will continue to drive increased demand for agricultural outputs of food, fodder, fuel and fibre. The pace of this change is getting faster as a result of globalization, climate change and rising expectations of income and lifestyle. Nutritional security is becoming as much of a concern as food security with some populations having sufficient carbohydrates but lacking in a balanced diet, whilst others have problems of over-nutrition with increasing meat consumption Simply enlarging the amount of land dedicated to agriculture is neither desirable nor feasible. To meet these challenges, sustainable intensification of agriculture is essential – growing more and losing less with the same (or fewer) inputs of water, energy and chemicals – whilst at the same time delivering prosperity and maintaining the long term health of the land, ecosystems, people, plants and animals through which that output takes place. Vulnerable smallholder farmers need help to manage risk and increase their resilience as the effects of climate change and variability become more apparent around the world.

Pests, diseases and weeds cause major losses in production and affect food crops, cash crops and livestock. In developing countries where agriculture is generally the main source of livelihood for more than 50% of the population, farmers grow food crops to feed their families and grow cash crops to earn income to buy food and to invest in their homes, health and education. Therefore, plant health problems pose a constant threat to the yield and quality of food production. Furthermore, compliance with quality and safety standards, particularly for supply to the private sector, is increasingly becoming a prerequisite for accessing domestic, regional and international markets.

Farmers in the developing world are not receiving the best advice on plant health problems when and where they need it, whilst governments and national organizations responsible for research and extension are ill-prepared to respond to such needs. This is often due to low awareness as well as poor management of information in respect of solutions and recommendations that are already known. Nevertheless, development agencies around the world have found that putting such recommendations into practice for smallholders on a regular basis, across large areas and varied agricultural conditions has proved difficult to sustain beyond partial improvements achieved through intermittent project investments. A key challenge in this respect is the degraded capacity of extension systems and supporting institutions, coupled with out-dated or inappropriate policies and regulations.

The challenges of increasing agricultural output in a sustainable manner to reduce poverty, increase food security and improve nutrition in the developing world continue to receive significant attention and funding from international bodies, foundations and national development agencies. However, the global approach is changing so that project grants and support are viewed much more as investments to deliver measurable impacts which will be sustainable over the long term after the project has ended. The targets and priorities for development funding are now driven much more by the recipient countries who also take responsibility for applying the funds through partners that they feel are most appropriate to address the local needs and situations. Helping farmers to access demand led supply chains is becoming increasingly important with opportunities arising from the need to provide food to rapidly urbanising populations in their own countries as well as meeting the requirements for exporters and producers regionally or internationally.

The academic and research community worldwide continues to struggle with tight budgets as a result of the ongoing challenges of low economic growth in the developed world and uncertainty in the international financial climate. In the world of traditional Scientific, Technical and Medical (STM) publishing, these trends are further compounded by structural shifts in usage (personal, individual access rather than visiting the library) search patterns (Google vs specialist sources), technology (electronic vs print) and the adoption of open access /open data policies by major research funders.

3. Building upon our strengths and addressing challenges

CABI is well-placed to respond to the challenging international development context and economic climate described above. As an international organization, owned by its member countries, CABI is, and will remain, sensitive and responsive to their needs. In responding to those needs on a global basis with a relatively small base of staff, CABI already has established the necessary approaches, culture, skill base and track record of working in close partnership at national and international levels to deliver impact.

Through the generation and application of knowledge, delivered by an extensive network of partners, CABI aims, to sustain or improve livelihoods in its member countries and beyond by solving problems in agriculture and the environment.

Funding to support programmes in developing countries comes from member country fees, income earned from CABI's publishing activities and project funding from a wide range of development partners. With less than 3% of overall costs being core-funded by member countries, CABI has developed the disciplines to operate efficiently and effectively so as to be financially self-sustaining. Over the last 5 years, the organization has made good progress strategically and financially through:

- Communicating our capabilities more effectively.
- Delivering projects more efficiently.
- Adopting a 'key account management approach' to build relationships with key donors.
- Achieving a mind-shift from technology push to customer pull.
- Building better teamwork within and between centres to leverage capability more effectively.

As a result, CABI has become more visible and achieved a positive reputation for delivery with donors in the international development community.

CABI makes a difference in developing countries by applying its skills to address food security. Developed countries in North America and Europe also contract research services from CABI to address their own local problems. CABI makes a difference in developed countries by using applied research to develop new bio-control options targeting pests and weeds that threaten biodiversity, industry (e.g. against forestry pests threatening timber sources) and agricultural economies (e.g. pests and weeds affecting crop production).

This Medium Term Strategy describes CABI's Theory of Change and Theory of Action, showing how we will capitalize on these key competences and add value to partner activities so as to deliver against our strategic goals.

It is likely that there will be continued pressure on revenues for the foreseeable future. Careful cost management therefore remains an ongoing priority. There will be a constant need to review processes and streamline operations for efficiency to ensure financial viability. In addition, as our base of senior management approaches retirement age there will be a need to deliver an effective succession plan for key skills and key staff to ensure that core competencies and organizational knowledge are not lost and we maintain the necessary capacity to deliver these skills and knowledge effectively.

4. Theory of Change

Problems in agriculture and the environment – whether in developed or developing countries – cannot be solved without new knowledge, but knowledge is normally not sufficient to bring about change. Building the capacity of systems[1] at local, national and regional levels is also needed if knowledge is to be translated into sustainable, practical action. CABI cannot establish sustainable systems on its own, but aims to pilot new ways of working and partnering with national system actors such as governments, research institutions and the commercial sector to adopt and achieve long term change at scale.

Figure 1 illustrates the CABI theory of change that guides how we organize our work to build institutional capacity at to solve problems in agriculture and the environment.

Knowledge on different topics and from different sources needs to be managed and made accessible, with mechanisms in place that facilitate sharing. The capacity of systems to respond to problems depends on the way in which organizations and individuals interact and work together, whether we are talking about the way in which a value chain functions; agro-advisory services are delivered; a biocontrol method is implemented or a national plant health system operates. Local policy, culture, ways of working and social values strongly influence behaviour, so systems, models and approaches need must be adapted to the local context. CABI's linkage to national institutions through its member country network makes this cultural awareness and sensitivity a core competence of the organisation.

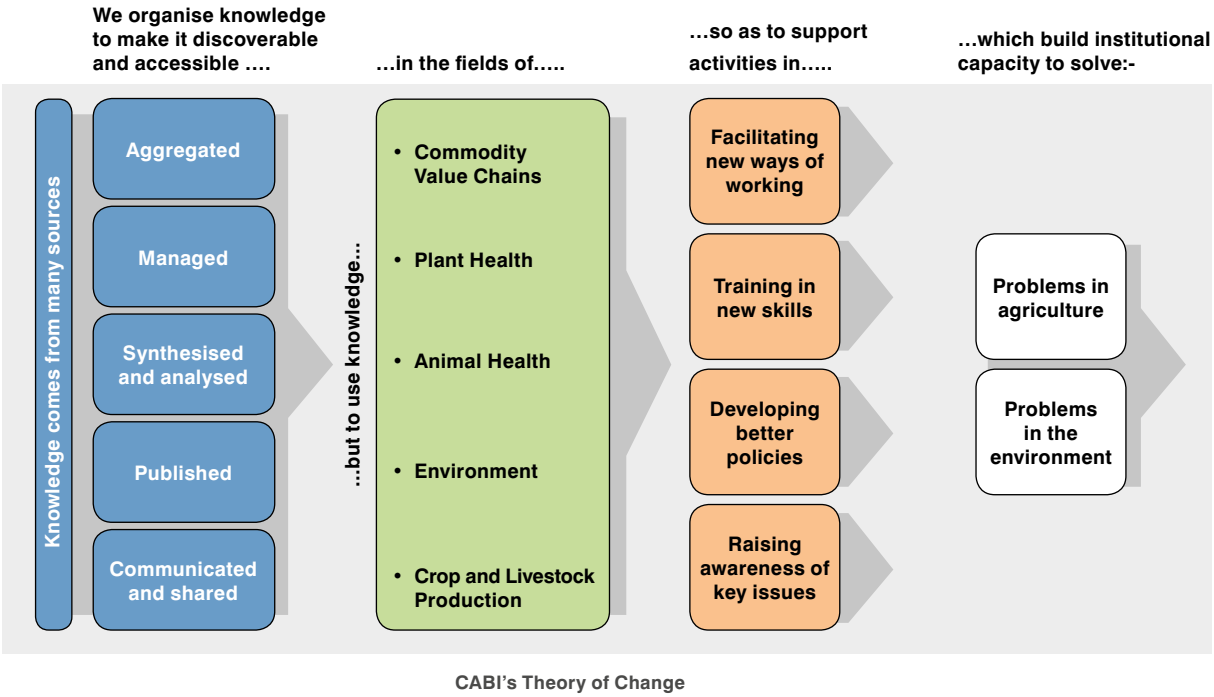

Figure 1: CABI Theory of Change

CABI supports and develops the institutional capacity in national systems to increase the opportunities for farmers, help them make more informed choices and manage risk more effectively. This is not just about improving output and reducing losses but also about increasing access to and availability a broader range of food so that rural communities achieve nutritional security and balanced diets.

1. A system can be defined as a set of stakeholders and the formal and informal linkages and interactions between them. System capacity reflects the ability of the individuals and organisations within that system to achieve a particular task, e.g. deliver plant health services, produce and market a particular crop etc.

5. Theory of Action

CABI's theory of action is designed to capitalize on our current key competencies and set the direction for development of new ones, adding value to on-going programmes and initiatives to achieve the CABI mission. CABI helps address the challenges of increasing food and nutritional security whilst improving livelihoods by helping farmers grow more and lose less. Food security, at individual, local or national level can be achieved through greater output or by earning more so that sufficient food can be purchased.

As shown in Figure 2 below, these routes are not mutually exclusive and CABI's strategy recognizes that helping farmers lose less provides the opportunity for early wins while helping them move from subsistence to commercial farming is a vital part of delivering improved livelihoods in rural communities. This is not just about helping them produce more for their local markets but also giving them the knowledge and skills to meet the safety and quality requirements that will enable them to access supply chains supporting the needs of rapidly growing urban populations – both domestically and for export. CABI also supports the introduction of new technologies, approaches and seed varieties (including biotechnology) which will be essential to deliver long term food security for the world in the future.

Food and Nutritional Security – build or buy

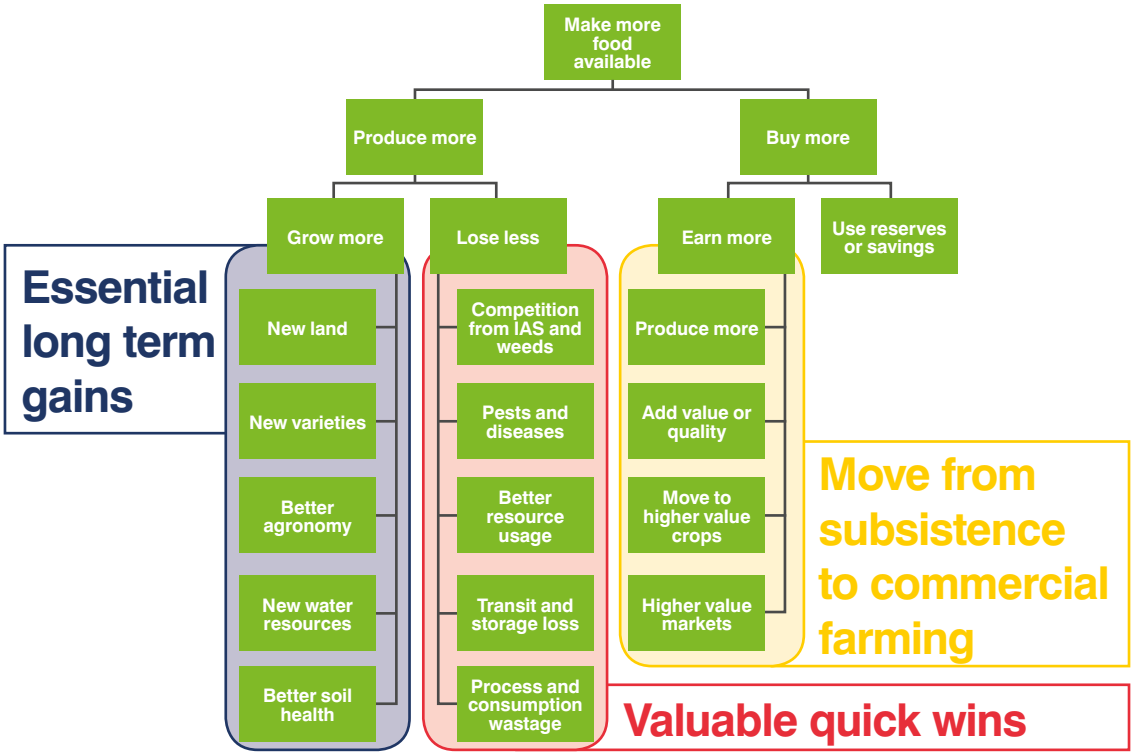

Figure 2: Routes to Food and Nutritional Security

CABI has staff located in, and working from, centres and offices covering Africa, Asia, Latin America and Europe. Each CABI centre has its own geographic area of focus but relevant skills are used across centres. Preparation of peer-reviewed and other publications to report on the results of our research is common across all the CABI themes.

Figure 3 illustrates the key areas where CABI brings its expertise to bear.

In particular, CABI seeks to support and improve the capacity of national institutions to help farmers address new opportunities, make informed choices about new technologies or crop varieties, manage risk more effectively and adapt or build resilience to climate change. We do this so as to improve crop yields, safeguard the environment and increase access to knowledge and information on agricultural and environmental science. In developed countries where basic needs are largely met, a greater proportion of government funding is invested in protecting the environment and CABI applies similar approaches to address environmental issues.

CABI in Action

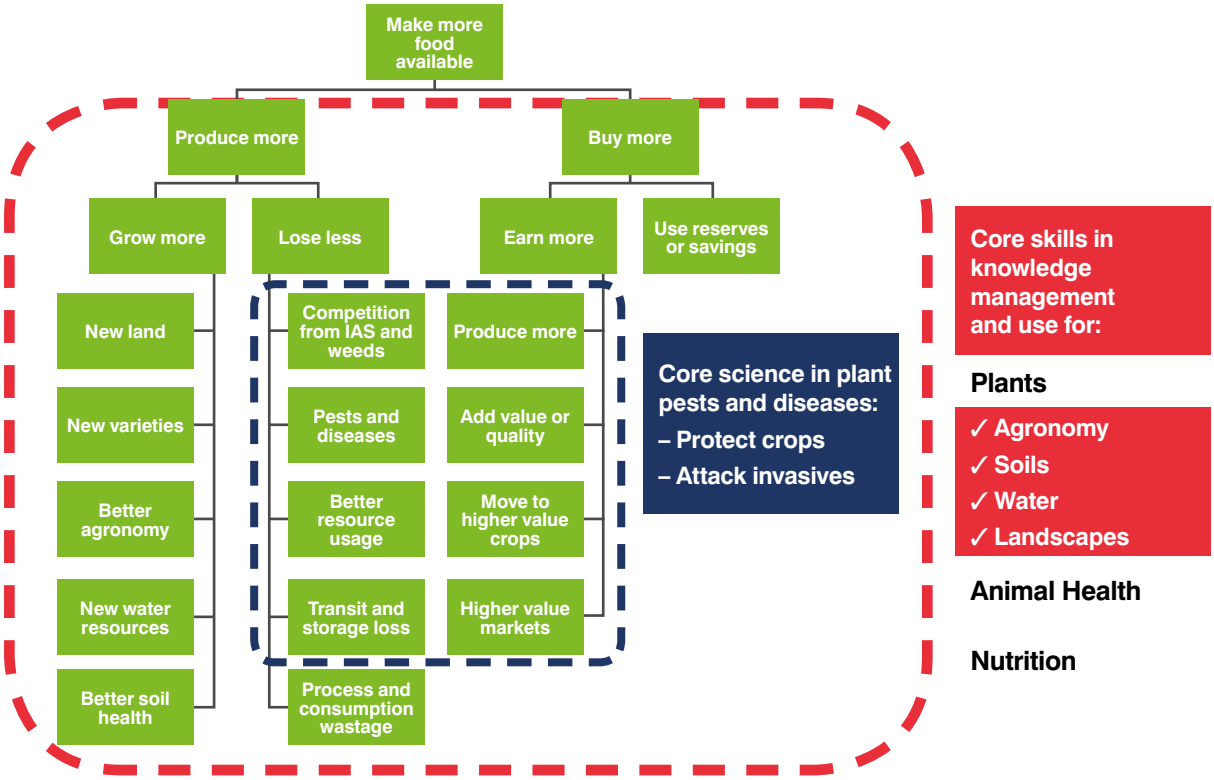

Figure 3: CABI Theory of Action

Our work is organized in five themes that provide strategic direction for CABI's development activities through a common set of goals and objectives supporting CABI's mission. Our Publishing activities contribute by building and sharing knowledge resources on a global basis for scientists in academia, research and development. Furthermore, the content and skills from that business support project activities across the board to deliver a one-CABI approach.

Figure 4 expands on the specific activities in each theme:

Figure 4: How CABI's themes support our strategic goals

Commodities improves the productivity, quality and profitability of smallholder crops including coffee, cocoa and cotton in order to improve market access by:

- Developing new methods to manage pests and diseases in focus crops to promote sustainable production, including prevention of new pest incursions that threaten production.
- Introducing new postharvest and processing technology to improve quality and allow smallholders to participate in higher value markets, both at home and abroad.
- Finding ways to better integrate smallholders into value chains so as to improve access to markets.

Invasive Species supports improved prevention and management of invasive species incursions to benefit agricultural productivity (crop and pasture production) and reduce the threats they pose to ecosystems and biodiversity.

- Developing biocontrol options to manage pests in agriculture, forests and the environment.
- Raising awareness of the impact of invasive species, piloting approaches to manage them and to improve agricultural production and enhance biodiversity conservation.
- Reducing chemical use through developing biopesticides as alternative options to chemical use.
- Collating and synthesising evidence, together with policy advocacy to contribute to the development of policies that improve management of invasive species.

Publishing and Knowledge Management support discoverability of and access to research knowledge by:

- Developing authoritative products for researchers, students and professional knowledge workers, such as Abstracts Databases, scientific books, online reference works and workflow tools.
- Developing applied information resources for practitioners such as the Crop Protection, Animal Health and Production, Forestry and Invasive Species Compendia, VetMed Resource, InfoTree and the Plantwise Knowledge Bank.
- Developing open access and open data approaches to knowledge sharing in the public sector.
- Supporting the other CABI themes through the provision of knowledge management skills, technology and publishing expertise.
- Developing and testing new approaches to deliver agro-advisory services using mobile technology.
- Building the evidence base needed to inform policy integrating knowledge using systematic reviews and working with partners in long term relationships to effect institutional change.
- Identifying, preserving and making accessible local research outputs to facilitate south-south knowledge sharing and building capacity in global research communities.
- Sharing knowledge and best practice for climate change mitigation and adaptation.

Knowledge for Development supports improved access to and use of knowledge by:

- Rolling out the Plantwise approach to strengthen Plant Health Systems delivering knowledge based, demand driven services to farmers and other plant health system stakeholders.
- Developing communication materials tailored to scale-up approach and target audience to support partners to scale out new technologies and options including in integrated soil fertility management.
- Building capacity for integrated crop management, institutionalizing integrated pest management approaches targeting education, policy and extension.
- Building capacity to control movement of pests and diseases and facilitate trade through training diagnosticians, developing response plans, facilitating networks and linkages.
- Strengthening seed systems to deliver new seed varieties of non-hybrid, niche varieties (e.g. Nerica rice) and high value under-utilized crops (e.g. African Indigenous vegetables).

Bioservices supports the preservation and identification of microbial resources to maximize 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.
- Maintaining and making available microbial diversity.
- Supporting and facilitating the utilization of microbial resources across member countries.
- Enhancing the microbiological and biotechnology capabilities in partner organizations and industries.

Appendix 1 gives more detail on the thematic strategies and Appendix 2 gives a logframe for each

6. Gender

CABI published its gender strategy in 2013. The purpose of this gender strategy is twofold: firstly to provide a brief and general introduction to gender for CABI staff, and secondly to provide practical guidance on how to include gender in CABI's project planning, implementation, monitoring and evaluation and data collection. Projects should be gender responsive, identifying gender roles and issues relevant to the project, and considering this information throughout the project life cycle. Guidance is given on gender issues that project teams must consider at each stage of the project cycle, along with suggestions for ways in which projects can engage more intensively with gender as appropriate. This includes recommendations on how to:

- Identify gender roles and issues relevant to the project.
- consider this information throughout the project cycle.
- Ensure that project documents and targets are gender disaggregated.
- Collect gender disaggregated data.
- Facilitate meaningful participation of relevant stakeholders, including marginalised groups (e.g. women, youth).
- Ensure that project budgets contain adequate resources to cover all measures taken to ensure that a project is gender responsive.

7. Member country needs and priorities

Following on from the regional consultation meetings with member countries, CABI has derived **SEVEN** priority areas (including 3 cross-cutting ones) by matching CABI's capabilities, with the priority areas and issues identified by all three consultation meetings and perceived areas of support from donors' priorities:

Priority Areas	Priority Issues
Trade and market access and development	Sanitary/Phytosanitary (SPS) compliance; Value-chain focus and postharvest value-addition; GAP and best practices promulgation, and capacity building; Commercialization and contract farming.
Knowledge management, communication and use	Technology transfer (particularly amongst member countries, and south-south); Sharing knowledge amongst stakeholder groups including youth and grassroots (Facebook Agriculture); Mobile advisory services; Improving communications to farmers; Evidence-based policies. Archiving and managing institutional research information.
Plant health	Managing a range of stressors including pests (IPM), water, and soil nutrients; IPM in high value crops; reduction in pesticide inputs; early warning systems for newly emerged/key pests & diseases.
Biodiversity and invasive species management	Invasive management; Capacity building of IS identification and diagnostics; habitat manipulation/agro-biodiversity enrichment Microbial resource collection, characterization and utilization; Development and production of biopesticides, and implications of biopesticides use.
Cross-cutting: • Climate smart agriculture • Institutional capacity building • Publication of, and access to, authoritative information resources • Creation of enabling policy environments	

Figure 5 summarizes how the individual themes and growth areas address the expressed priorities of member countries and contribute to the overall delivery of CABI's mission and strategic objectives:

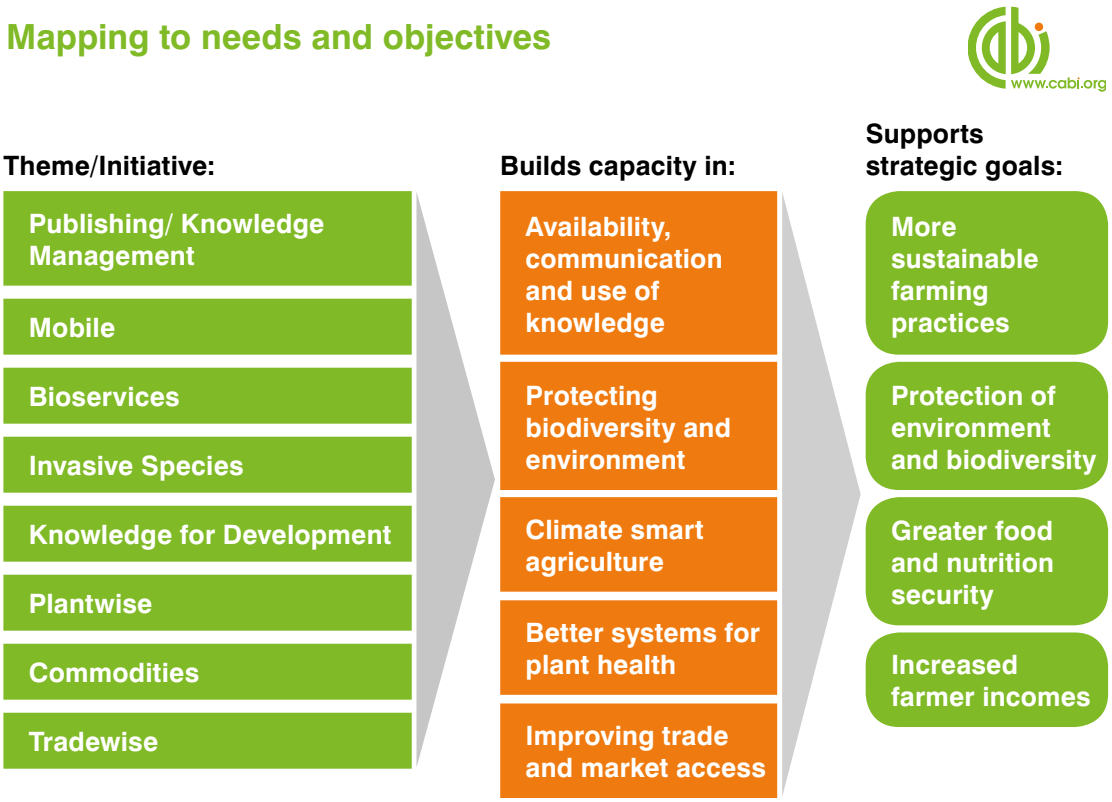

Figure 5: How CABI's activities support member needs and strategic goals

Whilst it is important for CABI to serve the needs of its member countries, it is also important to mobilize the membership base to help the organisation raise funding and to support the development of a favourable policy environment at national, regional and international levels. All our member countries will be involved where and when appropriate in our efforts to influence policy (see next section) but can also be extremely helpful in lobbying for CABI to be involved in the delivery of relevant capacity development efforts in their country and in the support of that delivery. This can come about through their connections with the local desks of major bilateral donors, international organizations, development banks and foundations. However, support from member countries in more tangible forms is also critical to the successful implementation of projects – for example to ensure that their relevant national institutions commit resources and give priority to CABI work over other competing calls on their time. CABI will mobilize member country support in the following ways:

- Regular individual visits by the CEO, ED ID, Regional Directors and Director of Memberships to meet ExCo representatives in London and Liaison Officers in country.
- Regular relationship-building and needs identification through Regional Consultations and Review Conference.
- Regular attendance at and support of appropriate national and regional events.
- Ensuring that our Liaison Officers are of appropriate seniority and located in the right ministry or department.
- Building relationships and linkages with other relevant ministries and stakeholders, even though they may not be directly responsible for the CABI membership.

8. Influencing policy

In order to meet the needs of our member countries and secure funding for the delivery of CABI's strategic goals, it is important for the organisation to raise awareness of the relevant issues and seek to create a favourable institutional and policy environment within which those issues can be addressed. Since CABI's core values rest strongly upon the promulgation of objective, science-based solutions rather than single issue lobbying, this will require us to build the necessary evidence base to support our position, as well as the appropriate advocacy and communications skills. CABI already has some of this capability through our work on systematic reviews, together with our commitment to strengthen Monitoring and Evaluation capacity within CABI.

This activity has national, regional and international dimensions depending upon the specific issues to be addressed:

- **National**

At the national level, we will focus on four key aspects of policy:

  - Building support for CABI membership and ongoing collaboration with relevant ministries.
  - Raising awareness of, and support for, CABI's activities with the local desks of major donor organisations.
  - Generating buy-in to, and commitment for, Plantwise activities at senior level amongst all the relevant stakeholders in the national plant health system.
  - Creating awareness of, and action against, specific national invasive species threats to catalyse the production of National Invasive Species Strategies and Action Plans (NISSAPs).

- **Regional**

At the regional level we will be active participants in key groupings and bodies: e.g. ASARECA, CORAF, APAARI, FARA, SEARC, COMESA, SADC. Through this participation we will seek to raise awareness of CABI's activities and develop concerted approaches or better integration across the various national initiatives we are supporting.

- **International**

Internationally, we will:

  - Ensure that we are active participants in key meetings, bodies and conventions, e.g. GCARD, UNFCCC, CBD, IPPC, STDF.
  - Raise awareness of food losses to pests, diseases and wastage so as to support programmes to curb those losses.
  - Play an active role in the evolution of the Tropical Agriculture Platform, an initiative of the G20 Agriculture Ministers, led by FAO, which aims to generate greater impact and coherence in efforts to build capacity in the agricultural innovation systems of less developed countries.
  - Continue to support the evolution of the Association of Independent Research and Development Centres in Agriculture (AIRCA) as a representative body for a number of international organisations that are not part of the CGIAR system, so as to enable us to have a coordinated approach and message at major international meetings.
  - Develop and communicate evidence of the economic and food security impacts of invasive species in order to make the case for greater funding to address these issues.
  - Contribute to policy and legislative developments which promulgate the use of biological control strategies to combat insect pests and weeds.
  - Engage in open access and open data initiatives to promote wider access to information, but also to ensure recognition that this still needs sustainable business models to support it.

CABI's communication strategies, use of social media, PR campaigns and outreach activities will integrate with, and provide support for, these policy objectives through the appropriate national, regional and global channels.

9. Fulfilling CABI's mission in International Development

Central to the delivery of CABI's mission is the work we carry out with national and regional partners to improve the livelihoods of rural smallholder farmers and to sustain the environment in which they operate. Within the context of this Medium Term Strategy (and indeed within Vision 2020) we see this core activity being maintained and strengthened. However, the way in which these projects are delivered is likely to change, with much greater use of modern ICT and mobile channels to complement our "feet on the ground" activities thereby enabling us to reach many more people with high impact messages more frequently.

Over the duration of the 2014 – 2016 plan, these activities must respond to the global situation and member country priorities already identified, as well as specific drivers and trends within international development.

Drivers and Trends

- Globalisation
  - Producers need to conform to market demand for best practices in production including animal welfare, sustainability and compliance to standards.
  - Increasing urbanisation and movement of population to large cities (particularly the young) will create new market opportunities for rural farmers but also result in challenges for access to labour and lower local demand.
  - Market access plus food safety concerns in consumer supply chains (pesticide residues, heavy metal contamination etc.) as well as the ambitions of producers in developing countries to access lucrative markets in US, Europe etc.
  - In some developing countries such as in East Africa a shift to commercial farming-agribusiness; this invariably means more public- private partnerships.
  - The rise of mobile phone access, together with its role in providing advice and services, has been exponential in the developing world. CABI has built a reputation for provision of validated content to support agri-advisory services.
  - Increasing interest in 'big data'. Using data collected to analyse, forecast, predict, and model changing patterns, in response to threats such as climate change, and invasive species.
  - Highly volatile prices of commodity goods, food crises and food insecurity; another period of food price increases are taking place similar to those observed in 2007-8 but farmers also need help with cash crops to enable them to earn more income with which to buy food.
  - There is growing demand for microbiological services and expertise for agriculture, biotechnology and manufacturing industry. Agricultural biotechnology is a rapidly expanding area in the South and South East Asian regions.

- **Climate change**
  - Effects on the distribution and incidence of pests and diseases; increasing vulnerability of smallholders.
  - Need for new tools for smallholders to help them adapt to the impacts of climatic change.

- **Donor agendas**
  - Greater acceptance of public- private partnerships (PPPs).
  - Push for open access/open data policies with associated issues of IP management.
  - Loans/investment not grants.
  - Current focus on staple crops for food security, limited support for cash crops.
  - Increasing emphasis on nutritional quality as well as quantity for food security and the link between agriculture and nutrition.
  - See increasing role for NGOs or the private sector for implementation.

- Climate Smart Agriculture.
- Awareness of the challenges of putting research into use, together with a scarcity of organisations that are well placed to address this.
- Increasing pressure for "Evidence-based policy", together with measurement of outcomes, impact and gender.
- Increasing awareness of invasive alien species (IAS) as one of the main inhibitors of economic development with direct impact on livelihoods, agricultural productivity and ecosystem sustainability.
- In Europe, key drivers for IAS are largely the EU Directives i.e. the Water Framework Directive, Sustainable Use Directive and the Invasive Species Directive.

Implications for CABI

CABI needs to:

- Ensure that it retain critical mass in the key internal capacities to deliver against the needs of food and nutritional security, as well as to build its capability and base of partnerships in relevant new areas, particularly mobile and M&E.
- Capitalise on SPS capacity building expertise to address developed country concerns about biosecurity and developing country imperatives to improve regional and international trade.
- Use mobile technologies as standard tools for communicating with stakeholders, taking a key role in building platforms for gathering, analysing and interpreting data, and for delivering advice on nutrition and animal health as well as crops.
- Engage with human nutrition partners to address the agriculture-human nutrition link, in activities with crops of high nutritive quality.
- Respond to the climate change agenda – e.g. adaptation support through plant clinics; seed system work to deliver improved varieties responding to changed or more variable climates and altered pest distributions.
- Build on current PPPs in different areas of CABI work in commodity value chains and seed systems etc.
- Explore new areas through Tradewise.
- Look more broadly at innovation systems concepts and building of innovation capacity as well as on scaling up particular technologies and practices (research into use).

Growth areas

In order to drive the planned revenue growth, we will develop action plans to address the following:

- A key area of potential new growth is in development communications, supporting others to communicate to key audiences (farmers, extension staff, policy makers etc.) in new and effective ways.
- There are opportunities to position CABI as a thought leader in extension as a result of interactions and experiences with Plantwise.
- Seed systems work shows potential for expansion as donors seek partners (and particularly PPPs) to support activities that get improved seed varieties into the hands of farmers.
- Strong complementarities exist between the themes in supporting multi-stakeholder initiatives and value chain work with commodities and addressing the practical aspects of invasives management in a development context.
- In Bioservices, requests for microbiological services are generally increasing and new services in strain fingerprinting and specialised contract research have been initiated in order to target the needs of a broader market through the Regional Centres.
- Building on the pilot work done in India and subsequent small projects in Kenya and Pakistan CABI is in a position to establish scalable mobile-based agriculture and nutrition sensitive agriculture advisory. This is an example of South-South cooperation which CABI plans to extend in other areas.

Capturing growth

We will continue the current structure of cross-CABI themes which bring the following benefits:

- Breaking down barriers between functional or country silos to encourage cross centre working and foster a "one CABI" approach.
- Stimulating strategic-thinking, coordinated by the Global Directors leading the themes, with an outward looking, customer-focused emphasis, and taking into account the external environment.
- Owning the strategic goals and objectives that guide our development work in that theme, with the accountability for necessary fund-raising to support delivery of those goals according to the log-frame.
- Encouraging senior managers below the level of EMT to adopt more entrepreneurial approaches and to invest appropriately in new business development activities alongside the delivery of today's products and services.
- Providing Quality Assurance in major projects to ensure consistency of approach in project development as well as the quality of the outputs at implementation (as part of CABI's internal M&E), within the PRINCE 2 system.
- Preventing centres becoming "inward looking" and, if unchecked, focus only on income to the exclusion of project delivery to donor standards.

The following table provides a summary of the way in which CABI's thematic activities will contribute to delivery of our goals within this Medium Term Plan.

Theme	Goal
Commodities	Enabling smallholder commodity producers to be able to compete in higher value regional or global markets so as to improve their livelihoods.
Invasive Species	Improve management of IAS for the benefit of biodiversity conservation, agricultural productivity, livelihoods, and economic development.
Knowledge Management	Development of products and processes that support access to and sharing of existing and new knowledge principally based on ICT applications.
Knowledge for Development	Building innovation capacity by improving access to and use of agricultural technology and improved practices by smallholder farmers in order to increase livelihoods and food security
Bioservices	Integrating microbiology and biotechnology inputs to CABI ID projects, strategic research and provision of specialist service capabilities for academic and industrial clients.

Revenue generation

Our fund raising strategies to achieve the objectives and outcomes can be summarised as follows:

- **Current donors** – to attract repeat business success will be driven by reputation for delivery, together with anticipation of changing donor needs and priorities plus the ability to be responsive when funding becomes available. This requires broad awareness of trends in global international development thinking at the political level as well as good key account relationships at the individual level. It is important for CABI to have its own strategy, but to demonstrate how our activities are align with the priorities of each funding partner in the respective regions.

Key donors, by theme, are shown in the table below:

Theme	Goal
Commodities	CFC, AfDB, ADB, USAID/USDA, WB and IFC, EU, IFAD, ACIAR, AusAid (regional desks), STDF, Private sector and Regional Bodies like ASARECA and COMESA
KFD	EuropeAid, SDC, Irish AID, B&MGF, AGRA, IFAD and DfID
Invasives – North	EU Framework partnership, USDA (North America), AAFC (Canada) and DEFRA
Invasives -South	GEF, UNDP, WB, AfDB, ADB, ACIAR, AusAid (regional desks) and IFAD
KM	DFID, USDA, ISC Consortium members, DANIDA

- **New donors** – Regional bodies like ASARECA and CORAF are of increasing importance. These funding sources require the project to be led by a national agricultural research partner, with small funds for CABI to backstop, but this complements other work and gives CABI credibility to leverage new funding. CABI has also developed good links with B&MGF and AGRA through our work on the African Soil Health Consortium and this offers the opportunity to become one of their key implementing partners.
- **New customers** – Involvement with the private sector should allow us to generate fee-for-service work and to leverage new sources of donor funding, both directly and through public-private partnerships. These initiatives will be pursued through the Tradewise initiative described in section 11.

10. Sustaining our core Publishing activities

As described in Section 5, our Publishing activities provide knowledge resources on a global basis for scientists in academia, research and development, as well as providing content and skills to support development project activities. The core Publishing activities are run as a profitable, commercial business which currently generates a surplus of ~£4m p.a. to fund central corporate functions and project work. Protecting and growing this income stream is therefore vital for CABI's long term financial sustainability.

Drivers and Trends

- **Static Markets**

Academic budgets in the developed world will remain tight in the face of deficit reduction programmes. Tertiary education is expanding rapidly in the developing world but from a low base. Therefore, the traditional STM information market remains sluggish, predicting modest increases over the 2013-2015 period ranging from 3.3% to 3.8% per annum in US dollar values, but much of this growth is due to currency effects and the figures actually mask a virtually flat forward projection.

- **Open access and open data**

The publication of the Finch Report in June 2012, which recommended the adoption of Gold Open Access for articles published from research funded by public money, and its subsequent acceptance by the UK Government, set off a domino-like chain of announcements from research funders and publishers alike, announcing not only the mandating of Gold Open Access publication, but also the adoption of the Creative Commons Attribution (CC-BY) licence for such articles, with no restrictions on further re-use. There is also an impetus for experimental data, geo-spatial and images to be placed in open repositories so that further research and meta-analysis can be performed by other scientists.

- **End-user behaviour**

Researchers, academics and students are making much less use of traditional library facilities and instead are accessing information online from their offices, homes or on the move. This changes their needs for abstracting and indexing (A&I) services from a simple search facility to something that will support their workflow in writing a scientific paper, conducting a review or developing a grant proposal. General search players like Google, as well as new specialists like Mendeley are entering the arena so end-user choice is higher and selection shifting from "good" to "good enough".

Implications for CABI

- Our sales and marketing focus must emphasize customer retention and subscription renewal in developed markets, seeking to offset losses through growth in markets outside US and Europe.
- With a growing body of original research available for aggregation, mining and analysis, the opportunities for secondary publishers like CABI to add value to their traditional abstracting and indexing activities will also grow. A&I may become a way of avoiding full text and helping to map literature alongside other data types (patents, trademarks etc.). This has exciting possibilities for the creation of new content and value but also requires investment in storage, content management systems and analytical software to take advantage of it.

- Transforming traditional A&I databases into workflow solutions is no trivial task, requiring both a thorough understanding of users' needs and a compelling vision with an associated development roadmap. Future content management and production systems will need to handle a much broader range of content, including data, images, graphs, formulae and bioinformatics – not just text.

Growth areas

In order to achieve modest genuine growth, Publishing will:

- Build new revenue in professional and corporate markets;
- Continue to innovate with new products.
- Move our traditional products further up the value-chain by transforming them into workflow and productivity tools; and
- Seek pockets of growth in emerging markets.

We continue to focus on the veterinary practitioner market for the expansion of our animal health franchise beyond the academic sector. In total, animal science continues to represent 21% (c. £2.15m) of our total publishing sales revenue. Through our discussions with private sector food producers we are also seeing a demand for information and training in animal welfare, food safety and nutrition.

New product developments include the following:

- A Food Safety App, repurposing selected datasheets from the Animal Health & Production Compendium, and providing vital, practical information on issues such as identification and management of foodborne pathogens, risk assessment for particular food types and the treatment of certain animal diseases.
- A Horticulture Compendium, providing practitioner-oriented information about high value crops and a valuable reference work to support CABI's other practical offerings to support sustainable, ethical and profitable trade (target launch 2014).
- InfoTree, an Applied Forest Science internet resource –targeting new customers in corporate and practitioner markets on a subscription basis, focusing particularly on commercial and environmental aspects of applied forestry.

Capturing growth

To address these needs, CABI must be flexible and efficient in its content generation, processing and distribution:

- We no longer commission content exclusively for one product type; our editors use their subject expertise and contacts to develop proposals which increasingly involve the repurposing of content across different products, for example books and compendia, or compendia and Internet Resources. Our book programme, therefore, should increasingly be viewed as an integrated part of the overall publishing business, contributing to revenue in other areas.
- Our current "back-office" content management and production systems are out-of-date and cannot cope with the growing demands of our evolving business (e.g. the need to handle non-textual information and to deliver content to mobile devices). We will replace this with a system designed with a flexible, modular architecture which will give us control over our content, a consistent approach to indexing it and a combination of appropriate content repositories and web services to exploit and manipulate that content.
- We are already in the process of replacing our customer-facing delivery platform with Umbraco, and will be migrating all CABI websites to this platform during 2013. This project also includes enhanced Search Engine Optimisation and underlying Data Analytics, so that our websites rank more highly in web searches and so that we understand user behaviour and activity (increasingly focusing on the "why" rather than the "what"). All sites will also be optimised for access from mobile devices.

Revenue generation

The Publishing Sales team will continue to secure subscription renewals and new business, supported by:

- Sustained production levels (c. 420k new records per annum, plus 40k full text items).
- Targeted marketing campaigns (including a major campaign in partnership with EBSCO).
- New vendor partnerships (e.g. Proquest).
- Sales opportunities in emerging markets, notably Middle East, India and South America, but also in East Africa, leveraging CABI's presence in Nairobi more effectively.
- On-going enhancements to the CAB Direct platform (including mobile access).

Our book marketing efforts have been reviewed to take advantage of the growing popularity of e-book formats and the opportunity to sell direct to the end-user: New initiatives to generate revenue include:

- Contracting with Amazon to include CABI titles in the Kindle e-bookstore.
- Improving the discoverability of all books and e-books.
- Contracting with CourseSmart to offer an e-textbook rental model.
- Contracting with SharedBook to add CABI book content to their on-demand course-pack service, AcademicPub.
- Efforts to explore the concept of an "enhanced e-book", blending multimedia content, self-assessment checklists and other features with core text.

Within the Knowledge Management theme, business development activity will also generate opportunities to use core Publishing resources on a consultancy and project basis, as described in the thematic strategy. There has also been increasing support from Publishing in production of high quality practitioner targeted outputs from projects such as ASHC and Plantwise.

11. Key growth drivers – "one CABI"

The major growth opportunities for CABI are increasingly emerging through major cross-cutting ("one CABI") programmes such as Plantwise that use skills from both Publishing and ID business units and are supported by the goals and objectives of a number of thematic areas. This will allow us to leverage outputs and outcomes from smaller projects in an integrated way to demonstrate large-scale impacts across the world. We are also starting to explore new opportunities, such as partnerships where we can bring our expertise to bear in the delivery of mobile agro-advisory services and in the area of facilitating trade and market access, where we are seeking to engage more closely with the private sector (under the working title of "Tradewise").

Plantwise

Plantwise will continue to scale up (more clinics) and scale out (plant health systems strengthened in more countries) its programme to reach a target of supporting five million farmers by 2016 through the establishment of plant clinics in 40 countries. There will be increased liaison with CABI's regional teams to ensure that users in each Plantwise country are effectively served. Staff skills in data and knowledge handling will be strengthened in regional centres to provide local CABI back-up.

We will enrich the content available through the knowledge bank and support its usage by Plantwise countries as a tool to assist in the synthesis and analysis of data, which will also provide the evidence to inform policy changes needed to improve food security. We aim to populate the knowledge bank further with additional information and data on crop health and crop management for the more than 100 crops already profiled. National content will be assembled focusing on practical data such as registered pesticides or crop varieties and the number of farmer factsheets will be increased substantially.

Use of the knowledge bank content by different key users will be promoted, assessed and augmented. Training in data and knowledge processing will be offered. With the on-going acquisition of a critical mass of data to analyse, and the rights to do so, the knowledge bank version 3.0 must focus on the development of data analytics tools. This will enable subscription-based services and consultancy opportunities which have been deferred due to the priority for development of open access tools to build capacity amongst plant clinics, plant doctors, and other staff in the South.

There will be a clear focus on the sustainability of the programme and its components. We see this occurring in part through the development of strong in-country plant health systems supported by regional and national government on the basis of clear evidence gathered through our monitoring and evaluation processes. Internally, processes will be implemented to ensure that the collection of results and lessons from all Plantwise components is streamlined and embedded in the work dynamics across themes and Plantwise country teams. A programme of work related to impact evaluation will also be established that includes both process evaluation as well as more conventional approaches using experimental designs where possible. We will investigate options for ensuring the programme can be self-funding into the future, for example through the local development of public-private partnerships, and fee-based services.

Plantwise will be a long term programme with a life span well beyond this medium term plan and contributing to CABI's Vision 2020 in the following ways:

- As plant clinics become established and build positive, trust-based relationships with farmers, they will begin to diversify the scope of advice, covering not only plant health and climate-smart agricultural practices, but also human nutrition.
- We will need to acquire and deliver information and knowledge packages through all routes, particularly via mobile, developing the networks, systems and processes that allow the best answer to be given to all who need it, even if they are physically distant from a source of expertise – 'telemedicine for plants'. This will bring together local and global needs with the best local and global solutions through a far-reaching e-extension model.
- Key feedback from plant health stakeholders is that there is an on-going and widespread absence of data on losses to pests and diseases. No one knows what is being lost, or where, today – let alone what future risks there might be to the food supply chain. Through the clinics' feed of verifiable data to the PW knowledge bank, CABI is uniquely placed to provide farmer-practitioners with pragmatic advice to help them manage risk in their crops so as to lose less and feed more. In aggregate, the data can help support the creation of crop insurance programmes whilst quantifying causes and current market values of losses for the research and policy community.

A revised cumulative funding target of $100m by December 2016 has been set for Plantwise. We anticipate much of the new funding will be tied to development of integrated ICT solutions which complement Plantwise clinics and plant health rallies in reaching out to farmers en masse.

Mobile agri-advisory services

Traditional extension services cannot cost-effectively reach an adequate number of farmers, due to a combination of insufficient resources (staff and monetary) relative to the size and the widespread dispersal of the rural agricultural population. Mobile agri-advisory services are increasingly being seen as part of the solution.

Mobile ownership has grown 10% per annum since 2007 in developing countries and now grows at 130m users per year. Much of this growth is within the rural agricultural sector. Mobile national operators are keen to develop brand loyalty and secure growth from within this rural agricultural population but are faced with a lack of content providers able to provide trustworthy and actionable information; a role CABI is well-placed to serve, building upon success and experience gained so far in India and Pakistan:

Programme	Commentary
IKSL, India	Ongoing: 3rd year of contract. Agreement reached to have access to user data for donor M&E. SDC visit April 2013 resulted in positive evaluation
Café Movel, India	Project initiated, targeting single commodity class sector. Stakeholder workshops, May 2013
mKisan, India	Project launched successfully in first 3 of 6 states, with ~150k subscribers and growing now at ~30-50k/month. Handygo (mVAS) looking to expand in central Africa, with a preferred partner relationship with CABI
eZARAAT, Pakistan	Pilot phase completes in June 2013. Punjab DAE considering a concept note proposal to central Government to formalise and extend project as part of its extension activities

At the end of 2012 we secured extra funding from DFID which will be used to expand the Direct2 Farm pilot and examine the complementary role of ICTs with Plantwise as follows:

- Identify and report on existing service features, user needs and service gaps in the mobile agri-advisory sector;
- Identify lessons learned and best practice in utilising mobile phones as an effective channel for agri-advisory services.
- Assess reach and cost effectiveness of the core PW programme and learn lessons that will be used to improve the Plantwise approach;
- Develop enabling processes to collect and disseminate knowledge through integrating mobile solutions into PW using mobile platforms;
- Develop CABI's "Direct2Farm" pilot programme as an example of a complementary extension method linking with plant clinics; and
- Measure the comparative outreach, cost-effectiveness and expected impact of agri-advisory services with and without a mobile/ICT component;

We believe that these activities can be delivered most cost-effectively and with greatest understanding of the needs of small scale farmers by basing the initiative in India. CABI India will expand to house the additional IT/ Mobile staff who will implement D2F scale-up and other mobile initiatives. A new senior head of Mobile IT is being recruited and job descriptions for other positions drawn up. The core team will be comprised of a project manager, a business analyst, systems engineer and existing project staff working on D2F activities.

The long term objective will be to build an integrated service with the capacity to provide nationally- and regionally-tailored plant health advisory information, outputting to different platforms in a selection of languages. Subject to the outcomes of the first phase we will test the use of ICTs to improve the performance of plant doctors and their ability to give appropriate advice; to improve communications with those who visit clinics, and follow up afterwards (after-care). We expect to significantly improve the reach and cost-effectiveness of Plantwise by using ICTs as a means of networking more broadly beyond just those who attend a clinic session. Within two years, we aim to reach >250,000 farmers who register and profile themselves with a weekly plant heath/good agricultural practice advisory service through mobile channels.

An interesting extension to these plans is currently under discussion, involving the combined use of mobile advisory services and Plantwise to provide nutritional advice alongside plant health messages. This development would provide target groups with information on the best mix of crops to grow so as to ensure a balanced diet with sufficient micro-nutrients, together with advice on storage, preparation and cooking practices to maximise nutrient availability.

Tradewise

The size of the global food and drink industry is estimated at $5.7 trillion (World Bank), but is likely to increase significantly over the next 20-30 years to meet the demands of a growing global population that is driving up the consumption of higher value products as incomes and expectations increase. From a corporate perspective, this same challenge is manifested in different ways, from a desire to reduce costs by driving out waste in the supply chain, to the need to preserve natural resources, to protect corporate brand reputation and to ensure sustainability of the supply chain.

Throughout our regional consultations, member countries have consistently expressed a view that CABI should be helping them develop their trade potential and improve access to markets for their agricultural industries. Smallholder farmers potentially have a greater role to play in ensuring the resilience of commercial supply chains, but require support in developing the skills and capacity to do so; it is recognised that compliance with global, regional and private-label trade standards is one of the most significant challenges for smallholder farmers. At the same time, at the macro-economic level, there is universal concern about volatility in the trading prices of key commodity crops and poor liquidity for investment in improved production technologies. There is a clear gap in the market for a reliable information resource that could help to reduce that volatility and increase stability for the common good.

We therefore plan to develop new lines of business with the corporate sector that will support CABI's core objective of improving the livelihoods of small scale farmers and producer groups, as well as meeting the request by member countries for support to increase their trade capacity. The generic name, "Tradewise", has been used as a working title for the project to research and specify the new products and other initiatives that will emerge from this trade-focused agenda. These initiatives will provide new revenue streams for CABI as well as strong strategic alignment with, and long-term sustainability for, Plantwise. In the near future we plan to focus on two aspects of this opportunity as described below.

- **The Food Supply Chain Academy**

Market research with food manufacturing, retail and produce-importing companies has shown there is no simple, single, one-stop product or service that will meet the complex needs of such a diverse business sector. Each business will have a different supply chain structure and relationship with its suppliers, as well as its own corporate standards but there are some common issues in relation to efficient, compliant and safe production that can be addressed through **the provision of training and information in Good Agricultural Practice (GAP) and food safety**. This will be developed **in partnership with Campden BRI** as a CABI Affiliate, who will bring complementary expertise in downstream aspects of food processing and manufacturing, together with the reciprocal membership agreement, which gives CABI access to Campden's technical panels (including the agri-food panel), which will provide valuable 'sounding boards' for ideas and concepts.

CABI's particular "value add" in the GAP compliance context is our experience in providing actionable information to smallholder farmers, our access to the relevant government departments in commodity-producing countries, our ability to tailor training and certification programmes to the specific needs of developing countries and our reputation for the creation and delivery of high quality information products. This reputation has been strengthened further by Plantwise in recent years, and a GAP compliance service would be seen as a natural complement to the farmer-focused plant clinic network, bolstering our in-country programmes.

We plan a modular programme, including a customised diagnosis of the problems in an existing supply chain as well as targeted training programmes to address the problems identified. This would be followed up by a continuous improvement programme and help with benchmarking and the monitoring of best practice implementation.

The diagnostic phase will include a self-assessment tool for the client to assess themselves but we will also strongly suggest that an independent assessment is undertaken (by the FSCA). This will be followed by the implementation (training) and the follow-ups, which may take place over a number of months. We would also work closely with the largest food companies to tailor compliance and best practice toolkits to their specific needs.

Modules within this "Food Supply Chain Academy" will cover specific commodity crops, such as coffee, cocoa or high-value horticulture (including flowers), animal welfare, handling and transportation, SPS and guidance on international legislation and standards. CABI has knowledge and expertise in many of these areas, complemented by the skill-set within Campden, although we may need to commission content from third parties should we not have the relevant knowledge in-house.

- **Commodity Information Service for the Financial Markets**

The data gathered by CABI through its abstracting services, project work and Plantwise, combined with other aggregated data sources (including those from outside CABI), can provide valuable insights into the risks and opportunities for financial, insurance, trading and manufacturing organisations who are buying, selling or investing in such commodity crops. By selling subscriptions to a value-added expert summary of all the available indications, CABI could potentially generate significant additional revenues to provide long-term financial support to the Plantwise programme.

12. Organization and Infrastructure

People

Within the timeframe of this plan we expect to retain CABI's current structure of Publishing and International Development business units. These maintain good focus on our historic customer bases, largely comprised of academic librarians and international donors respectively. Publishing will continue to be run largely from a UK base in Wallingford with the ID business being geographically dispersed through the Regional Centres, addressing a mix of local, regional and international donors.

This structure is not so well suited to the emerging new business opportunities such as Plantwise, Tradewise and Mobile which have more of a "one CABI" nature. Until these become more mature, we believe the optimum approach within available resources is to appoint dedicated/focused business development individuals or teams but to support delivery of the new initiatives with resources drawn from the core businesses as and when appropriate on a project team basis – i.e. a similar approach to that which we have followed for Plantwise.

With the increased opportunities generated by Plantwise and potential work with the private sector, there is a need to increase staff numbers and diversify skills throughout the organisation. Many of the current experts are within 5 years of retirement and we need to recruit now to act as "apprentices" to key staff so that the skill base is not lost. Different models might be used, for example, use of contract staff for certain roles. Specific skills and experience required include the following:

- Analytical skills in Bioinformatics, "big data" and information architecture.
- Sociologists and economists with monitoring and evaluation skills.
- Good Agricultural Practice implementation and training.
- Commodity expertise in West African crops such as oil palm, cotton and cocoa needed.
- SPS skills and experience (especially in SE Asia as current expertise is due to retire).
- Staff with understanding of the issues related to effective provision of advisory services/extension and development more generally.
- Staff with development expertise to support Plantwise, particularly in centres where science skills are strong but where staff have limited experience working in the field.
- Additional capacity to support some of the development communications work, particularly in Africa.
- Increased capacity and new ways of working between commercial and publishing are needed to support new product development (books, website, branding etc.).
- Additional staff with Invasives skills will be required in S.E Asia and India.
- Staff with linguist abilities (especially Francophone) for development of business in Central and West Africa.

We will make greater use of internships and training placements in order to extend our reach and create alumni networks for the long term whilst also delivering benefits to member countries through building local skills and capacity. We have implemented a Plantwise training programme and are also supporting the RUFORUM initiative in Africa through an internship.

Places

In the period 2014 – 2016, we expect to maintain the current network of centres/offices at, or close to their current locations. A key priority will be to consolidate and grow business through our new offices in Brazil and Ghana which were opened in 2012 to build our linkages in South America and West Africa respectively. The offices in Trinidad and Brazil will continue reporting into the E-UK, while the West African office in Ghana will be reporting into the CABI Africa Centre in Nairobi.

We will extend the office network as necessary to bring us closer to stakeholders, to support our activities as they continue to expand and to save on travel time and costs. At the present time we are planning the following:

- Within 2013, to significantly expand and strengthen our IT Development capabilities in India to manage global support of Direct2Farm and other mobile agro-advisory initiatives.
- By 2014, to establish a presence in Chile, supporting Publishing sales and business development across Latin America.
- Before the end of 2015, to open a Southern African Office in Lusaka, Zambia.

Platforms

Forward IT investment will be maintained with a focus on supporting delivery to customers and stakeholders in an effective and efficient manner through providing better tools for:

- Content delivery via mobile and tablet as a primary platforms;
- More effective information and knowledge management and exploitation;
- Improved content presentation, discoverability and accessibility;
- More efficient internal communication and collaboration; and
- Worker enablement through maintenance of cost-effective infrastructure.

Within the plan period we would expect to complete migration of our websites to the Umbraco WebCMS, implement Sharepoint as a collaboration tool driving more efficient business processes and complete the CABICCoR project to build the future content management system for the organization to store data, text, abstracts and images from all of our activities.

Property

Our vision is to have all CABI staff operating from modern, environmentally friendly facilities. This will require a longer timeframe than the period of this plan. During the 2014-16 timespan, we will implement videoconferencing in all offices to reduce travel load (and carbon footprint).

In terms of physical property we will prioritize the following:

- **Wallingford** re-development, capitalising on the progress already made, with a target of moving into a new Head Office building by the end of 2015;
- **CABI Africa** re-location within Nairobi, to an appropriate and secure location, recognizing that our current building on the ICRAF campus is no longer fit for the purpose in terms of capacity, facilities and services; and
- **Egham** re-development, where much of our office space is in a crumbling and unsuitable building. We will seek to extend our laboratory space and add the necessary office space through an extension to the Ainsworth building so that all staff on the site will be under one roof. This will require a sale of some of our available land with planning negotiations of a similar complexity to those we have seen at Wallingford but we would hope to have made substantive progress in this by the end of 2015.

13. Building the capacity for monitoring, evaluation and gender

Member countries and key donors have expressed the need for CABI to measure and report its progress, outputs and impact in relation to its broader long term mission of improving lives, as well as the shorter term budgetary targets required for financial sustainability. Internally, this concept also receives strong support from staff in terms of asking the questions to see if we are:

- Doing what we said we would do;
- Making a difference; and
- Doing the right things.

The organization has therefore committed to achieve a step change in its capacity to design, deliver and review its programmes so that they can be effectively monitored and evaluated for outputs, outcomes and impact, particularly in relation to gender mainstreaming. In order to support the necessary change processes, the period of this plan will see significant investment in training and development of staff, recruitment of new skills where necessary (particularly for socioeconomic analysis) and the development of appropriate reporting and review processes.

Workshops have been held in each of our regional centres together with senior management training courses in M&E and in gender (delivered by external experts) which were held in the UK during Q1 2013. At the organizational level a Theory of Change and Theory of Action have been developed for CABI (see sections 4 and 5) describing, at the level of CABI's mission, the problem being addressed and the change process needed to solve the problem. These will underpin more practical project and programme level planning, so that the project ToC/ToA draw on the organizational ones but are more specific and more tangible.

To encourage mainstreaming of M&E and gender perspectives in projects and programmes from the outset, changes have been made in the Project Initiation Document for PRINCE2, supported by a checklist for use in project development.

Next steps will be as follows:

Allocate funding and priorities

- Ensure that M&E is adequately budgeted for in projects and that time is budgeted to make the data and information collected available in publications and working papers where appropriate or in a way that can be captured in corporate marketing materials.
- Allocate CDF funds to allow impact studies of key projects – or clusters of projects – centred on thematic goals and objectives.

Build staff skills

- Recruit a senior level, experienced Global Director for M&E, with supporting staff.
- Encourage staff who attended the training workshop to share key learning points with centre colleagues using a common slide set (for M&E and gender) prepared as "notes" from the meeting.
- Increase M&E expertise within the Programme Management Group and establish their role in supporting M&E and gender in projects. This will require additional staff as well as training existing staff and use of external consultants where relevant. A starting point will be to appoint an additional M&E expert using Plantwise funds and recruit an additional Project Development Officer with appropriate knowledge.
- Embed expertise in the regions by building on recently trained staff to establish a group of champions or contact points in centres.
- Train additional staff as resources allow – where possible increasing internal capacity by using seminars/webinars/mentoring/self-learning and bringing in external expertise where needed.
- In the longer term recruit social science expertise that can support M&E activities in centres.

Develop resources

- Establish a Sharepoint site to facilitate virtual support via discussion boards. The site would hold resources, including methods and tools and would also be a location to post documentation on outcomes, including data/information/stories that could be shared internally and feed into materials developed by marketing – or shared on the website.
- Adapt PRINCE2 to accommodate and encourage M&E and gender mainstreaming.
- Develop CABI toolkit of methods and tools: a set of methods and tools staff can use to implement M&E (that complement PRINCE2).
- Create M&E and gender checklists that can be used in project development to make sure that M&E and gender are adequately planned and budgeted for.
- Provide a glossary of terms for both M&E and gender giving definitions of key concepts, to include a summary of terms used by different donors for the same thing.

Plantwise

There are particular challenges associated with the Plantwise initiative including:

- The geographical span of the programme and implementing teams.
- The nature of Plantwise interventions ('supportive', not 'controlling').
- The self-selection of clinic clients, widespread distribution of clinic clients and diversity of crops.
- The heavily context-specific features of gender, institutional structures and work cultures in partner countries.
- The current limited M&E and gender capacity in CABI;

We are working closely with external M&E experts to design a comprehensive M&E plan that will aim to map out the roles of Plantwise staff in implementing M&E, as well as proposing generic tools for the basic monitoring of activities and outputs. Countries will be identified where more detailed and customized tools will be used to address key research questions, test assumptions and assess impact. Both qualitative and quantitative methods will be used and externally contracted impact assessment will be contracted using randomised controlled trials.

Specific issues that influence the choice of impact assessment methods include self-selection and widespread distribution of clinic clients; diversity of crops and problems addressed and the fact that Plantwise delivers impact at a systems level with the plant clinics being just one route to reach farmers as well as a key tool in stimulating system change.

M&E workshops have been carried out at CABI regional centres, sharing lessons learned and providing insights to inform and strengthen Plantwise implementation. At the same time the Plantwise logframe has been updated to make it clearer what PW aims to achieve, make gender aspects explicit, and to allow proper planning for M&E, in order to identify research questions and inform the external impact evaluation. In close consultation with DFID, an external impact assessment is being planned in collaboration with 3IE, who are being contracted to provide peer review and guidance. SDC have also appointed their expert for the external evaluation of Plantwise and this report will be integrated within the overall M&E process.

14. Financial Plan, 2014–16

For the coming years our detailed financial forecasts are shown in **Appendix 3**. We continue to see double digit revenue growth in 2014, with more modest levels thereafter. Operating surplus grows at 9% in 2014, rising to 17% growth in 2016. For 2014, profit growth is slower as a result of the impact of significant investment in resources for Plantwise implementation, the CABICCoR content management initiative as well as Monitoring and Evaluation.

14.1 Objectives

For the period of the budget and plan 2014 -16, the objectives for Finance are to:

- Maintain and build adequate reserves to finance the continuing operations of CABI (excluding provision for the UK defined benefit pension scheme (DBPS) deficit).
- Maintain contributions to the DBPS at a minimum in line with the repayment plan agreed with the Pension Fund Trustees (PFT).
- Maximise cashflow to provide funding for working capital, projected capital and investment expenditures (including R&D), and co-funding for projects via the Designated Fund. Ensure that the four 'E's' of Economy, Efficiency, Effectiveness and Equity remain the keystones of CABI's financial management.
- Maintain policies, procedures and controls to ensure that CABI's assets are protected and liabilities are minimised.
- Produce accurate and transparent finance reports to reassure member countries, donors and other key partners that CABI maintains the highest standards of financial probity.
- Provide timely, accurate, insightful and actionable information, including KPIs, as required to CABI staff to allow them to manage their activities in the most efficient and effective manner.
- Provide active financial direction and advice to business units and managers, acting as a genuine business partner.
- Develop a high quality, motivated finance team and ensure continuity through personal and career development as well as succession planning.
- Monitor and co-ordinate risk management processes to ensure that CABI's risk levels are managed in accordance with agreed risk appetite.
- Manage exposure to exchange rate risks and avoid unnecessary exchange losses.

14.2 Net Revenue 2014–16

The forecast anticipates further double digit increase in 2014 is expected with the principal driver being additional funding for Plantwise (from EU and DGIS). For 2015 -16, a more modest 5-6% growth is expected with the assumption that donor income overall is sustained but without significant increases.

£'000	Actual 2012	Prelim 2013	Budget 2014	Plan 2015	Plan 2016
Publishing	10,876	11,570	12,166	12,363	12,963
ID	10,997	13,003	14,989	16,408	17,201
Plantwise – Knowledge Bank	629	977	1,055	1,086	1,137
Corporate	1,236	1,276	1,210	1,225	1,253
Net Revenue	23,738	26,718	29,420	31,081	32,554
Growth % pa	1%	13%	10%	6%	5%

For Publishing we expect that growth continues in core online database products and eBooks, and this compensates for a decline in revenues on printed products. Annual growth is expected to be in the 4–5% range which is at the higher end of estimates for the STM market overall. However, investment in new product development and improved content management capabilities should should support this level of growth. However, there are clearly risks given our continued reliance on the institutional library market and the threat of new competitors using new web-based technologies

In International Development, commitments from our major donors (for both Plantwise and non-Plantwise projects) mean that project revenue is relatively secure for 2014. A key issue for 2014–16, as in 2013, remains the avoidance of project delay whether this occurs as a result of donors, our collaborators or internal resourcing constraints.

Plantwise remains the predominant programme throughout the plan period with c40% of the total net revenue in 2014. Funding for 2014 and 2015 looks relatively secure with the increase in DGIS funding and renewal/extension of the SDC contract at the end of 2013. There remains the potential to sustain a good level funding for Plantwise well beyond 2016 in order to embed the Programme in the target countries and to ensure long-term sustainability. The fundraising effort remains focussed on this end.

14.3 Operating Surplus 2014–16

Operating surplus is anticipated to continue the year on year improvement with the steady increase in net revenue whilst, for expenditure, maintaining a careful balance between control of costs and investment for the future. ID continues to generate a small surplus throughout the plan period.

£'000	Actual 2012	Prelim 2013	Budget 2014	Plan 2015	Plan 2016
Publishing	3,838	4,549	4,389	4,956	5,376
ID	(39)	334	313	334	384
Plantwise – Knowledge Bank	5	33	34	36	37
Plantwise – Market Development	(379)	(303)	(326)	(346)	(353)
Corporate	(1,568)	(2,116)	(2,426)	(2,719)	(2,786)
Central Costs	(1,148)	(1,636)	(1,120)	(1,320)	(1,560)
Operating Surplus/(deficit)	710	810	864	941	1,098
Growth % pa	7%	14%	7%	9%	17%

For Publishing, the strong profitability profile is expected to be maintained and indeed grow as a result of revenue growth without a substantial increase in the cost base. The plan does include investment in CABICCoR and expansion of the sales team in India.

In International Development, following achievement of break-even in 2013, relatively modest increases in operating surplus are assumed thereafter. We have taken a deliberately cautious approach to our assumptions for the growth from 2014–16 which reflects both the need to invest staff time on project and programme development and the reality that many donors only allow a modest contribution to overheads in their funding. The key areas identified for investment are currently Invasive Species, Monitoring and Evaluation, and initiatives related to trade. We are also looking to develop the work for the Bioservices theme beyond the UK and have appointed a Global Director part-time for this purpose.

In Plantwise, although declining by £200k in 2014 because of changes in the mix of donors, the Programme overall contributes c25% to the total ID gross profit in 2014 and continues to contribute significantly thereafter.

Corporate costs increase over the life of the plan by an average of 6% in support of the overall revenue growth, with the main increases in Commercial and IT costs.

Central costs increase as a result of both the increased deficit funding for the pension scheme and growth in the general provision for investment. The deficit funding model agreed with the Trustees has been used in the budget with additional cash contributions increasing to £1m in 2015 and expected to remain flat thereafter.

14.4 Capital Expenditure 2014–16

Capital expenditure in 2014 is budgeted at £860k. Excluding the cash neutral Wallingford property transaction, total capital expenditure for 2015 and 2016 is £549k and £547k respectively. Apart from regular replacement expenditure of IT, motor vehicles and laboratory equipment and investment in improvements to facilities in Switzerland, Pakistan and Ghana, the major items of capital expenditure in the plan relate to the CABICCoR content management initiative.

The estimated increase in value of the Wallingford property due to the planned redevelopment has been budgeted as a £5.0m increase in the revaluation reserve in 2016 (£8m less the £3m residual value on the old building).

14.5 Cash flow 2014–16

The underlying cash position is expected to remain good throughout the life of the plan with the continued strong operating performance, advanced payments from donors and capital expenditure kept at a reasonable level.

Although the Wallingford site redevelopment is expected to be ultimately self-financing, with money from the sale of land to a developer used to finance the new building, we have prudently planned for there to be some cash outflows before cash is received from the sale of the land (£5m is assumed in 2015, before being recovered in 2016).

14.6 Key Actions

Specific planned actions commencing in 2014 will be:

- Expedite realisation of property strategy. Complete purchase and refurbishment of Nairobi office. Complete S206 agreement for Wallingford and sign up funding arrangements with property developer.
- Develop and improve reporting systems. Integrate business-relevant financial and non-financial performance indicators in regular reporting processes.
- Improve corporate governance through better, more transparent, relevant reporting, where appropriate with reference to the UK Corporate Governance Code and International Aid Transparency Initiative (IATI) guidelines.
- Review management of cash surpluses, minimise number of accounts, maximise UK balances to allow pooling and offset for redevelopment finance, begin pooling in Africa better to utilise specific project accounts.
- Improve foreign currency management. Change reporting system in 2014 to centralise exchange gains and losses and hold RC's accountable for performance in local currency rates. Review extending exchange cover to Euro or other currencies.
- Deepen scope of internal audit work. Improve controls and extend to partners and collaborators.
- Improve internal communication and training in financial and risk management, working with new L&D manager and developing Sharepoint as a tool.

15. Measuring progress and assessing performance

Thematic strategies and initial log-frames have been drafted and adjusted to ensure they respond to priorities identified in member country consultations. Similar strategies and log-frames have been produced for the key growth initiatives of Plantwise and Mobile but the Tradewise initiative is still at too early a stage to do this. The current versions are shown in **Appendices 1 and 2** respectively.

Output indicators will be developed to provide a set of milestones that can then be used to inform member countries of progress and to enable better assessment of performance before the next Review Conference takes place. The diagrams on the following pages summarize the way in which the individual thematic and growth strategies provide pathways for CABI to have impact on its overall strategic goals, as well as laying out the key milestones of this strategy over the 2014–16 period.

Our annual budgeting and planning process will continue to provide the organisation with rigorous measurement of financial performance, improving efficiency and delivery of value for money.

We will also strengthen our systems for measuring, tracking and reducing CABI's carbon footprint across all its activities but with a particular focus on carbon outputs from our buildings and the impact of air travel.

Pathways to impact 2014-2016

Theme/Activity	Outputs	Outcomes	Impact
Commodities	Integrated crop management approaches	Higher quality and better yields	Farmers have greater access high value markets
Tradewise	Training and support to improve quality and safety	Produce meets international standards	Greater smallholder engagement with private sector supply chains
Plantwise	Plant clinics and knowledge bank widely accessible	Farmers get timely, relevant advice	Strengthened plant health capacity lowers losses
Mobile	Scalable service, linked to Plantwise reaching > 1M farmers	Sustainable long term programmes with private sector partners	Farmers able to make better decisions which improve productivity
KFD	Improved access to knowledge and services on seeds	Greater capacity to innovate, adapt and put research into use	Sustainable increases in crop production
KM	Research portals developed and maintained. Systematic reviews delivered	Evidence-based knowledge delivered to key stakeholders	Improved decision making and policy formulation in agriculture & environment
Publishing	Commercial products for academic libraries, and professional users	Strategic and financial support for CABI mission	Better, more accessible information for global agriculture R&D
Invasives	Awareness-raising on IAS and use of biocontrol for management of IAS	Increased awareness of IAS with better policies and practices to manage	Reduced IAS economic impact through crop losses Less threat to biodiversity
Bioservices	Services to identify, conserve and distribute microbial biodiversity	Greater understanding of and access to microbial biodiversity	Improved usage of and reduced spoilage by microbes
Corporate	CABI meets financial and operational goals	Effective and efficient delivery, staff retention	Long term organisational sustainability and health

Strategic Goals

- **Increased Farmer Incomes**
- **Greater food and nutrition security**
- **More sustainable farming practices**
- **Protection of environment and biodiversity**

Key Milestones 2014–2016

Theme/Activity	2014	2015	2016	Indicators
Commodities	Integrated crop management approaches	Higher quality and better yields	Farmers have greater access high value markets	Farmers/FFS nos Project reports
Tradewise	Training and support to improve quality and safety	Produce meets international standards	Greater smallholder engagement with private sector supply chains	Board reports
Plantwise	Plant clinics and knowledge bank widely accessible	Farmers get timely, relevant advice	Strengthened plant health capacity lowers losses	Reports, papers, impact assessment
Mobile	Scalable service, linked to Plantwise reaching > 1M farmers	Sustainable long term programmes with private sector partners	Farmers able to make better decisions which improve productivity	Partnerships Usage stats
KFD	Improved access to knowledge and services on seeds	Greater capacity to innovate, adapt and put research into use	Sustainable increases in crop production	Donor support Impact reports Yield reports
KM	Research portals developed and maintained. Systematic reviews delivered	Evidence-based knowledge delivered to key stakeholders	Improved decision making and policy formulation in agriculture & environment	Committed funds New ISC & GARA datasheets
Publishing	Commercial products for academic libraries, and professional users	Strategic and financial support for CABI mission	Better, more accessible information for global agriculture R&D	Accounts Board Reports Usage Stats
Invasives	Awareness-raising on IAS and use of biocontrol for management of IAS	Increased awareness of IAS with better policies and practices to manage	Reduced IAS economic impact through crop losses Less threat to biodiversity	Registrations Publications
Bioservices	Services to identify, conserve and distribute microbial biodiversity	Greater understanding of and access to microbial biodiversity	Improved usage of and reduced spoilage by microbes	Customers Agreements Processes
Corporate	CABI meets financial and operational goals	Effective and efficient delivery, staff retention	Long term organisational sustainability and health	Accounts Board/ExCo reports Ext. evaluations

Appendix 1

Thematic and Growth Strategies

Commodities Theme Overview

Background

Cash crops contribute as much to food security as the growing of staples since they generate hard cash for farmers, allowing them to buy food as well supporting provision of healthcare, school fees etc. for the rest of the family.

The spread of global retailers, wholesalers and food processing businesses is reshaping the governance of food systems. Small-scale agriculture, which supports the livelihoods of the majority of rural poor, is badly prepared for these changes whilst public policy makers and a wide range of development stakeholders are experiencing difficulties in responding to these challenges. Therefore, many developing countries are losing out on trade opportunities as they cannot produce crops in the required quality, quantity, safety and continuity of supply that the market requires.

CABI is well placed to work with commodity farmers globally in a number of key areas as we have a unique combination of knowledge management, crop management and project management skills combined with access to large databases and the ability to produce bespoke training products that deliver and disseminate knowledge in a number of ways.

Over several decades, CABI has developed expertise on a range of commodity crops, innovated and championed farmer oriented techniques and services to solve pest and disease problems in many countries. We have also helped small farmers integrate into global supply chains through capacity building to improve quality for higher premiums, raising farmers' awareness of market requirements and compliance to food safety standards, and improving efficiency and reducing waste along the supply chains.

Drivers and trends

Food prices are highly volatile and this can lead to food insecurity, for while producers may receive better prices for the cash crops they produce, the costs of purchased foods will also increase.

Constraints on-farm include lack of knowledge of best practice and of quality improvement techniques, lack of credit to implement these new methods as well as losses from pest and diseases. The impact of climate change on the distribution of pests and diseases is poorly understood but smallholders will be particularly vulnerable.

Other demands on producers will be conforming to increasing market demands about best practice in production including animal welfare and sustainability as well as compliance with legislation or private standards. At one end of the supply chain are food safety concerns of consumers (pesticide residues, contamination etc.) whilst at the other end of the supply chain, the desire for a more commercial farming approach (an agribusiness approach) is being promoted and this invariably means more public-private partnerships.

Goal: To support improved livelihoods for smallholder producers of commodity crops.

Overall Objective: To improve productivity, quality and profitability of key commodity crops in order to increase farmer incomes and food security. This is achieved through three sub-objectives:

1. Promoting sustainable crop production
2. Improving post-harvest processing and market access
3. Building capacity through knowledge dissemination

Outcomes

Sub-Objective 1: Promoting Sustainable Crop Production: In order to raise productivity in commodity crops and to achieve decreased pest losses in commodity crops, CABI has a number of initiatives to evaluate new management methods and raise awareness of pests and continues in partnership with national implementing agencies to establish early warning systems to detect pest and disease incursions.

Sub-Objective 2: Improving post-harvest processing and market access: In order to increase earnings for smallholders as a consequence of improved quality of produce through the following:

- **Increased compliance with food safety legislation**

CABI is raising awareness of developed country legislation linked with increasing consumer concerns about food safety. CABI, in partnership with international partners and national programmes, is undertaking capacity building along the whole supply chain so that stakeholders will be better informed of food safety legislation and requirements.

CABI is will expand its work on food safety compliance through a partnership with Campden BRI, developing a global initiative to provide technical training and awareness of marketplace requirements for the horticultural and perennial cash crop sectors

- **Increased income for smallholders from better quality produce**

CABI is enhancing access by smallholder farmers to investment funds and working capital through a sustainable credit guarantee scheme in partnership with Rabobank. This allows farmers to obtain simple machinery to increase output and quality.

CABI is expanding this work into high value horticulture and spices in Africa. In addition, and as part of increasing farmer entrepreneurship, CABI is developing a public-private partnership to examine engagement of Youth in Agriculture. This will focus around the cocoa sector initially.

- **Increased efficiency of value chains**

CABI is working with the public and private sectors to enhance profitability through vertical integration of the supply chain; getting stakeholders to work more efficiently together. By facilitating greater interaction between the public and private sector, producers are benefiting from improved planting materials and greater knowledge of best practices; yields are improving.

CABI is developing several initiatives with the private sector to improve the competitiveness of the supply chains through improving efficiency and reducing waste.

Sub-Objective 3: Capacity building through knowledge dissemination to stakeholders by providing verified, independent information for target groups e.g. training curricula and manuals for farmers field schools.

The Commodities theme is leading development of the Tradewise initiative as well as continuing to provide content and training information for Plantwise clinics and also for underpinning agro-advisory services to farmers using digital technologies.

Invasive Species Theme Overview

Background

The invasive species issue is cross-cutting, affecting almost every sector and ecosystem on the planet. Invasive species, including weeds, invertebrates and diseases, threaten the productivity of the land, deplete natural resources including water and biodiversity, and impose very high economic costs on countries worldwide.

By far the easiest and most cost-effective ways of dealing with these problems are either to prevent their arrival in the first place or to tackle them before they become problematic by putting in place mechanisms that provide early warning of new threats and deploy appropriate response mechanisms.

CABI recognizes that better management of invasive species requires evidence-based policy making and therefore gathers evidence on impact, designs strategies to manage invasive species and builds the capacity of national researchers to address these issues. Raised awareness is key to stimulating governmental, community and individual actions to manage invasive species and prevent their spread. CABI continues to build its track record of developing and implementing biological control solutions to the world's worst arthropod, weeds and disease pests.

Drivers and trends

Invasive species threats are growing as a result of globalization and the movement of goods around the world. Land degradation increases vulnerability and climate change means that distribution of most invasive species will change, with potentially enhanced growth and reproductive rates. Increased migration to cities leaves fewer people to manage IAS in rural agro-ecosystems and with a reduced rural population biological control can make a significant contribution.

Awareness of IAS is growing quickly due to their impact on ecosystem services and as awareness grows so does demand for effective action. There are significant push:pull drivers at play, especially in developed countries:

- **Push** – Policy and legislation requiring the decreased use of chemical pesticides and herbicides; legislation supporting the use of integrated pest management; legislation requiring the control of IAS affecting certain habitats or species.
- **Pull** – demand from consumers and voters for increased IAS management with reduced chemical use; with increasing resistance to chemicals in both insects and weeds, current measures are diminishing in effectiveness and alternative tools are needed.

Goal: To improve the management of IAS to conserve biodiversity and increase agricultural productivity, livelihoods, and economic development.

Overall objective: To strengthen and develop policies, improve practices, increase awareness and build capacity to enhance the management of invasive alien species.

Outcomes

- **Sub-Objective 1: Awareness of IAS impacts and strategies for their management**

CABI works with partners to expand the evidence base on the impacts of invasive species on livelihoods, natural resources and biodiversity. This is achieved through the production and dissemination of primary research on ecological and economic impacts of IAS, pest risk analyses and horizon scanning as well as through systematic reviews on invasive species, the development, dissemination and implementation of best management practices, and the delivery of comprehensive products such as the Invasive Species Compendium (ISC).

- **Sub-Objective 2: Increased capacity for improved IAS management**

CABI builds capacity by developing tools and toolkits tailored for use by a wide range of stakeholders to develop and establish the broad range of skills needed to support improved management of invasive species. These include improved research skills (to generate evidence of impacts of invasive species, develop best management strategies and ultimately demonstrate the positive impacts of management approaches, including biological control); addressing gaps in SPS systems to prevent new invasions and facilitate trade (including risk analysis, early detection and rapid response programmes).

Capacity building at community level is also addressed, to provide communities with knowledge, skills and processes so they can work together to manage species that threaten their natural resource base.

- **Sub-Objective 3: IAS policy strengthened and developed**

Many countries do not have National Invasive Species Strategies and Action Plans (NISSAPs), and reference to IAS in National Biodiversity Strategies and Action Plans (NBSAPs) is often lacking. The implementation of NISSAPs generates demand for increased capacity building and awareness as well as implementation of best management practices, subjects in which CABI has extensive experience. We also assist with the development and implementation of risk analysis systems, early detection and rapid response mechanisms, best management practices and a host of other skills pertaining to IAS management.

- **Sub-Objective 4: Increased application of biological control and integrated pest management as a solution to IAS**

CABI is a world leader in the development and application of both classical and inundative biological control, with many notable successes achieved. Opportunities and needs for biological control in almost all countries are growing, and CABI is proactively building projects and programmes. We continue to be influential in the first weed biological control releases in new EU countries as part of our European Biocontrol Initiative. We are delivering a stronger biopesticide programme by building on our previous successes and reputation working with more partners and delivering more products.

Bioservices Theme Overview

Background

Micro-organisms are ubiquitous in all environments and encompass an enormous diversity of function and form. Many micro-organisms require specialized conditions for growth and activity, and many are known only from molecular biodiversity studies. In agriculture and human environments micro-organisms broadly fall into three groups: the beneficial such as decomposers and composters, mycorrhizae and plant growth promoting bacteria that contribute to soil health; the detrimental that cause plant and animal disease, commodity spoilage and industrial material contamination; and the benign that are known to occur in environments but appear to have as yet unknown functions.

In addition to their natural occurrence many microbes are utilized in a wide range of chemical and biological processes including biofuel production, food and drink manufacture, drug discovery, enzyme production, composting and waste degradation, biological control and soil fertilization.

CABI recognizes the fundamental role of micro-organisms, particularly in agriculture, agricultural biotechnology, and industry and aims to provide the specialist knowledge and support services to enable better management of both the wider microbiological resources and their beneficial and detrimental effects in the human environment.

Drivers and trends

In agriculture, reduced availability of pesticides and increasing fertilizer costs are important drivers in the use of microbiologicals for soil health and pest control as well as for composting and biotransformation processes to produce biofuels into both commercial and locally utilizable products. These trends, together with the discovery of increasing levels of diversity through molecular characterisation are driving re-examination of microorganisms for the production of speciality chemicals, nutraceuticals and therapeutic compounds.

Access to new markets, climate change and new plant varieties are drivers for change in plant diseases, increased disease monitoring and quarantine. The increasing value of raw materials and the greater application of large scale processing are drivers for reducing losses. There is an increasing need to provide the specialist microbiological inputs to identify, manage and control these.

An underlying challenge is the substantial reduction in training and education in this subject area available in many developed countries. There is an increasing trend for microbiology and biotechnology research and development to be undertaken through consortia and research platforms.

Goal: The overall goal of the theme is to identify and where necessary maintain microbial resources whilst providing services to maximize their utilization and to limit their detrimental effects in agricultural and industrial production.

Overall objective: To develop the CABI capability in microbiology to provide specific services for CABI projects, partners and commerce. This will be achieved through four primary sub-objectives that contribute to the overall objective in specific areas:

1. To provide a validated mechanism for identifying critical microbes
2. To maintain and make available microbial diversity
3. To support the utilization of microbial resources
4. To support microbiology capacity building and dissemination

Outcomes

Sub-Objective 1: To provide a validated mechanism for identifying critical microbes, leading to improved microbial identification in agriculture, industry and environmental studies: CABI continues to offer microbial identification and investigation services targeted at different customer groups:

- Isolated microbial cultures of bacteria and fungi are identified by DNA sequencing. The service is UKAS accredited to ISO17025 and is predominantly used as “fee for service” by industry and research organizations, a number of identifications are provided by CABI free of charge for some member countries as part of the membership benefits package.

- The Environmental and Industrial laboratory that provides a range of services from survey, isolation and identification to mould growth challenge testing. This has provided a research and development partnership with Conidia, allowing both partners greater scope and exposure to commercial markets. Much of the testing work is undertaken under UKAS accreditation.
- Plant material and disease diagnosis is undertaken through the Microbial Identification Service. Most plant diseases are diagnosed on symptoms and direct examination, with the molecular identification service available for critical or difficult cases.

Sub-Objective 2: To maintain and make available microbial diversity through culture collections. CABI maintains a reference collection of some 28,000 living microbial cultures, and nearly 2,000 specific description sheets for important fungi and bacteria. Living cultures are available for sale or exchange through the public service function of the collection but the larger component of the collection provides a safe deposit of materials for CABI projects and member countries. A new development is the production and distribution of regional lists to the CABI Regional Centres detailing all cultures originating from the region that are held by CABI.

An important component of this sub-objective is making greater linkages between microbial collections worldwide to increase access to materials and institute common standards and communication. This area has moved on to a new European Strategy Forum on Research Infrastructures (ESFRI), Microbial Resource Research Infrastructure (MIRRI) that ensures CABI is linked to a major platform of microbial resource holdings.

Sub-Objective 3: To support the increased utilization of microbial resources: CABI has limited capability for screening fungi for biochemical features but programmes to investigate potential utilization are carried out with commercial and research partners as well as SMEs (small & medium enterprises) on natural product and enzyme production. CABI operates safe and patent deposit schemes to safeguard organisms with commercial potential. DNA fingerprinting provided through the identification services can be used to characterize individual strains.

Sub-Objective 4: To support microbiology capacity building and dissemination: Formal training courses on different aspects of microbial identification and preservation are held at CABI E-UK on an annual basis, and CABI staff have travelled to clients and partner organizations to provide local training courses. CABI has developed the e-learning product "Managing Microbes" that can be made available as either a standalone resource or in conjunction with Bioservices training courses. The MIRRI initiative is linking CABI to further multi-partner outreach activities and has the potential to provide access to specialist platforms within the microbial diversity area.

Knowledge for Development Theme Overview

Background

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 agri-advisory service providers, input suppliers, market agents, private sector, government and others. However there is often poor connection between research and development that few organizations are well placed to address. CABI is an organization with a unique niche to support uptake of research outputs from CABIs own work and that of others.

CABI critically analyses barriers to knowledge uptake and application by farming communities and works 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").

Drivers and trends

- Pressure from member countries, other developing country governments and donors to get research into use is a key driver. CABIs work in Knowledge for Development addresses research outputs from CABI and others including new seed varieties, and improved practices in pest management and integrated soil fertility management. The work allows us to target activities that fit with food security objectives of many donors and responds well to the gender and human nutrition agendas.

- The research and development (R&D) community recognizes the need to raise the capacity of national extension systems to support farmers in taking up research outputs. Organizations such as the Global Forum for Rural Advisory Service (GFRAS) and the African Forum for Agricultural Advisory Services (AFAAS) are being established and supported. We are well placed to deliver on this agenda and are looking to contribute practically through Plantwise as well as to research that informs developments in this area.
- Innovation systems concepts have gained credibility in recent years and the plant health systems approach in Plantwise and our SPS capacity building work are rare practical examples of innovation systems approaches.

Goal: To improve access to and use of agricultural technology and improved practices by smallholder farmers in order to improve livelihoods and food security

Overall objective: To build the capacity of national systems and stakeholders in developing countries to identify problems, seek solutions and to use new knowledge or old knowledge in new contexts for social and economic benefit. This will be achieved through 2 sub-objectives:

1. Getting research into use
2. Building innovation capacity

Outcomes

Sub-Objective 1: Getting research into use: To build capacity of national stakeholders to use new knowledge or old knowledge in new contexts for social and economic benefit, contributing to the following outcomes:

- **Sustainable increases in crop production** through the support and strengthening of local stakeholder networks to provide practical solutions to farmers with locally adapted, biologically based, sustainable pest management solutions: CABI works with local partners to support the adoption of Integrated Crop Management as a long term strategy. We facilitate the establishment of crop production guidelines and other policy tools to improve production and better synchronise it with international agricultural standards, such as GAP. We work with extension, research, education, input supply and farmers in order to establish and support economically viable ICM solutions in countries with very different policy frameworks.
- **Improved understanding and use of research** results by different stakeholders (Development Communications): CABI works with implementation partners to support development of communication strategies, plans and materials tailored to the needs and learning styles of target audiences and relevant delivery channels. As a result of CABI inputs, scientists and intermediaries are using and developing improved communications materials in their work. Stakeholders around the world are accessing materials developed under creative commons licence freely and repurposing for their own use.

  We also have partnerships to carry out research and participate in international debates on agro-advisory service provision and extension more generally. Through these interactions we aim to contribute to better integration of agro-advisory services for farmers, increase the outreach capacity of extension staff and improve the responsiveness and quality of the advice given.
- **Increased use of good quality seed** by smallholder farmers for improved food security (Good Seed Initiative): CABI focuses on seed varieties of limited interest to multi-national seed companies including non-hybrid crops bred to address developing country challenges and under-utilised crops such as indigenous vegetables that have a major contribution to human nutrition and diet diversity. CABI works with formal and informal seed systems, seeking to facilitate interactions of stakeholders along seed value chains, identifying bottlenecks and supporting actions to address identified constraints. Training farmers to produce high quality, disease free seed for their own use, as out-growers to small scale seed companies or for local sale where national policy allows is a key component of the work.

Sub-Objective 2: Building innovation capacity: To build capacity of national systems and stakeholders in developing countries to identify problems and seek solutions, contributing to the following outcomes:

- **Increased national capacity to participate in international trade (imports and exports) through phytosanitary risk management (SPS):** Compliance with plant health standards is a complex process with intensive knowledge needs, and actions by diverse actors. Training diagnosticians in new analytical skills and investing in new infrastructure, though essential, is not enough to build capacity of systems to comply with plant health and safety standards in order to facilitate trade. Strengthening of the current loose linkages between the various stakeholders, and access of the stakeholders to plant health knowledge, is leading to improved compliance in general and greater market access in particular.
- **Strengthened capacity of national agricultural institutions and organizations to identify and respond to plant health problems (Plant Health Systems):** Elements of a plant health system (extension, research, input supply, diagnostics and regulatory bodies) exist in most of our target countries, but often operate in disparate ways. Plant clinics can act as a catalyst to stimulate interaction and integration amongst these parts to form a stronger and more effective system, whilst still allowing the exact nature of such systems to vary from country to country. As a result of behavioural change, delivery of agro advisory services becomes more effective and efficient and more farmers have greater access to advice that leads to improved crop health and productivity.

Publishing and Knowledge Management Theme Overview

Background

Digital technologies, which include the internet, the World Wide Web, mobile phones, tablets and telecommunications networks, offer opportunities to remove barriers of access to evidence to inform decision making. Access to the internet and to telecommunications services is now a reality in many rural and remote areas, opening up new channels for reaching directly to stakeholders including policy makers, researchers, extension staff and farmers in developing countries.

CABI supports international development through applying its skills in knowledge management to identify, collate, tag, synthesize, analyze the evidence and make it accessible, as well as designing access routes and user journeys that respond to user needs.

Drivers and trends

The Open Access movement has now persuaded governments and government funded agencies to insist that their funded research is published in open access peer-reviewed journals. The next step is to look at open standards for data sharing and knowledge management solutions for handling big data. To create the environment for this to happen policies are being developed, to promote transparency and access.

Publicly funded agencies around the world are now working hard to use digital technologies to create the evidence base of their work. There is a need for support services to develop knowledge management strategy, to encompass research repositories, technical solutions, and use of social media.

There is increasing concern that research findings are not being used, and that research findings in themselves can be contradictory and that there is a need for robust processes to assess objectively the research evidence through systematic reviews. Developing research questions that may be addressed by systematic reviews entirely fits within an evaluation process and is a flexible tool which can be employed in many contexts.

Finally the biggest driver and trend is the current focus of many donors on harnessing digital technologies to reach farmers by the million.

Goal: To strengthen access to agricultural and biodiversity evidence using digital technologies in order to support decision makers to improve policies, research, and practical farming, and to work with stakeholders to fill gaps in the evidence base.

Overall objective: To strengthen access to research knowledge by decision makers through three sub-objectives:

1. Maintenance of a strong core Publishing business
2. Research knowledge management
3. Research knowledge synthesis

Outcomes

Sub-Objective 1: Maintenance of a strong core Publishing business: Ensuring that CABI's core Publishing products remain the most reliable and respected source of agricultural research information, for both institutional (library) markets and for end-users and practitioners, while delivering sufficient operating profit to CABI to sustain its overall business model and objectives.

- **Serving the global agricultural library market** with increasing efficiency and achieving growth in emerging markets.
- **Core publishing business activity supports development goals** of CABI and its strategic development partners.
- **The veterinary practitioner market is supported for** continuing professional development with evidence-based, authoritative resources, in collaboration with key strategic partners.
- **Reach into professional and practitioner markets is increased**, through the provision of reliable, science-based information resources.
- **Content production and management workflows are transformed** to improve efficiency and innovation, and to enable more content to be available as Open Linked Data.
- **Mobile content delivery is fully integrated** into the Publishing business plan.

Sub-Objective 2: Research knowledge management: To improve management and dissemination of research knowledge, to provide new policy-relevant evidence and generate innovation, which in turn will result in tangible outcomes for poor people and their livelihoods and the biodiversity community.

- **Evidence-based international development knowledge is delivered efficiently to a range of stakeholders:** CABI is working with government agencies for international development to deliver a comprehensive, user-friendly portal of all agency-funded research, using up-to-date technology to ensure that evidence-based knowledge is delivered efficiently to a range of stakeholders, through channels likely to lead to the application of that knowledge. The knowledge management outcomes expected include good management and sharing of agency funded research knowledge, and that data and results from agency funded research are accessed and incorporated into policy. Longer-term outcomes assume there is capacity to use the evidence and to apply it in practice.
- **Improved communication of research information to farmers:** CABI aims to provide complementary extension services to farmers based on digital technologies and the delivery of validated, actionable information linked into their farm calendars.

Sub-Objective 3: Research knowledge synthesis: To improve accessibility to agricultural and biodiversity research through analysis and synthesis of existing evidence to different stakeholders.

- **Better access to and use of agricultural and biodiversity research information:** CABI works with other agencies to identify gaps in access to digital evidence in agriculture and biodiversity research. We host multi-stakeholder workshops to identify gaps in digital evidence, establish user needs and plan how to respond to those gaps and needs. We work closely with a range of government agricultural and environmental departments, development agencies, research institutions and private sector agencies. The outcomes expected include better informed policies for management of agriculture and biodiversity, as well as practical solutions to improve global access to research information.
- **Improved understanding of the research evidence base:** CABI works with implementation partners to review research questions using systematic review methods. These methods have been developed in the clinical medicine context and this approach is now being applied in other research areas. The expected outcomes are better understanding of the research question and new research needs identified.

Plantwise – Strategic Overview

Background

There is a clear need to address these crop losses if food insecurity is to be overcome; a reduction of only 1% in losses would enable an additional 25 million people to be fed. Although there is considerable knowledge on the management of crop pests, this vital information is often not reaching the farmers who need it because extension services are often weak and poorly resourced.

Plantwise, a global programme led by CABI, fosters diverse partnerships that underpin and sustain global efforts to remove constraints to agricultural productivity. Plantwise supports national extension systems in partner countries to provide smallholder farmers with better access to the advice and information needed to help them increase food security and improve their livelihoods by losing less of what they grow due to plant health problems. This is being achieved through the establishment and operation of plant clinic networks, supported by a global knowledge bank, a central repository within Plantwise for plant health diagnosis and management information.

Drivers and trends

Climate change and globalization of trade with increased movements of people and goods between countries, means that distribution of pests and diseases are changing and new problems emerging at a fast rate. This is a major challenge to global food security.

Large scale programs to address specific problems, or specific pests and diseases have an impact, but approaches that build capacity of countries to identify and manage problems on a daily basis are needed if developing countries are to realize their poverty reduction targets. Human resources in developing countries are scarce and approaches need to make best use of available skills. Developed country interests in management of their own biosecurity means that they have a vested interest in investing in improved biosecurity by their trading partners.

At the CABI Review Conference in 2009, all CABI Member Countries gave CABI a mandate to begin investing in development of the Plantwise programme, building upon the existing expertise within CABI and its Global Plant Clinic project and electronic databases, in particular the Crop Protection Compendium.

Goal: To contribute to enabling male and female farmers around the world to lose less and feed more

Overall objective: To strengthen the capacity of agricultural institutions and organisations to establish sustainable Plant Health Systems within their country, using the Plantwise approach as the framework for action

Outcomes

- **Sub-Objective 1: National networks of plant clinics established to provide regular advice to farmers and facilitate the collection and use of plant health information.** CABI facilitates the planning and establishment of a stable nucleus of plant clinics in target countries. The plant clinics, consisting of basic materials and equipment for field diagnostics of plant health problems, are operated by extension staff trained as plant doctors through the Plantwise training modules 1 and 2. Information materials and technical backstopping are provided by CABI initially and national partners through direct clinic visits and the production of documents to guide decisions on diagnoses and recommendations. The Plantwise programme provides tools, methods and training for the collection, and verification and validation of pest diagnosis data and advice given.

- **Sub-Objective 2: Innovative linkages established between key actors in national plant health systems.** To encourage and facilitate engagement between plant health stakeholders, key representatives within a target country are brought together through a National Forum that guides progress for the strengthening of the plant health systems. National plant protection organisations (NPPOs) are key Plantwise partners for their role in pest regulation. Their capacity is enhanced through improved field data on pest surveillance, provided by plant clinics, and they are important actors in the reporting of new or re-emerging pest problems. Diagnostic services, both within and outside the target country, are identified to provide support to plant clinics for difficult cases of plant health problems. The input supply chains for agricultural production are assessed and links between plant doctors and agro-input dealers are fostered to improve the match between advice given to farmers at plant clinics and the products available in agro-input shops. Agricultural research bodies are introduced to the plant clinic concept to alert them to the benefits of clinic data in guiding problem-oriented research and to integrate their knowledge into the technical backstopping and physical reference materials developed for plant doctors.
- **Sub-Objective 3: Comprehensive Knowledge Bank developed according to user needs for pest diagnosis, treatment and distribution.** This information may be provided in the form of hard copy documentation, but is primarily made available to partners through the Plantwise Knowledge Bank. The sources of information provided through this online resource include material produced by partners in-country and by international partner organisations, plant clinic data (subject to data sharing agreements), and content from other CABI resources and the published literature. In addition to information on crop pest biology and management, the Knowledge Bank offers a diagnostic tool, which helps users to identify the causes to plant health disorders, as well as pest distribution maps, showing global, regional and within-country pest occurrence.
- **Sub-Objective 4: Data and information management tools, content and processes developed and used.** CABI works with the national partners to establish a national data management process for the collection, handling and analysis of clinic data. Once the appropriate data sharing agreements are in place, CABI supports the partners in using plant clinic data to inform national plant health programmes. In addition, through training workshops and follow-up activities, a number of information documents are produced to support extension workers (i.e. plant doctors) and farmers in their work. Likewise, Plantwise aims to facilitate dissemination of plant health information to large numbers of farmers through complementary extension methods such as plant health rallies and mass extension campaign methods (e.g. radio, mobile agro-advisory services, agrodealer networks etc.) guided by the data from plant clinics, thereby ensuring that information programmes are truly targeting the issues that concern farmers most.
- **Sub-Objective 5: Monitoring and evaluation schemes implemented.** A set of key performance indicators are developed both for progress monitoring to ensure that planned outputs are delivered, and for process monitoring, using quantitative and qualitative approaches to assess the quality of implementation, test assumptions and understand how the approach can be improved. In addition to regular monitoring of implementation, tools and methods for impact assessment will be developed for implementation in selected target countries. Widespread adoption of the plant health systems approach will depend on (among other factors), documented impacts that demonstrate what it can achieve. This includes both farm-level impacts (adoption of practices, decreased crop losses, improved yields, reduced pesticide use, etc.) and impacts on plant health systems and advisory services (communication flows, effectiveness, accessibility to the poor, etc.). In addition to linking with global leaders in monitoring and evaluation processes, an internship programme within Plantwise has been created to involve young researchers in the testing of programme assumptions and methods, thereby refining the plant health system approach.

Mobile Services: Strategic Overview

Background

The omnipresence of mobile devices (mobiles, PDAs) is such that there are now over six billion mobile-cellular subscriptions worldwide. Mobile ownership has grown 10% per annum since 2007 in developing countries and now grows at 130m users per year. Much of this growth is within the rural agricultural sector. Mobile national operators are keen to develop brand loyalty and secure growth from within this rural agricultural population but are faced with a lack of content providers able to provide trustworthy and actionable information. In addition, mobile agri-advisory services are increasingly being seen and considered by them as part of the solution to the challenge of communicating effectively with large groups of small scale farmers/suppliers.

CABI is well-placed to address these needs on the basis of:

- Unique content resources (CAB Abstracts, Compendia, Factsheets, etc).
- Experience in putting research into use (Projects, Factsheets etc).
- Data analytics (PWKB).
- Real experience in mobiles service delivery over a number of years (Direct2Farm Project (IKSL, GSMA mFarmer) etc).
- Objectivity, inter-governmental and not for profit status.
- Partnership and multi-stakeholder management experience, especially building towards capacity building.

Access to CABI products and services inevitably and ultimately will reflect this shift in platform preference and our content must be digitised and tagged so that it can be readily repurposed into 'just-in-time' demand-driven research which can be made available at users' fingertips via mobile devices.

Drivers and trends

Traditional extension services have insufficient resources (staff and monetary) to reach an adequate number of farmers, given the size and dispersal of the rural agricultural population. All parties recognise that this needs to be supplemented by the broad bandwidth capabilities of digital telecommunication to reach more farmers, more effectively.

Donors are increasingly interested in using mobile phones as an effective means of extension to the masses, giving farming households equal access to extension advice and support in areas such as health (human, animal welfare and plant), education and financial services (access to markets, access to micro-finance etc).

Many farmers are willing to pay for such services if they themselves can see a return on their typically prepaid subscription investment and, to be attractive, such services need to be trustworthy, comprehensive (holistic) and fully-customised to end-users' needs. Per capita cost of intervention in case of mobile enabled extension service is almost less than half of the cost of a full-fledged person to person extension service.

Goal: Establish self-sustaining and scalable mobile-based agricultural, nutritional and environmental advisory services which provide gender-sensitive information and knowledge to farmer households and specialist user groups to enable them to make better decisions about their crops, farming practices, health and livelihoods.

Overall objective: To strengthen access to actionable, timely, locally-relevant,(GIS-tagged) and user-targeted advice through the following activities:

1. Communicating Research into Use
2. Provision of specialist commercial services to support mobile network operators
3. Provision of services to the corporate sector
4. Data collection and analysis

Outcomes

Sub-Objective 1: Communicating Research into Use: content and technical partnerships developed which help the dissemination and application of research knowledge on the ground to bottom of the pyramid farmers, leading to measurable improvements in farmer livelihoods, food security, labour productivity and crop yields, through:

- Evidence-based information is delivered by text, voice or video directly to stakeholders with through the development of in-house capacity in provision of innovative mobile Value Added Services (mVAS).
- Clear understanding and best practice in Communication design (Factsheets, SMS, voice message, videos etc.);
- Clear understanding of User-Driven interface experience and design; and
- Development of business relationships with Mobile Network Operators, VAS providers, and specialist content providers in target countries.
- Work-based decision making tools tailored to diverse sets of users (e.g. farmers through to researchers) to allow the user to have the information that they require when they need it.

Sub-Objective 2: Provision of specialist commercial services to support mobile network operators: mobile-driven business services seek to integrate our core skills with complementary content (either user/market-driven, or driven by donors), such that a user ultimately can receive location-relevant intervention advice:

- Farmer Learning and Extension Training services.
- Rural financial services (mPESA, micro-credit etc).
- Health, especially Nutrition Education.
- Soil and Water Management.
- Animal Health and Welfare.
- Market-place 'brokerage' (i.e. matching users' need/desire to buy a piece of equipment with a nearby stockist).

Sub-Objective 3: Provision of services to the corporate sector: combining data and knowledge with specific company information, standards and requirements, to empower farmers within respective supply chains with greater knowledge and information which will improve overall management, communication and efficiency savings.

Sub-Objective 4: Data collection and analysis: collate disaggregated localised data on the demand for agricultural services based on real-time problems by

- Providing evidence-based analysis and predictive insights to commercial stakeholders (governments, corporates, farmer-groups) via a commercially-driven fee for service basis;
- Utilising social networks to generate vibrant Communities of Practice which cascade advice and simultaneously populate CABI content and data repositories; and
- Building a strengthened research evidence base achieved through the development of researchable questions into the impact and benefit of agri-advisory services incorporating mobile platforms, informed through real-time collation and analysis of disaggregated, localised user data plus customised surveys/polling to subscribers.

Sven Torfinn / Panos Pictures

Appendix 2

Summary of expected outcomes and deliverables

Goal, i.e. Impact	Purpose/ Overall Objective	Outcomes	Outputs and Indicators (By end 2016 unless stated)	Region of Operationalization
Commodities: To support improved livelihoods for the smallholder producers of commodity crops	To improve the productivity, quality and profitability in our focus crops in order to improve market access and hence, livelihoods Sub-objectives: 1. Promoting sustainable crop production 2. Improving post-harvest processing and market access 3. Building capacity through knowledge dissemination	1. Decreased pest losses in commodity crops 2. Increased compliance with food safety legislation 3. Increased income for smallholders from better quality produce 4. Increased efficiency of value chains 5. Increased access to verified, independent information for target groups 6. Synthesized knowledge tools produced and disseminated for training	1. New management methods established in focus crops 1.1. >60% reduction in Phytophthora diseases in pilot cocoa farms in Vanuatu (by 2014) 1.2. Coffee green scale effects on coffee yields, productivity and economic impact quantified in PNG (by 2014) 1.3. >30% increase in yield where IPM used against coffee berry borer compared to normal practice in coffee in Indonesia (by 2014) 1.4. >30% increase in yield where IPM and new coffee varieties used in Kenya &Malawi (by 2016) 2. Awareness raised of new and existing food safety legislation 2.1. 5 case studies of most significant change , cost-benefit analysis of GAP and SPS systems by cocoa farmers in SEA and PNG (2014-2015) 2.2. >50% less poor quality cocoa produced (before and after training) (2014-2015) 2.3. At least 30 producer groups certified in Pakistan (by end 2014) 3. Improved postharvest and processing technology introduced 3.1. 50% increase in farmer groups selected & trained in improved technology in Ethiopia/Rwanda from baseline, improved success rate for loan applications (>30%), increased numbers of processing equipment purchased from baseline (by Q1 2014) 3.2. Increase percentage premium for coffee at farm gate in Ethiopia and Rwanda (by 2014) 3.3. Improved farmer incomes demonstrated in Ethiopia and Rwanda (by 2014) 4. Increased efficiency of cotton value chains 4.1. Increased numbers of farmers and extension staff trained from baseline (by Q1 2014) 4.2. Improved integration of the value chain through demonstrable partnerships (CODA, KARI, IAM and private sector) and development of in-country ICM programme future sustainability protocols 4.3. Improved provision of inputs, improved material via documented partnerships with input & seed suppliers (by end of 2013) 4.4. Increased productivity and farmer incomes determined by end of project impact study(by Q1 2014) 5. Increased access to information for target groups 5.1. Cocoa Safe project in SE Asia targets farmers, input suppliers and extension staff by 2015; training curricula produced (by 2013) best practice guides (by 2015) 5.2. Knowledge platform available online, user metrics for platform, user numbers, numbers of documents uploaded, numbers of comments and feedback from users (by 2015) 5.3. Café Movel (India) delivers mobile enabled coffee extension services by 2014 (KM 5.4) 6. Production and dissemination of knowledge tools established 6.1. 100 copies of best practice guides produced for Vanuatu cocoa project (by 2014) 6.2. Training curricula established with Campden BRI for FSCA(2014) 6.3 Production of training manuals for coffee best practice (by 2016)	Asia/Africa/ Europe Asia/Africa Africa Africa/Asia Africa Africa Asia Europe/Asia Asia Europe/Africa

Goal, i.e. Impact	Purpose/ Overall Objective	Outcomes	Outputs and Indicators (By end 2016 unless stated)	Region of Operationalization
Invasive Species: To improve management of IAS for the benefit of biodiversity conservation, agricultural productivity, livelihoods, and economic development	To strengthen and/or develop policies, improve practices, increase awareness and build capacity to enhance the management of invasive alien species	1. Awareness of the impacts and management strategies for IAS raised	1.1 Distribution of key invasive alien plants affecting agriculture and biodiversity mapped in six eastern Africa countries by 2014 1.2 Draft IAS identification toolkit for East Africa by end 2015 1.3 More than 40 peer-reviewed publications on IAS impacts and management in developed and developing countries produced annually 1.4 At least 40 factsheets produced and posted on the Open access Invasive species Compendia in 2014 1.5 Content for mobile application to access information on identification and management of IAS compiled by 2014 and funding for app development sought 1.6 Database of regional IAS in India Sri Lanka and Nepal compiled by 2014 1.7 Paper on impact of IAS on pasture and potential economic value of control in East Africa published by 2014 1.8 Opportunities for mobile technology explored an exploited and at least 3 specific projects developed	Africa/Asia/ Caribbean
		2. Increased capacity for improved IAS management	2.1 Training workshop in China completed for participants from SEA on biocontrol and built into large regional project by 2015 2.2 Work to enhance management of protected areas in Socotra Yemen, including IAS management initiated in 2014 2.3 Training workshops on IAS and biocontrol to plan for biocontrol agent release completed in Tanzania and Zambia (2014) 2.4 Up to 100 stakeholders (policy makers, scientist, quarantine officers, extension staff) trained in four SE Asian countries	Asia/Africa
		3. IAS policy strengthened and developed	3.1 NISSAPS developed in Vietnam, Philippines and Indonesia in 2014 and in draft for Cambodia in 2015 3.2 IAS risk analysis procedures established for quarantine authorities in four SE Asian countries	Asia
		4. Increased application of biological control and integrated pest management as a solution to IAS	4.1 At least 7 biological control agents identified for invasive weeds in Europe and the Americas by 2016 4.2 CABI South American IAS strategy drafted by 2014 4.3 Biocontrol agents against invasive cacti released in Kenya by 2014 4.4 Biocontrol agents released against chromolaena and parthenium in Tanzania and Mimosa pigra in Zambia by 2014 4.5 Proof of concept for larger grain borer biopesticide in Tanzania and Ghana by end 2014 4.6 A Beauvaria isolate for European storage pests registered by 2014 and 2 products registered by 2017. African registration to follow 2 year later. 4.7 1 further agent release in UK recorded under the Water Framework Directive Weed programme by 2015 and at least 1 agent released in another EU country by 2016 4.8 Developing best management practices for selected IAP's in SE Asia including the possible introduction and/or dissemination of biocontrol agents by 2015/16 4.9 Evaluation of CABI's successes with biocontrol agents and their contribution to global invasive species management published and promoted by end 2014	Europe/ Caribbean/ South America/Asia Africa

Goal, i.e. Impact	Purpose/ Overall Objective	Outcomes	Outputs and Indicators (By end 2016 unless stated)	Region of Operationalization
Bioservices: To identify and maintain microbial resources and provide services to maximize their utilisation and to limit their detrimental effects in agricultural and industrial production	To develop the CABI capability in microbiology services to CABI projects, partners and commerce Sub-objectives: 1. To provide a validated mechanism for identifying critical microbes 2. To maintain and make available microbial diversity 3. To support the utilization of microbial resources 4. To support microbiology capacity building and dissemination	1. Improved microbial identification in agriculture, industry and environmental studies 2. Wider availability of culture collections 3. Increased utilization of microbial resources 4. Microbiological capabilities developed and supported internally and externally	1.1 Increased customer base averaging 7% per year, extension of UKAS accreditation to fungal identifications 1.2 Provision of a clear integrated route for identification of disease organisms in plant material at Egham by mid-2014 1.3 Integration of strain sequence and metadata as single culture records by end 2015 2.1 Increased numbers of cultures supplied with a target of 15% increase in culture numbers. Supply of cultures to customers/projects via Regional Centres. 2.2 New reference cultures of emerging plant pathogens obtained as available. Target of full reference "set" for all diagnostic work. 2.3 Presence in ongoing international networking activities, target inclusion in at least 2 international non CABI networks by 2015 3.1 Commercial partnerships for contract research and culture supply through both UK and Regional Centres 3.2 Expanded customer and service range for EIB activities, target 10% growth in customer numbers 3.3 Help establish microbial resource facilities/microbial services for partner organisations with demonstrated activity in at least 2 countries by end 2014 4.1 Collaborative programmes with, and increased business through, CABI Regional Centres to meet business plan target 4.2 Development of new and off-site training courses. Increased take-up of training attachments at Egham – target 10% increase in trainee numbers 4.3 Maintain sales of Description Sheets and other CABI microbiology publications 4.4 Develop new edition of Dictionary of Fungi for 2016 publication	Europe Africa/Asia/ Caribbean Europe Europe Europe/Africa/ Asia Global

Goal, i.e. Impact	Purpose/Overall Objective	Outcomes	Outputs and Indicators (By end 2016 unless stated)	Region of Operationalization
Knowledge for Development To improve access to and use of agricultural technology and improved practices by smallholder farmers in order to improve livelihoods and food security	To build the capacity of National Agricultural and Plant Health Systems and stakeholders in developing countries to identify problems, seek solutions and to use new knowledge or old knowledge in new contexts for social and economic benefit. 1. Getting research into use 2. Building innovation capacity	1. Integrated Crop Management (ICM): Sustainable increase in crop production through the support and strengthening of local ICM stakeholder networks to provide practical solutions to farmers through the use of locally adapted, biologically based, sustainable pest management solutions.	1. Greater application of ICM and GAP for improved crop production 1.1 Pest management approaches (correct pest-parasite combinations) against soil pests in DPRK and against rice pests in Mekong countries developed by Q1 2014 1.2 Policy documents supporting IPM implementation endorsed in DPRK for cabbage and maize crops by end 2014 1.3 Stakeholders in DPRK demonstrating capacity to manage at least 80% of the 28 currently established biological protection agents (Trichogramma) production facilities, each protecting 700 ha of maize by 2014 1.4 At least 5 biological control agent production facilities functional in each of three countries in the Mekong region, owned by grassroots organizations, producing bio-control agents to protect more than 500ha of maize each by 2015 1.5 IPM practices for maize and cabbage used on increasing areas of land in DPRK as well as for maize and rice in target countries in the Mekong region and yields increased where practices are used by 2015 1.6 DPRK demonstrating strengthened capacity for IPM with New Department of Plant Protection assuming responsibilities for their plant protection mandate, IPM being taught at university and county colleges and partner networks following up on relevant ICM issues by 2016	Asia/Europe
		2. Development Communications: Improved understanding and use of research results by different stakeholders	2. Up-to-date knowledge on integrated soil fertility management (ISFM) and other agricultural practices synthesized and disseminated to drive increased productivity on smallholder farms in sub-Saharan Africa (SSA) 2.1 ASHC website well developed with How-to guidelines on process and a broad range of materials (audio, video, print, on-line) targeting farmers, extension staff and other key audiences across SSA by mid-2014 2.2 Pest management materials for extension staff (including plant doctors) and agrodealers developed by mid-2014 2.3 Extension for ASHC secured by mid-2014 2.4 Fertilizer Decision Support Tools designed for mobile use and associated communication materials on fertilizer recommendations for 13 SSA countries produced by mid 2016 2.5 Partner project COMPRO using materials developed by CABI to promote soil health products in 4 SSA countries	Africa
		3. Good Seed Initiative: Increased use of good quality seed by smallholder farmers for improved food security	3. Enhanced production and utilization of improved seed varieties 3.1 A strategy for the Good Seed Initiative showing how CABI plans to support seed systems in East Africa by beginning 2014 3.2 Number of men, women and young smallholders accessing quality AIV and other seeds in project areas in Tanzania and Kenya increased and AIV seed production initiated in Burundi, Uganda and Rwanda by 2014 3.3 By 2013 partners (research, private sector and regulatory bodies) in Uganda and S Sudan supported to train small-scale seed producers and increase production of NERICA rice seed sold through private sector seed companies and farmer groups 3.4 Survey of seed processing technologies in use across seed value chains completed in Kenya and Tanzania by Q1 2014 for the HORTCRSP seed systems project. 3.5 By 2014, efficacy of seed drying beads in Kenya and Tanzania known and bead seed drying technology demonstrated to farmers and other seed stakeholders 3.6 New funding to support scaling up of successes won in Africa by end 2014	Africa

Goal, i.e. Impact	Purpose/ Overall Objective	Outcomes	Outputs and Indicators (By end 2016 unless stated)	Region of Operationalization
Knowledge for Development To improve access to and use of agricultural technology and improved practices by smallholder farmers in order to improve livelihoods and food security	To build the capacity of National Agricultural and Plant Health Systems and stakeholders in developing countries to identify problems, seek solutions and to use new knowledge or old knowledge in new contexts for social and economic benefit. 1. Getting research into use 2. Building innovation capacity	4. SPS: Increased national capacity to participate in international trade (imports and exports) through phytosanitary risk management (SPS) 5. Plant Health Systems: Strengthened capacity of agricultural institutions and organizations to identify and respond to plant health problems	4. Strengthened capacity of national organizations to comply with international phytosanitary standards for export of commodity crops to regional and international markets 4.1 Reduced interceptions of quarantine pests in shipments of flowers to EU from Uganda by 2015 4.2 Case studies on improved risk management for dragonfruit and pineapple export in Vietnam and Malaysia completed by Q1 2014 4.3 Training on various aspects of plant and animal quarantine in Brunei completed by 2014 4.4 Approach to improve risk management for export crops in SEA piloted and documented by 2014 4.5 National stakeholders in target countries in Africa and South East Asia demonstrating increased capacity to comply with phytosanitary standards by 2015 5. Sustainable national Plant Health Systems established (using the Plantwise approach as the framework for action) 5.1 Plant clinics are incorporated into national extension strategies and budgets to sustain them 5.2 Plant Health System stakeholders continue to interact in new ways established under the Plantwise approach 5.3 New and emerging problems are rapidly identified and assessed by national plant health systems, prompting rapid responses 5.4 Increased numbers of male and female farmers have access to appropriate, timely and locally relevant information and advice on plant and soil health, through plant clinics and mass extension campaigns.	Africa/Asia Global

Goal, i.e. Impact	Purpose/Overall Objective	Outcomes	Outputs and Indicators (By end 2016 unless stated)	Region of Operationalization
Publishing: Global agricultural research, development and educational endeavours are supported and enriched by reliable and up-to-date sources of information, delivered in the most appropriate format and integrated with other appropriate and trustworthy resources.	To be the most reliable and respected source of agricultural research information, for both institutional (library) markets and for end-users and practitioners, while delivering sufficient operating profit to CABI to sustain its overall business model and objectives. Publishing revenues support both publishing business and international development business viability. Publishing and content management skills are deployed within projects to support CABI Development mission.	1. The global agricultural library market is served with increasing efficiency and growth in emerging markets is evidenced	1.1 Annual revenue growth at or above market averages, with efficiency savings to maintain net operating margins at or above 2013 levels 1.2 Strategic road map approved for CAB Abstracts and core database products by Q1 2014, reflecting new opportunities emerging due to external change and on-going growth in database business 1.3 Internship programmes created in emerging markets (initially with RUFORUM in Africa, 2013) to build awareness of CABI products and to create local "champions". Aim to extend RUFORUM partnership in 2014 and to add a second programme in another region in 2015 1.4 CABI Products aimed at the library market maintain their reach. CAB Abstracts available in 90% of US land grant universities. Global retention of subscriptions >90%. Total usage of CAB Direct > 5 million visitors. Baseline anonymised headline figures collected from other CAB Abstracts providers (OVID, EBSCO, Thompson Reuters, DIALOG) (2014-) 1.5 All CABI products aimed at the library market (databases, books, Compendia) maintain their reputation for quality and authority as recorded in M&E log on Sharepoint and documented in 3 case studies (one per year, 2014-2016).	Europe
		2. Core publishing business activity supports development goals of CABI and its strategic development partners	2.1 CAB Abstracts is cited as a source of policy-informing evidence in Systematic Reviews not published by CABI (2014-) 2.2 CABI Book publishing programme is used as a vehicle for the delivery of key opinion-forming texts by CABI and strategic partners (including IFAD, OECD, FAO). Data on role of books in meeting own and partner strategic policy, communication or training objectives collected in Book Proposal forms and documented in 3 case studies (one per year, 2014-2016). 2.3 Published outputs are included in project deliverables for at least 20% of CABI level one projects, making use of in-house production skills 2.4 Content management projects such as CABICCoR include International Development content to improve internal knowledge management and delivery of appropriate information and insights.	Europe
		3. The veterinary practitioner market is supported for continuing professional development with evidence-based, authoritative resources,	3.1 VetMed Resource, re-launched in 2013, providing a supporting resource for continuing professional development, revenue increasing to £150k p.a. by 2016 3.2 Content development strategy developed in collaboration with other publishers and veterinary schools (2014 onwards) 3.3 New channel partners identified for sale of animal health content to corporate customers, with new revenue identified for 2014 3.4 International development projects secured that focus on raising standards in the veterinary profession in emerging economies, including India	Europe
		4. CABI's reach into professional and practitioner markets is increased, through the provision of reliable, science-based resources	4.1 Strategy for analysis of user behaviour developed. Process for web, social media campaign monitoring and monitoring of mobile device activity identified, and monitoring documented in M&E log on Sharepoint (2014). 4.2 End-user eBooks strategy implemented by Q1 2014, with all CABI books available on Kindle 4.3 New products launched for target subject areas: Horticulture, Trade, Food Safety, Leisure & Tourism, based on rigorous business cases (2014-2016)	Europe

Goal, i.e. Impact	Purpose/Overall Objective	Outcomes	Outputs and Indicators (By end 2016 unless stated)	Region of Operationalization
Publishing: Global agricultural research, development and educational endeavours are supported and enriched by reliable and up-to-date sources of information, delivered in the most appropriate format and integrated with other appropriate and trustworthy resources.	To be the most reliable and respected source of agricultural research information, for both institutional (library) markets and for end-users and practitioners, while delivering sufficient operating profit to CABI to sustain its overall business model and objectives. Publishing revenues support both publishing business and international development business viability. Publishing and content management skills are deployed within projects to support CABI Development mission.	5. CABI's content production and management workflows enable efficiency and innovation, plus content availability as Open Linked Data 6. Mobile content delivery is fully integrated into the Publishing business plan	5.1 Project to re-engineer CABI-wide content management and production workflows and platforms implemented, to enable greater linkage of content and delivery of innovative new knowledge-based products and services (2014-15) 5.2 Evolution of CAB Thesaurus as strategically important asset for business and product development. Thesaurus available as editable ontology managed in open & linked datastore (2014) 6.1 All CABI products are optimized for mobile accessibility (2014) 6.2 New mobile-only products are launched as appropriate for both developed and developing world markets (2014-) 6.3 Publishing skills are deployed in support of broader CABI-wide mobile initiatives; Publishing staff support Direct2Farm (2014-2016).	Europe Europe/Asia/Africa

Goal, i.e. Impact	Purpose/Overall Objective	Outcomes	Outputs and Indicators (By end 2016 unless stated)	Region of Operationalization
Knowledge Management: To strengthen access to agricultural and biodiversity evidence using digital technologies in order to support decision makers to improve policies, research, and practical farming, and to work with stakeholders to fill gaps in the evidence base	To strengthen access to research knowledge by decision makers. Sub-objectives: 1. To improve research knowledge management 2. To improve research knowledge synthesis	1. Evidence-based international development knowledge is delivered efficiently to a range of stakeholders 2. Better access to and use of agricultural and biodiversity research information	1. Research portals are developed and maintained 1.1 10% increase in user visits and subscribers to R4D from baseline at the beginning of each year 1.2 More than 4000 new records per annum added to R4D, 1.3 Social media embraced: > 8000 Twitter followers @DFID_Research 1.4 Research focused stories generated with links back to R4D: appearing in 10 communication partner website / blogs 1.5 More than 24 case study stories each year in R4D 1.6 Contribution to other internationally recognized global portals and information initiatives e.g. AGORA, CIARD-Ring 2. Global Agricultural Research Archive 2.1 Funding secured to extend GARA in two more countries, country 1, Jan 2014, country 2 June 2014 2.2 Number of visitors to GARA increased to 16,000, end 2014 2.3 GARA is promoted in partnerships with FAO, CIARD and 'opening access' initiatives, at least one international meeting attended per year to promote/report GARA **Invasive Species Compendium** 2.4 More than 50 new species datasheets added annually to the ISC as part of Sustainability plan, 2014, 2015,2016 2.5 More than 71 Datasheets on invasive species causing extinction commissioned and published 2014 2.6 More than 100,000 people visit, in 2014, growing at 10 %/yr 2.7 Increased proportion of overall users from ACP regions, increased visits from Africa from baseline of 3% to 5%, Caribbean from baseline 0.5% to 1.5%, Pacific from 0.1% to 0.5% of all visits, 2014 2.8 Target 85 invasive species specialists trained to use ISC as a platform to document invasive species relevant to their regions, 2014 2.9 Annual consortium meeting held, engaging stakeholders, 2.10 Sustainability plan formulated 2014 2.11 Data in open and linked formats to be shared with key international partners (GIASIP, etc.)(2014-16) 2.12 Documented ISC use in development of country invasive species control strategies and policy in the USA, and other countries **Capacity building: RUFORUM** 2.13 30 Agricultural Universities in Consortium have strengthened access to agricultural research information, 2014 **Capacity building: SPS Pakistan** 2.14 Develop ICT infrastructure to deliver online/video conferencing training modules on SPS, ongoing to 2014 2.15 Translation of 3 SPS e-learning courses into Urdu in 2014 2.16 Engaged stakeholders through 2 regional workshops organized and facilitated by CABI, 2014	Global Africa/Asia Global Africa Asia

Goal, i.e. Impact	Purpose/Overall Objective	Outcomes	Outputs and Indicators (By end 2016 unless stated)	Region of Operationalization
Knowledge Management: To strengthen access to agricultural and biodiversity evidence using digital technologies in order to support decision makers to improve policies, research, and practical farming, and to work with stakeholders to fill gaps in the evidence base	To strengthen access to research knowledge by decision makers. Sub-objectives: 1. To improve research knowledge management 2. To improve research knowledge synthesis	3. Improved understanding of research evidence base	**3. Systematic Reviews** 3.1 Systematic Reviews published by respected body or journal. 3.2 'What is the evidence of the impact of agricultural trade liberalization on food security in developing countries?', published by start of 2014 3.3 'A systematic review of invasive species causing declines and/or extinctions of threatened species.', published 2014 3.4 'What re the impacts of agricultural input subsidies on productivity, farm incomes, consumer welfare and wider growth in low- and middle-income countries?', published 2014 3.5 Systematic Reviews cited in international literature as reviewed in a bibliometric study two years after each review published **Information Services** 3.6 Short reviews accepted for publication in K4D by CTA, 72 per year 3.7 Add 500 library documents to Evidence on Demand, cumulative total to 2014 3.8 All new PEAKS documents made accessible via R4D	Global Global

Goal, i.e. Impact	Purpose/Overall Objective	Outcomes	Outputs and Indicators (By end 2016 unless stated)	Region of Operationalization
Plantwise: To contribute to enabling male and female farmers around the world to lose less and feed more	To strengthen the capacity of agricultural institutions and organisations to establish sustainable plant health systems within their country, using the Plantwise approach as the framework for action	1. Plant clinics operating to standards of good practice to provide a demand driven service to advise farmers, collect information on problems and catalyse plant health system change	1. National networks of plant clinics established 1.1. At least a total of 538 plant clinics operating according to agreed quality standards in 31 countries by 2014 and over 1,000 plant clinics in 40 countries by 2016 1.2. National data managers regularly handling plant clinic data in 7 countries by 2014 and at least 20 by end 2016 1.3. National trainers training new plant doctors that set up new plant clinics independently of Plantwise interventions in at least 10 countries by 2015	Global
		2. Plant health system stakeholders interact in new ways to deliver advice and inputs, respond to emerging pests and diseases and engage in effective research	2. Innovative linkages established between key actors in plant health systems 2.1. Guiding principles for implementation of plant clinics and facilitation of plant health systems are being followed in 10 countries by 2014 and up to 25 by 2016 2.2. Evidence that national forums/round tables are established and key plant health stakeholders are linked in 5 countries by 2014 and 20 by 2015	Global
		3. Knowledge Bank is available to national advisory services and organisations contributing to plant health systems	3. Comprehensive KB developed according to user needs for pest diagnosis, treatment and distribution 3.1. Evidence that plant health system stakeholders are using and contributing to the KB; 200,000 users per annum by 2016 and offline material circulated to all plant clinics 3.2. Evidence that actors within the Plantwise target countries are contributing to the KB; New content on all country home pages by end 2016 3.3. New version of KB by June 2015 (version 3.0)	Europe
		4. Data and information used to support national processes to identify and respond to emerging plant problems and deliver appropriate, timely and locally relevant information and advice on plant and soil health	4. Data and information management tools, content and processes developed and used 4.1. National stakeholders have viable data management, validation and analysis procedures in place within 3 years of initiating Plantwise; 7 countries by 2014 and 20 by 2016 4.2. Validated extension materials targeting the needs of male and female farmers produced locally and uploaded into the KB and relevant national systems, and updated with plant clinic feedback; Over 3,500 factsheets available on the knowledge bank by 2014 and over 5,000 by 2015 4.3. Plantwise Online Management System (POMS) used for analyzing plant clinic data by 7 countries by 2014 and 20 by 2016 4.4. Evidence that relevant institutions are using the data generated and disseminating it to target groups through plant health rallies and other complementary mass extension methods (e.g. radio, mobile agro-advisory services, agro-dealer networks etc.); 44 plant health campaigns, including rallies, held by 2014 and 138 by 2015	Global

Goal, i.e. Impact	Purpose/Overall Objective	Outcomes	Outputs and Indicators (By end 2016 unless stated)	Region of Operationalization
Plantwise: To contribute to enabling male and female farmers around the world to lose less and feed more	To strengthen the capacity of agricultural institutions and organisations to establish sustainable plant health systems within their country, using the Plantwise approach as the framework for action	5. Programme is managed through a responsive process of planning, action and learning to deliver impact	5. Monitoring and evaluation schemes implemented 5.1. Evidence that programme and country M&E systems are being used for learning, improvement and quantifying outcomes and potential impacts; Programme M&E plan in place in 2014. 5.2. At least 3 Master level intern placements by start 2014 and at least 12 by 2015 5.3. Plantwise external evaluation review completed and signed off by SDC by beginning2104 5.4. External impact assessment by external contractor using rigorous IA methodology initiated in 2013 with at least 2 papers on findings by end 2015 5.5. Country monitoring plan including testing of assumptions established and implemented in up to 10 countries that includes indicators of participation across community groups (gender, age, wealth) by end 2015 5.6. Results of evaluation studies to test assumptions reported in papers and conferences at least 5 papers/presentations in each year	Global

Goal, i.e. Impact	Purpose/Overall Objective	Outcomes	Outputs and Indicators (By end 2016 unless stated)	Region of Operationalization
Mobile: Establish self-sustaining and scalable mobile-based agricultural, nutritional and environmental advisory services which provide gender-sensitive information and knowledge to farmer households and specialist user groups to enable them to make better decisions about their crops, farming practices, health and livelihoods.	Strengthened access to actionable, timely, locally-relevant (GIS-tagged) and user-targeted advice through: 1. Communicating Research into Use 2. Provision of specialist commercial services 3. Provision of services to the corporate sector that combine data and knowledge with specific company information. 4. Data collection and analysis.	1. Improved communication of research information directly to more than 1 million farmers	1. Mobile agro-advisory services 1.1. Scalable unified service developed, providing weekly plant health advice to > 400,000 farmers in Kenya & India 1.2. Comparative cost effectiveness and efficiency of plant clinics supported by digital technologies in 2 countries (Kenya, India) established 1.3. Preliminary evaluation results available 2014-2016, determining improved farming outcomes when incorporating mobile advice 1.4. Timely information delivered through mobile phones complements extension services, ongoing 1.5. eZARAAT is incorporated into new Punjab extension projects 2014, and is used by 30% of farmers in target districts as evidenced by impact study 1.6. CafeMovel (India) delivers mobile enabled coffee extension services to 150,000 coffee growers by end-2014 1.7. M-Kisan (India) reaches 372,000 active farming subscribers within 3 years and Sauti ya Mkulima (Kenya) reaches 250,000 farmers, 2014 1.8. Interoperable PW-Direct2Farm content repository enabled, integrating CABI and partner content in plant- & animal-welfare with nutrition advice, so as to underpin the mNutrition approach in 14 countries (Africa/Asia), reaching 1m users 1.9. Functionality of Direct2Farm repository fully developed to enable customised commodity-specific services to be launched in any territory; first project target: 50,000 farmers Ghana/Cocoa (2014)	Asia/Africa
		2. Provision of specialist commercial services	2. Commercial partnerships 2.1. Number of active partnerships/countries 2.2. Number of commercial private sector partners 2.3. Value and number of Agricultural mVAS activities; growth in user outreach, usage statistics and user satisfaction	Global
		3. Provision of services to the corporate sector	3. Corporate service partnerships 3.1. Number of active partnerships/countries 3.2. Number of private sector partners 3.3. Value of savings achieved, quality improvement measures, reduced wastage 3.4. Improvement in grower incomes	Global
		4. Data collection and analysis	4. Data collection and analysis 4.1. Develop technical capacity to collect geo-spatially-tagged data in real time 4.2. Availability of disaggregated data 4.3. Utilization by donors and national/international partners to develop, amend and implement policies, as evidenced by policy reports. 4.4. CABI papers accepted for publication. 4.5. Data analytics research contracts (public or private)	Global


World

Appendix 3

Financial Forecasts, 2014 – 2016

Consolidated Net Revenue Summary

	Full Year (£000's)		Full Year (£000's)		
	2012 Actual	2013 Prelim.	2014 Budget	2015 Plan	2016 Plan
Database Subsets, Print and Online	2,011	1,790	1,652	1,487	1,338
Database Online – Core	5,680	5,920	6,423	6,896	7,345
Database Online – One-off	110	169	95	77	55
Books Direct	1,724	1,814	1,720	1,836	1,959
Books 3rd Party	216	286	329	342	357
Compendia	318	426	509	554	643
Other	3	12	5	5	6
Project Income	945	1,166	1,550	1,284	1,378
Synergy Allocation	(131)	(119)	(116)	(117)	(118)
Publishing Net Revenue	**10,876**	**11,462**	**12,166**	**12,363**	**12,963**
ID Directorate	1,165	1,648	1,559	2,286	2,896
CABI Africa	2,109	2,767	3,441	3,906	4,068
CABI Europe – Switzerland	2,406	2,623	2,791	2,814	2,839
CABI Europe – UK	1,661	1,689	1,752	1,744	1,665
CABI Caribbean and Central America	338	292	390	313	233
CABI Latin America	167	241	291	270	224
CABI South Asia – Pakistan	747	887	1,079	1,141	1,236
CABI South Asia – India	242	425	931	1,012	924
CABI South East and East Asia – Malaysia	879	1,043	1,207	1,322	1,415
CABI South East and East Asia – China	227	335	347	395	444
Bioservices	1,055	1,054	1,200	1,205	1,258
International Development Net Revenue	**10,997**	**13,003**	**14,989**	**16,408**	**17,201**
Plantwise – Knowledge Bank	629	977	1,055	1,086	1,137
CABITAX	1,101	1,177	1,140	1,154	1,183
Rental Income	83	66	70	70	70
Other Income	53	33	0	0	0
Corporate Net Revenue	**1,236**	**1,276**	**1,210**	**1,225**	**1,253**
Contingency	0	0	0	0	0
Total Net Revenue	**23,738**	**26,718**	**29,420**	**31,081**	**32,554**

Profit and Loss by Business Unit

	Full Year (£000's)		Full Year (£000's)		
	2012 Actual	2013 Prelim.	2014 Budget	2015 Plan	2016 Plan
Publishing	3,838	4,549	4,389	4,956	5,376
ID Directorate	(470)	(282)	(264)	(379)	(352)
CABI Africa	82	79	123	198	235
CABI Europe – Switzerland	123	152	99	100	99
CABI Europe – UK	72	25	24	8	(96)
CABI Caribbean and Central America	(25)	12	(6)	8	(24)
CABI Latin America	39	39	20	10	(19)
CABI South Asia – Pakistan	92	133	96	101	110
CABI South Asia – India	**(35)**	**16**	**57**	**64**	**85**
CABI South East and East Asia – Malaysia	123	150	134	155	199
CABI South East and East Asia – China	(9)	7	(19)	10	39
Bioservices	(31)	2	48	61	108
International Development Total	**(39)**	**334**	**313**	**334**	**384**
Plantwise – Knowledge Bank	5	33	34	36	37
Plantwise – Market Development	(379)	(303)	(326)	(346)	(353)
Plantwise Total	**(374)**	**(270)**	**(292)**	**(310)**	**(316)**
Corporate Departments	(1,568)	(2,166)	(2,426)	(2,719)	(2,786)
Central Costs	(1,148)	(1,636)	(1,120)	(1,320)	(1,560)
Operating Surplus(Deficit)	**710**	**810**	**864**	**941**	**1,098**
IAS Adjustment	(2,820)	(2,350)	(1,409)	(1,309)	(1,309)
Cash Flow Hedges	194	89	0	0	0
Designated Fund Transfer	(150)	(150)	(150)	(150)	(150)
Total Comprehensive Income	**(2,065)**	**(1,601)**	**(695)**	**(518)**	**(361)**
		Headcount	433	434	436
		FTE	406.3	407.8	409.3

Consolidated Profit and Loss

	Full Year (£000's)		Full Year (£000's)		
	2012 Actual	2013 Prelim.	2014 Budget	2015 Plan	2016 Plan
Gross Revenue	25,182	28,742	31,525	33,093	34,739
Less Payments to Collaborators	1,444	2,024	2,104	2,012	2,185
Contingency	0	0	0	0	0
Net Revenue	**23,738**	**26,718**	**29,420**	**31,081**	**32,554**
Direct Costs	11,157	13,453	15,285	16,034	16,493
Gross Profit	**12,581**	**13,265**	**14,136**	**15,048**	**16,061**
Gross Profit %	53 %	50 %	48 %	48 %	49 %
Net Staff Costs	6,788	6,999	7,908	8,414	8,834
Travel	652	734	831	863	900
Sales and Marketing	425	437	453	458	489
Distribution	173	5	18	12	10
Facilities	1,534	1,483	1,641	1,665	1,724
Finance Costs	39	26	24	25	25
Other Costs	**275**	**388**	**399**	**389**	**415**
Depreciation	655	622	768	851	897
Exchange (Gain)/Loss	110	(86)	0	0	0
Bonuses	285	592	0	0	0
Bad debts written off or provided for	35	113	110	110	110
Restructuring (Net)	222	233	200	200	200
Investment Provision	0	0	75	150	400
Additional Pension Deficit Funding	700	980	900	1,000	1,000
Contingency	0	0	0	0	0
Indirect Costs	**11,892**	**12,524**	**13,327**	**14,137**	**15,003**
Indirect Costs %	50 %	47 %	45 %	45 %	46 %
Op. Surplus/(Deficit) before Interest	**688**	**740**	**809**	**910**	**1,058**
Op. Surplus/(Deficit) before Interest %	3 %	3 %	3 %	3 %	3 %
Interest Receivable	22	69	55	30	40
Op. Surplus/(Deficit) after Interest	**710**	**810**	**864**	**941**	**1,098**
Op. Surplus/(Deficit) after Interest %	3 %	3 %	3 %	3 %	3 %
IAS 19 Adjustment	(2,820)	(2,350)	(1,409)	(1,309)	(1,309)
Cash Flow Hedges	194	89	0	0	0
Designated Fund Transfer	(150)	(150)	(150)	(150)	(150)
Total Comprehensive Income	(2,065)	(1,601)	(695)	(518)	(361)
Total Comprehensive Income %	**(9)%**	**(6)%**	**(2)%**	**(2)%**	**(1)%**
		Headcount	433	434	436
		FTE	406.3	407.8	409.3

Consolidated Balance Sheet

	Full Year (£000's)		Full Year (£000's)		
	2012 Actual	2013 Prelim.	2014 Budget	2015 Plan	2016 Plan
Non-current assets					
Properties – Held at revalued amounts	9,141	10,170	10,319	15,104	14,853
Plant and Equipment – Held at cost	1,338	1,416	1,721	1,634	1,535
Investments accounted for using the equity method	321	310	351	391	441
	10,801	**11,895**	**12,391**	**17,129**	**16,829**
Current assets					
Inventories – Stock and work in progress	1,561	1,741	1,824	1,997	2,093
Trade and other receivables, net of provisions:					
– Sales debtors	1,903	1,463	1,886	1,968	2,056
– Sums owing by project sponsors	1,739	859	1,982	2,171	2,275
– from Member countries	115	190	184	184	211
Financial assets:					
– Debt instrument asset	47	137	47	47	47
– Cash and cash equivalents	7,495	9,917	9,001	3,765	8,864
Other debtors	847	1,178	950	950	950
	13,707	**15,485**	**15,874**	**11,082**	**16,496**
Total assets	**24,508**	**27,380**	**28,265**	**28,211**	**33,325**
Equity					
Revaluation reserve	1,921	1,921	1,921	1,921	6,921
Translation reserve	47	137	47	47	47
Accumulated fund	(38,830)	(40,520)	(42,551)	(43,067)	(43,430)
Designated fund	250	298	150	150	150
	(36,611)	**(38,164)**	**(40,433)**	**(40,949)**	**(36,312)**
Non-current liabilities					
Financial Liabilities	47,494	49,844	52,572	53,881	55,190
	47,494	**49,844**	**52,572**	**53,881**	**55,190**
Current liabilities					
Sales Income received in advance	3,259	3,989	3,563	3,716	3,884
Member contributions received in advance	0	(0)	0	0	0
Sums held on behalf of project sponsors	8,150	9,321	10,183	9,183	8,183
BioNet International fund	0	(0)	0	0	0
Trade and other payables:					
– Trade creditors	573	633	600	600	600
– Other creditors	1,643	1,757	1,780	1,780	1,780
Financial liabilities:					
– Debt instrument liability	0	0	0	0	0
	13,625	**15,700**	**16,126**	**15,279**	**14,447**
Total liabilities	**24,508**	**27,380**	**28,265**	**28,211**	**33,325**

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