



The CABI Development Fund (CDF)

Mid-term report to DFID

2010-2011



CABI improves
people's lives
worldwide

by providing
information and
applying scientific
expertise to solve
problems in
agriculture and the
environment



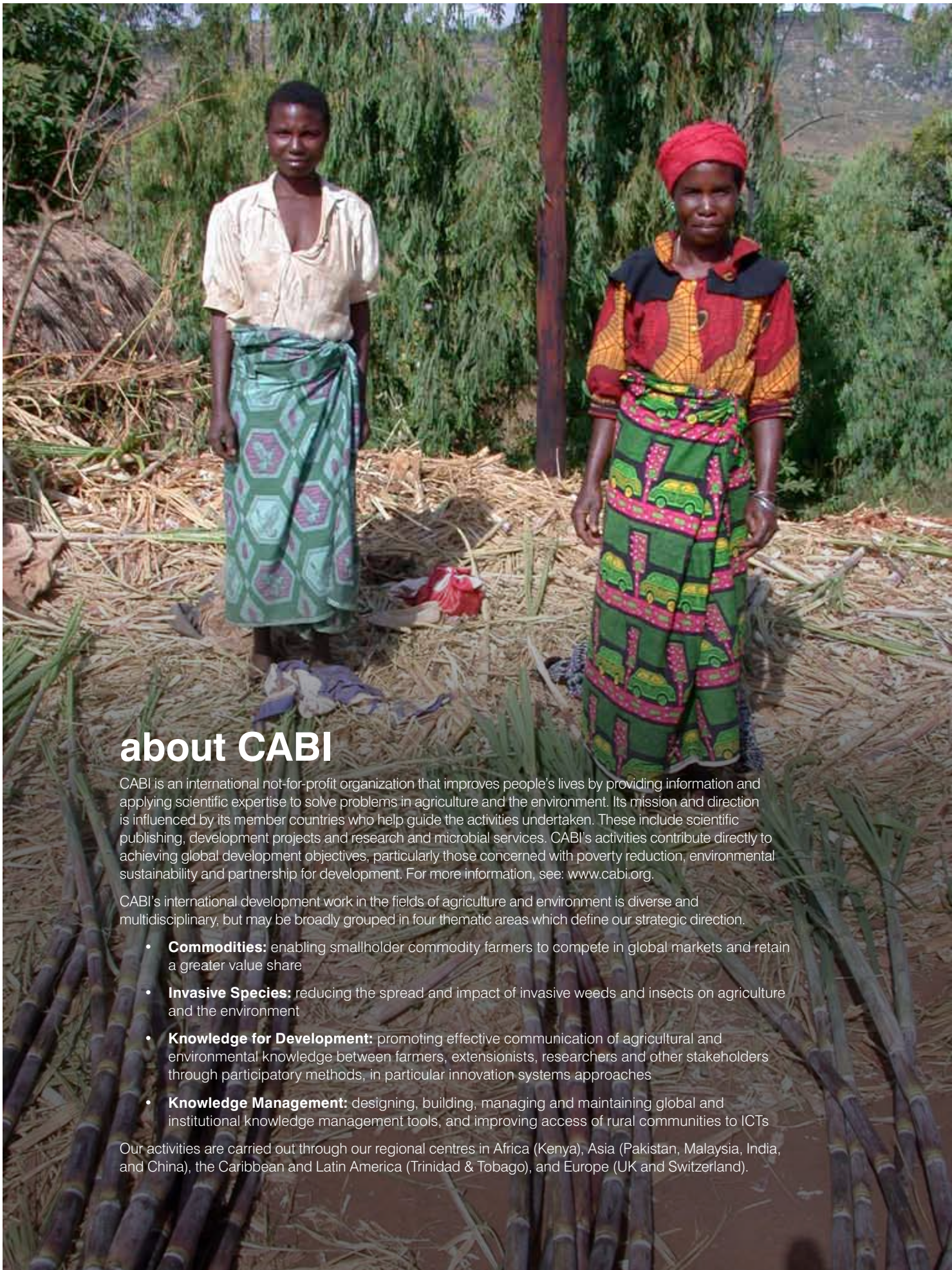
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about CABI

CABI is an international not-for-profit organization that improves people's lives by providing information and applying scientific expertise to solve problems in agriculture and the environment. Its mission and direction is influenced by its member countries who help guide the activities undertaken. These include scientific publishing, development projects and research and microbial services. CABI's activities contribute directly to achieving global development objectives, particularly those concerned with poverty reduction, environmental sustainability and partnership for development. For more information, see: www.cabi.org.

CABI's international development work in the fields of agriculture and environment is diverse and multidisciplinary, but may be broadly grouped in four thematic areas which define our strategic direction.

- **Commodities:** enabling smallholder commodity farmers to compete in global markets and retain a greater value share
- **Invasive Species:** reducing the spread and impact of invasive weeds and insects on agriculture and the environment
- **Knowledge for Development:** promoting effective communication of agricultural and environmental knowledge between farmers, extensionists, researchers and other stakeholders through participatory methods, in particular innovation systems approaches
- **Knowledge Management:** designing, building, managing and maintaining global and institutional knowledge management tools, and improving access of rural communities to ICTs

Our activities are carried out through our regional centres in Africa (Kenya), Asia (Pakistan, Malaysia, India, and China), the Caribbean and Latin America (Trinidad & Tobago), and Europe (UK and Switzerland).

the CABI Development Fund

The CABI Development Fund (CDF) is used to implement scientific research and development projects that respond to the needs of CABI's member countries, with the aim of working towards the Millennium Development Goals and therefore the aims of the Fund's supporters.



currently the fund is supported by:

the Department for International Development (DFID)

the Swiss Agency for Development and Cooperation (SDC)

the Australian Centre for International Agricultural Research (ACIAR)

CDF enables CABI to directly respond to the needs of our 46 member countries. Our review conference in October 2009, attended by representatives of all the member countries, gave strong backing to the concept of CABI's new Plantwise initiative. To enable us to develop the global knowledge bank and to expand our network of clinics, much of the CDF funding for 2010 was invested in the start-up of these projects.

CDF funding may be leveraged and is often co-financed, either by donors or through commitments from institutions in our member countries, creating active partnerships to deliver our joint goals and creating greater impact in key areas of agricultural development. To deliver these commitments, a portion of this year's funding is being spent to support ongoing projects, in some cases as co-financing of much larger projects such as those addressing cocoa and coffee pests in Southeast Asia. In such projects, a relatively small CDF investment enables us to carry out complementary activities within the larger project, with correspondingly greater developmental impact. The Fund thus provides a cost-effective and transparent basis for CABI's work in important or emerging areas, enabling us both to develop and expand new ideas, and to attract funding several times greater than the original CDF investment.

This interim report covers all activities funded by the CABI Development Fund during the period April to September 2010. The Fund is treated as a single entity supported by the three contributing donor organizations, so the work described here is the composite output from all three funding sources.



lose less, feed more: CDF initiatives in 2010-2011

supporting farmers

A strong element of CABI's work across all our thematic areas relates to plant health, and to helping farmers to lose less of their crops to pests and diseases. We help farmers to improve crop quality and yields, so as to obtain better prices for their produce. In 2010 we launched a major new initiative, **Plantwise**, which aims to create a global plant health knowledge bank and to expand our network of plant clinics serving extension providers and farmers in developing countries.

improving food security

CABI aims to ensure that subsistence and smallholder farmers have access to and benefit from the outcomes of scientific research. We translate research findings into practical, accessible information that can change farmers' ways of working and have a direct, positive impact on their livelihoods, particularly with regard to food security. By advising on trade and quarantine issues and good agricultural practice (GAP) we empower farmers to access higher value markets for their produce. CABI's cocoa and coffee projects in Southeast Asia aim to increase production for smallholder commodity farmers by reducing the losses caused by pests and diseases. The project on kale (in Kenya) aims to increase crop production and hence household income by facilitating farmers' access to good quality seed.

protecting biodiversity

CABI's work on the prevention, control and management of biological invasions protects native biodiversity against the threats posed by alien invasive species. This includes not only plant pests and diseases but also invasive plants (weeds) and animals. The GEF project on invasive species in the Caribbean, co-financed through CDF, works on strengthening national quarantine systems in parallel with practical measures to contain and manage existing problems with invasive species.

sharing knowledge

CABI's scientific publishing products include books, e-books and a wide range of multimedia tools as well as the world's foremost agricultural database, CAB Abstracts. In the rural development context, we use ICTs to make information available to support farmers and extension providers as well as Government policy makers. In Southeast Asia, we are gathering and sharing information on weed management in oil palm plantations, to explore ways to reduce herbicide use without compromising production. Another CDF project continues our commitment to informing the debate on biofuels through CABI's Biofuel Information Exchange. A third project supports African buy-in to CABI's Invasive Species Compendium (ISC) by funding the participation of the Forum for Agricultural Research in Africa (FARA) in the ISC consortium.



overview of the Plantwise initiative

Plantwise was launched in response to CABI Member Countries' call in October 2009 for improved coordination of plant health services and access to plant pest and disease information which directly contributed to improved food security. Its aim is to raise rural incomes in developing countries by helping the world lose less of what it grows to plant pests and diseases. Today, there is no global pest and disease database: by using CDF support CABI, with the participation of a network of other supportive partners, can provide a unique vigilance system to guard against future crop losses and to highlight future research priorities. The Plantwise approach is based around a two-pronged strategy:

- Integration and expansion of CABI's respected Global Plant Clinic project into Plantwise plant clinics. Working at country level with plant science organisations, agricultural ministries, and extension systems to create a sustainable local plant healthcare system
- Creation of a comprehensive global knowledge bank, bringing together the best worldwide data on crops, pests and diseases, enabling pest risk forecasts to drive mitigation and adaptation in advance of outbreaks.

The combination of these two elements will provide immediate development benefits by strengthening advisory services and providing appropriate and accessible advice, free at the point of use to poor farmers, helping them to increase crop yields and quality so as to grow more and earn more. Over the longer term this benefit translates into economic growth by increasing market access for these farming groups to greater national, regional and global trade opportunities – so much so that national governments, such as in Uganda and Sierra Leone, are assuming responsibility for funding the clinics themselves.

With CDF and other funding, Plantwise aims to increase the number of national plant healthcare systems. At the beginning of 2010 we operated in nine countries; through the CDF new schemes have since been added in Kenya, Rwanda, Peru, Sri Lanka and Pakistan, and existing schemes have all been expanded. By 2014, at least 400 clinics should be operational in up to 40 developing countries.

Plantwise clinics help to strengthen in-country advisory systems, providing diagnostic training to extension workers, who in turn directly support farmers. There is a simultaneous benefit to researchers, policy makers and quarantine officials at plant protection agencies. By gathering the observations from the plant health network into a global knowledge bank, Plantwise is creating a valuable database to help inform crop development and biosecurity research programmes internationally, as well as to identify forward priorities and support the formulation of trade and regulatory policies. A prototype database is being developed in 2010 with CDF support. The knowledge bank will consolidate the knowledge and resources of an alliance of national and regional organisations, including CG Centres such as IRRI and CIMMYT. The amalgamated data is available centrally and freely for the benefit of advisory staff; value-added analytic services and detailed pest distribution maps are being developed.

CABI recognises that, in building the consolidated knowledge bank, it is important to bring together content from a variety of respected organisations, each of which act as experts in their own topics. In doing so, researchers are saved huge amounts of time taken in searching multiple sites for disconnected data. Plantwise aggregated data can then be layered onto geographically specific pest and disease distribution maps, giving end-users access in one place to presence and incidence data, treatment advice, links to scientific references, and modelling tools to assist in pest forecasting. Ultimately, these data will help underpin research undertaken by any interested agricultural science organisation.



supporting
farmers

providing access to plant clinics
and diagnostic information

Table 1: Plant clinic schemes

Bangladesh	2004
Bolivia	2003
DR Congo	2006
India	new – 2010
Kenya	new – 2010
Nepal	2009
Nicaragua	2005
Pakistan	new – 2010
Peru	new – 2010
Rwanda	new – 2010
Sierra Leone	2006
Sri Lanka	new – 2010
Uganda	2005
Vietnam	2007

Plantwise plant clinics

CABI has been helping to establish independent plant clinics since 2003. This is part of a long-term plan to establish national plant health systems that integrate the efforts and interests of extension, research, regulation and input supply in order to create long-lasting crop advisory services needed by millions of farmers.

Plant clinics are run by diverse organisations with a common interest in providing practical support to farmers. NGOs, farmer organisations, municipalities and community-based organisations are amongst the largest group of plant clinic operators, but universities, research institutes and private companies also work closely with CABI. Plant clinics are an important CABI innovation which constitute a new approach to primary healthcare (for plants). Plant clinics accept any crop and any problem and are run by existing organisations and people.

From 2010, DFID support for CABI's plant clinic programme has been channelled through the CDF. At the beginning of 2010, eight countries had regular, independent clinic schemes. That is, each country had a number of clinics that operated usually once a week, in a public place, using guidelines developed by CABI. The number of countries will increase to at least 14, as shown in Table 1. The number of plant clinics is expected to increase by 50% from the present total of around 80 (Table 2).

One of the underlying purposes of the plant clinic programme is to encourage new thinking about delivering plant health services through original research. Critical analogies with human health systems and health services will help shape practices that have universal application. The plant clinics programme is the only global initiative with an explicit emphasis on creating models for national plant health systems.

The plant clinics programme will continue the work begun in 2002 and allow for greater inputs by CABI staff. The increase in number of clinics and farmers who receive advice is important yet the key step forward is to improve working practices, models and concepts that can be used in any country and with existing resources. Lessons learned in Bolivia have already been applied to Nicaragua which in turn has inspired countries such as Nepal and India to begin regular schemes. These cumulative impacts will increase as knowledge of plant health clinics and plant health systems spread.

A major part of the first six months of this new phase of funding for the plant clinics programme is to plan for activities in target countries. Previously all clinic work was led by staff from CABI's centre in Egham, UK. Now up to 15 staff from Caribbean/Latin America, Africa, Pakistan, Switzerland and India will be involved. A major planning meeting was held in Kenya in May, beginning the induction of staff from CABI Africa. Eric Boa, Director of the plant clinics programme, then led a training course for plant doctors in Kitale, supported by three other CABI staff who will take over management of the Kenya scheme. Plant clinics run by two community-based organisations in Kitale have now begun.



supporting farmers

providing access to plant clinics and diagnostic information



Rob Harling, a CABI associate, visited Nepal in February to follow up on a vibrant scheme supported by World Vision International Nepal (WVIN) since mid 2009. Nepal is a fine example of a plant health innovation system in action. WVIN has 15 area development programmes across the country, which support local community development. Agriculture is an important part of these programmes and plant clinics are helping to connect farmer demand for help with supply of suitable recommendations for pest management. The current clinics operate in two districts: Lamjung and Latipur. Others are expected to join as information about what the plant clinics do and the results they generate become more widely known. The innovation systems approach means that NGOs and GOs are able to work together without the need for major project funding.

Eric Boa and Wade Jenner renewed contacts with an emerging plant health system in Sierra Leone in June. Led by Dr IM Shamie, head of crop protection at the Ministry of Agriculture (MAFFS), there are now 12 regular and 50 satellite plant clinics. The satellite plant clinics run less frequently but allow services to be extended to remoter regions. FAO and USAID will help to establish agricultural business units in Sierra Leone and the Plant clinic programme will explore how to link sale of agricultural inputs to recommendations from plant clinics that could become part of the business unit. There are major benefits to be reaped in reducing the sale and use of unnecessary pesticides through closer ties between agrochemical shops and advisory services, supported by results from an impact study of plant clinic advice from Bolivia.

Impact studies of plant clinics (in Bolivia and Bangladesh) were started in 2009 with CDF funding, and improved methods for estimating benefits received by farmers will be used in Kenya to gather baseline data. Discussions on impact study methodology took place at a meeting in Kenya, and the outcomes will be used to design other studies in Nicaragua and Uganda to begin later in the year. Our work on impact evaluation is described later in this report.

Numbers of plant clinics also increased within existing country schemes and projections of regular clinics expected to be in operation by the end of 2010 are shown in Table 2. Bolivia has seen a notable expansion after meetings held in 2009 and careful follow up by Jeff Bentley, another CABI associate. Other key activities during the first six months of the plant clinic programme included courses on how to write fact sheets (extension messages) in Nepal and India. Another 12 examples were written, using methods developed and tested in Bolivia, Uganda, Kenya, Sierra Leone and Nicaragua in previous years. The quality of the fact sheets improves as key methods such as farmer peer-review are tested in new places with new groups of people.

An important outcome of the training courses and other support given by CABI is that people use methods and new knowledge to do things independently. Much of our efforts are in understanding the motivations and incentives needed to maintain plant clinics and technical support and the results of such work can be difficult to measure. More data are needed to show what clinics achieve, particularly in numbers of users, quality of results and outreach of clinics.



Table 2: Plant clinic numbers

	Jan 10	Dec 10*
Bangladesh	19	25
Bolivia	9	15
DR Congo	6	15
India	4	20
Kenya	0	10
Nepal	4	10
Nicaragua	11	15
Pakistan	0	5
Peru	0	5
Rwanda	0	5
Sierra Leone	12	12
Sri Lanka	0	10
Uganda	4	12
Vietnam	1	5

* estimates by end of 2010. Note that Vietnam and Sierra Leone have 7 and 50 satellite clinics which run less regularly than regular clinics

Work continues on refining methods for evaluating these three key areas. New methods are being tested for capturing clinic records. Each clinic has a register which includes farmer personal details and a description of the problem presented. The 'plant doctor' writes down her diagnosis and recommendation and the farmer receives a prescription.

Data capture methods are being compared and early results suggest that digital pens are a viable alternative to the tedium of manual data entry. Data pens will be tested in the second half of the year. Meanwhile, clinic records are transferred manually from register to database and data are being reviewed in order to create a series of rules or guidelines for validating entries. The validated data on presence of a particular plant health problem will be incorporated in a CABI database that will regularly update status of pests and diseases as well as abiotic problems in a particular region and country. Under Plantwise, the clinic and knowledge bank programmes will work closely to ensure regular interchange of information: plant health problem data from clinic to database and information on crops and technologies from knowledge bank to plant doctors.

A solid start has been made in expanding country schemes, planning for new countries, starting impact studies and gathering the data needed to provide objective evidence that supports the achievements of plant clinics and plant health systems around the world. Research and constant learning are key features of the alliance of over 60 organisations and around 150 people who support and run plant clinics. A good foundation has been created for showing the benefits that improved plant health systems provide to agriculture and the millions of people who depend on it.



improving
food security



giving farmers access to the
outcomes of scientific research



providing a new variety of kale seed to smallholders in Kenya

Ninety per cent of Kenyan smallholders grow vegetables and kale is the most important by area and production. Rich in iron, calcium, vitamin C, vitamin K and carotenoids, farmers prefer to grow late-flowering varieties of kale with large dark green leaves and resistance to black rot, as they sell well in urban markets. As common commercial varieties do not provide these characteristics, farmers in Lari District started to grow their own, especially *Kinale* kale, but failed to obtain good quality seed. To help remedy this problem, in 2005, CABI and partners facilitated a "clean up" of the *Kinale* kale and initiated the formal registration and release process of five new varieties (CABI 1–5) to the Kenya Plant Health Inspectorate Service (KEPHIS) for confirmation that they are distinct, uniform and stable. Provisional results were released in 2009.

To establish a farmer-led enterprise of the improved kale seeds, plots were established in January/February 2010 at the Kenya Agricultural Research Institute to provide a large quantity of basic seed, using CDF funding. Seedlings of CABI 1–5 were raised in nurseries and transplanted in March to screen houses covered with an insect and pollen proof net. Flowering began in September and beehives were introduced to facilitate pollination.

The kale seed crops are managed using the recommended practices for seed production including regular weeding, fertiliser application and pest management. In compliance with Kenya's stringent legal requirement for seed production/multiplication, inspectors from KEPHIS inspected the seed crop at the nursery and two leaf stages (September) and the 50% flowering stage (October). Once mature (November/December) the seeds will be harvested and processed.

In May 2010 the Kenya National Variety Release Committee authorised CABI 1 and CABI 4 to be officially released as varieties (*Kinale* and *Tosha*, respectively) and this was published by the Minister of Agriculture in the Kenyan Gazette, in accordance with Kenya's Seeds and Plant Varieties Act. These are the first locally developed varieties of kale to be released in Kenya and appear in the national list.

This innovation is one step towards transforming indigenous technical knowledge into a seed enterprise that satisfies the need and demand for the type of kale that farmers want to grow and is in line with the Government's "Njaa Marufuku Kenya" programme that supports community-driven, agricultural development initiatives targeting the rural population. However, the question now is how can the seed of the released varieties be made widely available? Additional support is required to establish partnerships for sustainable seed bulking, distribution and marketing, and to apply participatory approaches to analyse the process and disseminate lessons learned for other crop varieties.



**improving
food security**

**giving farmers access to the
outcomes of scientific research**

As in previous years, CABI is using an element of CDF funding to provide additional support to two projects in Papua New Guinea which are addressing pest problems in two important smallholder commodity crops, cocoa and coffee. Both projects were initiated with CDF investment which then leveraged around four times more funding from ACIAR. CABI continues its commitment to provide co-financing through CDF.

management of cocoa pod borer in Papua New Guinea

The cocoa pod borer is a devastating pest, capable of effectively wiping out a cocoa crop by inflicting up to 90% losses. It was first detected in two provinces of Papua New Guinea in 2006, but attempts at early eradication were not successful and it re-emerged in the Gazelle Peninsula in March 2007. Eradication having failed, management of the pest became an urgent priority.

CDF investment is enabling us to assist Papua New Guinea to implement systematic and long-term management of cocoa pod borer. The project is enhancing the knowledge and awareness of stakeholders, and strengthening surveillance and monitoring efforts, in addition to developing Integrated Pest Management (IPM) programmes. We are developing a practical surveillance system to detect cocoa pod borer, supported by improved monitoring using pheromone traps and statistical sampling methodology. The IPM programmes build on previous ACIAR-funded projects in Papua New Guinea and Indonesia and include cocoa pod borer management strategies to establish on-farm best practice plots, verification of insecticides and their application, and the development of participatory training curricula for farmers, with improved print and multi-media materials which will also be useful for other Melanesian cocoa-growing countries.

All our projects are implemented through partnerships. Our main partners in this project are the Faculty of Agriculture, Food and Natural Resources, University of Sydney; the Cocoa and Coconut Institute (CCI), Papua New Guinea; and the National Agricultural Quarantine & Inspection Authority, Papua New Guinea.

A project mid-term review meeting was held in March 2010, enabling the partners to review progress to date, including training and information dissemination, information resources, and partner insights. A report of the meeting was prepared and distributed to all the project partners in Papua New Guinea and Australia. The review meeting also agreed that a second phase of the project would add value by further strengthening capacity for cocoa pod borer management in Papua New Guinea. A concept note for Phase 2 (*Improved management of cocoa pod borer in Papua New Guinea through incorporation/strengthening of biorational tactics and up- and out-scaling of stakeholder participatory training*) was prepared and submitted to ACIAR in May 2010.

Three farmer field schools were held during April-June 2010, in Napapar, Kabaira and Kareeba villages, and four more are being planned at Rapitok, Bitagunan, Tavilo and Vunapaka villages.

improving food security

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management of coffee berry borer in Papua New Guinea and Indonesia

The coffee berry borer is the most serious pest of coffee, causing premature fruit-fall and reduced bean weight and quality. In this project we are applying our experience in coffee berry borer management in Africa and Latin America to address the coffee berry borer problem in Indonesia (especially Sulawesi and Papua) and Papua New Guinea. In Indonesia we are promoting better management, whilst in Papua New Guinea, where the pest is not yet known to occur, we are putting in place prevention and incursion management procedures. The project focuses on situation-specific surveillance and awareness raising, Integrated Pest Management (IPM) research, and technology dissemination through participatory training. Prevention and incursion management focuses on capacity building in quarantine procedures, early detection and emergency response.

Our partners are the Indonesian Cocoa and Coffee Research Institute (ICCRI), the Ministry of Agriculture Indonesia (MOAI), the Coffee Industry Corporation (CIC) and the National Agricultural Quarantine Inspection Authority (NAQIA) of Papua New Guinea, and the University of Queensland. The project also works closely with the current ACIAR-funded project on coffee green scales in Papua New Guinea, which is also implemented by CABI and has previously received CDF funding.

In Indonesia, we are conducting integrated pest management (IPM) trials at two sites in Sulawesi (Enrekang and Tana Toraja). During the first part of 2010 data from these trials was collected and analyzed. A joint paper (with Dr. Soekadar of ICCRI as the senior author) will be presented at the ASIC International Conference on Coffee Science in Bali in October 2010. Two Farmer Field Schools on coffee IPM will be organised in Enrekang and Toraja in early July. Master Trainers from the ACIAR project will participate in the Farmer Field Schools.

In Papua New Guinea, we conducted follow-up surveys and monitoring visits at several villages in three major coffee growing provinces in the highlands close to the Papua New Guinea-Papua (Indonesia) border, from November 2009 to March 2010. A total of 54 permanent sampling sites were selected, spanning the Eastern and Western Highlands

In parallel with this research, during April – June CABI held two Farmer Field Schools, in Enrekang and Toraja, on IPM of coffee, with two master trainers from the ACIAR project and resource persons from the Provincial Estate Crops Agency, ICCRI, Hassanuddin University and Toroako Jaya Coffee Company. Twenty-five farmers attended each training session. The full course will comprise 24 meetings, held every two weeks. The farmer training is coordinated by the Provincial Estate Crops Agency.

Staff from CABI E-UK have also drafted a report on pathways of entry and spread for coffee berry borer, and have also prepared a surveillance strategy which will form the basis of a surveillance manual for CIC officers in Papua New Guinea.



improving
food security

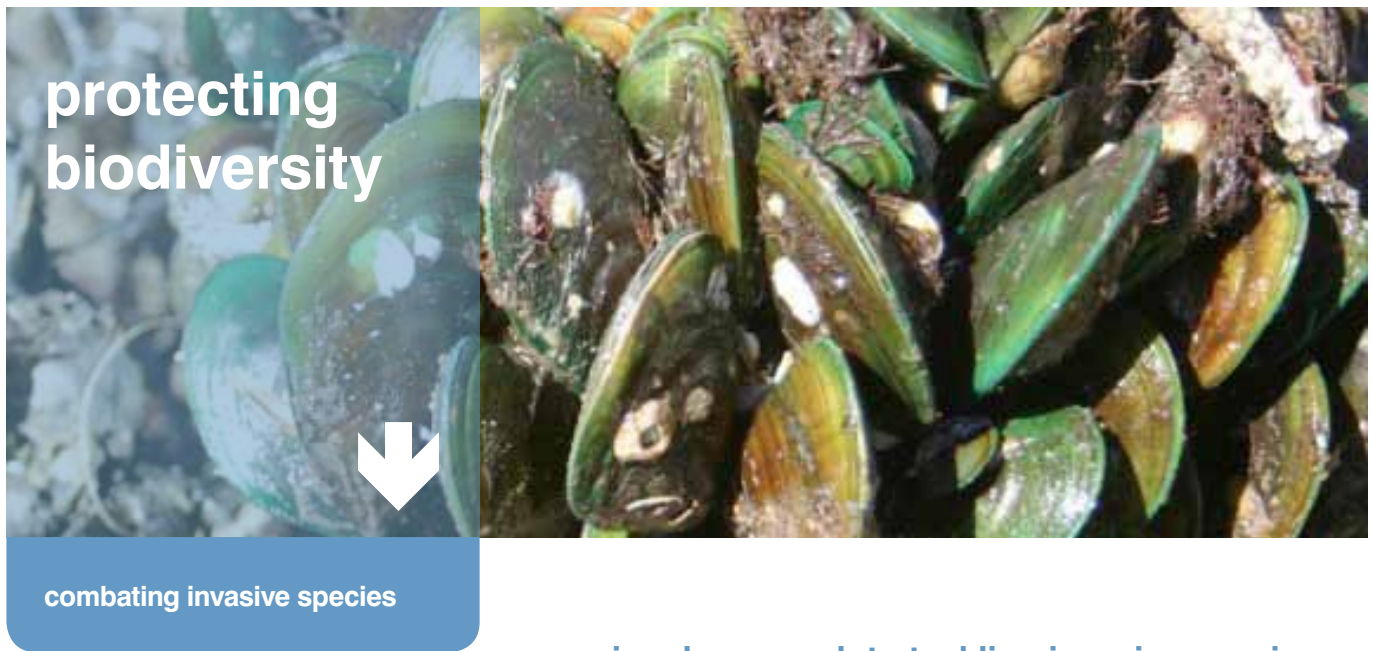
giving farmers access to the
outcomes of scientific research

African inputs to coffee berry borer work

A separate, linked CDF-funded project is enabling trainers and entomologists from CABI Africa to share their experience on coffee berry borer with the project staff in South East Asia. In June and July 2010, CABI Africa staff visited Indonesia to support the Farmer Field School programme and to assess progress in South Sulawesi. Staff from CABI South East Asia and CABI Africa conducted joint training sessions with the Ministry of Agriculture (Indonesia), in which master trainers from Papua New Guinea and Indonesia were trained in farmer participatory methods (setting up and running FFS) and in design and management of field trials. The Ministry of Agriculture is committed to promoting IPM as a means to increase production and productivity of high quality coffee without pesticide residues, and aims to train 8,000 farmers in 19 provinces by the end of 2010. Promising farmers are given manuals on high quality coffee production.

The CABI Africa staff visited four field sites in Enrekang and Tana Toraja Districts where replicated trials were set up in 2009. As the use of synthetic pesticides is not allowed in this major coffee-producing province, the trials compare sanitation (complete removal of coffee beans) and the use of a biopesticide (*Beauveria bassiana*) with an untreated control. Monthly data collection is showing that the biopesticide treatment, both alone and in combination with sanitation, gives a significant reduction in the coffee berry borer populations compared to untreated control plots.

Some of the outputs of our work on coffee berry borer will be presented at the ASIC meeting in Indonesia in October 2010.



protecting
biodiversity



combating invasive species



a regional approach to tackling invasive species in the Caribbean

During 2009 CABI secured funding from the GEF, with UNEP as the implementing agency, to address the threats posed by invasive species in the Caribbean region. Invasive species severely threaten terrestrial, freshwater and marine ecosystems in the region, as well as rural livelihoods. Island ecosystems are particularly vulnerable to biological invasions, and the project, *Mitigating the Threats of Invasive Alien Species in the Insular Caribbean* (MTIASIC) is working in five island states: Bahamas, Jamaica, St Lucia, Trinidad and Tobago, and Dominican Republic. It aims both to strengthen existing national measures and to foster regional cooperation frameworks for Caribbean-wide strategies. In parallel with participation in the development of national and regional strategies, each country is also addressing its own most pressing IAS problems through a total of twelve pilot projects, relating to prevention, early detection and rapid response, management and eradication of the most problematic species.

The project was developed through a project preparation grant from GEF, with co-financing from CDF (see 2007 and 2008 CDF reports). The full project, which started in 2009, also has an element of co-financing from CDF. Our ability to make this contribution has enabled us to leverage far greater funding from the GEF, as well as co-financing from all five governments and a wide range of regional partners. During this reporting period we have secured additional co-finance from international and national partners, particularly from St. Lucia.

MTIASIC is coordinated and managed by CABI. The first few months of the project focused on setting up management structures, including national and regional coordination units and steering committees. We have set up three regional task teams in June 2010 to develop the Caribbean Regional Invasive Species Intervention Strategy (CRISIS) documents for freshwater, marine and terrestrial ecosystems respectively.

Public awareness-raising is an important component of the project, and during the first part of 2010 a 16 page booklet, *Invasion of the Aliens*, targeting all major stakeholders was published and disseminated in 14 member states of CARICOM. It will also be made available on the regional website www.ciasnet.org that the project is developing with USDA/APHIS and other partners. The website is planned to go live in October 2010, and will feature information on key invasive species for the Caribbean as well as news and events updates. The project has also set up a yahoo list serve, distributing articles, news and views on invasives to around 300 members including policy-makers and practitioners from government agencies, the NGO community and the private sector.

Work has started on the pilot projects in all five countries. The baseline surveys are well advanced, and results should be available by October 2010 for all countries except Trinidad and Tobago. Implementation of the pilot project actions has begun in Bahamas, Saint Lucia and Jamaica and will start in the other countries by the end of the year.



sharing
knowledge

combating weeds,
improving crop yields



weed management for oil palm

Oil palm (*Elaeis guinensis*) is one of the world's most important commodity crops and the highest yielding crop in terms of tonnes of oil per hectare per year. The palm and kernel oil it produces is used mainly in the food and cosmetics industries and, more recently, to contribute towards production of biodiesel. Effective, affordable and sustainable weed management is an important component of oil palm management, increasingly so given increasing demand for oil and a need to increase productivity while land, labour, water and other vital resources are becoming more limited. While chemical herbicides have been used very effectively to manage weed problems, increasing awareness and concern about their potential health risks and damaging effects on the environment has highlighted the need to restrict their use through more strategic application, and to explore non-chemical approaches.

The Roundtable for Sustainable Palm Oil (RSPO) is currently investigating current levels of herbicide use by producers, and possible measures for reducing use through alternative cultural, mechanical and biological approaches. This project is supporting these efforts through case studies to explore weed management measures used by oil palm producers, including their perceived benefits and drawbacks. These studies will enable RSPO to identify and promote improved and more sustainable weed management practices, with reduced reliance on chemical herbicides.

The project started in May 2010. We have developed a methodology and prepared supporting technical documentation which has been approved by the RSPO Secretariat and members of RSPO's Executive Board. We have selected two producers in each of Malaysia, Indonesia and PNG to participate in the case studies, based on information obtained from a previous producer survey. The case studies in Malaysia and Indonesia will be led by CABI SEA scientists and will use a combination of face-to-face consultations and questionnaires. In Papua New Guinea, the Oil Palm Research Association Inc. (OPRA) has agreed to work with selected growers to facilitate completion of the questionnaires

sharing knowledge

new knowledge on biofuels



Biofuels have a significant role in global energy policies, and this is expected to increase substantially in the future. Policies need to be science-based, and should encourage investments in research and development that will lead to the introduction of sustainable biofuel technologies. In response to requests from our member countries for information on climate change and bioenergy, we used CDF investment to establish an online forum on biofuels, which we have continued to support through the CDF in 2010.

Biofuel Information Exchange

CABI's Biofuel Information Exchange website (www.cabi.org/biofuels) provides an opportunity for informed debate amongst experts in biofuels. It was established in 2009 in response to requests from CABI's member country representatives and in recognition of the need for a place where experts in this field can discuss their research, experiences and findings. The site is free to join and offers both information resources and online discussion facilities to researchers, policy makers and other interested parties.

The objectives of the site are:

- to provide impartial information to members on all types of biofuels
- to provide a moderated forum for discussion on biofuels
- to provide a web site where organizations external to CABI can show case their biofuel project outputs

The information resources we provide include 35,000 research records relating to biofuels, from our CAB Abstracts database, as well as review papers commissioned by CABI and links to third party biofuels reports and books. We have also received support from the Packard Foundation through Hart Energy to promote a review paper, co-authored by CABI staff, on science and policy of indirect land use change due to biofuel production.

We are using CDF funds to further improve and develop the Biofuel Information Exchange, and to commission papers to be posted on the site. We are working to increase the reach of the site (currently over 300 members), particularly in developing countries, and have introduced a range of new features including a quarterly summary, 'Recent developments in the world of biofuels', and an "Events Tab" on the home page to alert users to forthcoming conferences, meetings and workshops on biofuels.



sharing
knowledge

capturing local knowledge
on invasives in Africa

FARA membership of the Invasive Species Compendium

In partnership with the United States Department of Agriculture (USDA), we are developing a global Invasive Species Compendium (ISC) to document all known invasive species, to map their distribution and to provide information on their management. We are working with a consortium of partners who provide direction, advice and funding for its development. Until now, however, there have been no partners from African countries or organizations. Through CDF investment we have brought the Forum for Agricultural Research in Africa (FARA) on board, in return for their commitment to provide direction and advice on the potential problems of invasive species in Africa. We anticipate that FARA will help highlight invasive species that are of particular importance to Africa's agriculture and environment, and we plan to approach experts in Africa to help us to capture local knowledge.

The consortium has now decided to make the compendium open access, so the next stage of fundraising will focus on the development of a sustainability fund, guaranteeing open access for five years. There will also be a strong emphasis on developing training and outreach programmes, especially in Africa. The Invasive Species Compendium will be launched in alpha version (initially with access limited to consortium members for testing) in mid 2010. In 2010 the initial steps were taken in engaging African researchers through attending FARA Africa Science Week. It was apparent that invasive species are a challenge in agricultural and aquacultural systems in Africa and that many institutions are seeking knowledge on their management and control. Specific invasive species were identified and checked against coverage within the ISC. Most of the species identified were already mentioned in the ISC. Brochures were produced which described the ISC and all were taken by the delegates.



Plantwise clinics

CABI's work under the Plantwise initiative to develop plant health systems, based on mobile plant clinics supported by networks of stakeholders including technical experts, agrodealers, diagnostic laboratories and others, is described earlier in this report. We recognise that evaluation of the impact of the clinics at farm level, and learning lessons about the most effective ways to establish clinics and plant health systems, is critical to our plans to roll out plant health schemes in more countries. However, the way the clinics function poses particular challenges in terms of designing methodology for impact evaluation. Plant doctors operating clinics will deal with any crop and any problem presented at the clinic. In addition clinic clients are self selecting meaning that identification of a comparison group of farmers requires a sophisticated approach. In May 2010 a small workshop with CABI staff from UK and Africa involved in clinics was held in Nairobi facilitated by two experts on impact evaluation. A workshop report gave guidelines on approaching study design and implementation, and development of the method was initiated. Follow up meetings with the experts led to further development of the new methodology which will be tested further in Uganda in collaboration with on-going activities under a study led by staff from Copenhagen University.

Good Seed Initiative

A previous CABI project, the Good Seed Initiative, provided farmers with small amounts of wheat seed and trained them in production of good quality recycled seed for sale within the local community. Good results were observed over the season when the training was conducted, but longer term effects have not yet been estimated. We are using CDF funds to assess the medium term impact of the training in seed production which was given to the poorest community members in villages in Bangladesh. Good Seed Initiative staff who had been closely involved with the work in Bangladesh met to develop ideas and concepts for the study. A draft methodology was further developed during initial visits to Bangladesh, and a local collaborator was contracted to conduct a household survey in October.

horticulture activities in Pakistan

In the second half of 2010, we plan to explore the impact of CABI's work in Pakistan in horticultural development. This has focused on capacity building for farmers, using Farmer Field Schools and other approaches. We plan to use CDF investment to consolidate data on the impact of these activities on farmers' horticultural practices, and ultimately on their livelihoods.



communication and partnerships

CABI project

building partnerships

CDF funds enabled CABI to support development of a number of proposals related to the Knowledge for Development theme and to engage with donors, including the African Development Bank. Following a visit to the African Development Bank, we agreed to work with COMESA to develop a proposal to support sanitary and phytosanitary systems (SPS) in COMESA countries. African Development Bank and AUSAID have expressed interest in funding issues related to SPS and the proposed work would build on earlier funding to COMESA and collaboration between COMESA and CABI. Funds have also supported the development of partnerships with a variety of international organizations including AVDRRC, ICRISAT, IFDC, Copenhagen and Ottawa University, as well as regional organizations such as FARA and a range of national research and development organizations. A number of key proposals were developed including one to develop plant health systems in Kenya, Mozambique and Tanzania and another, cross-regional project to address vegetable seed systems in Tanzania, Pakistan, India and Kenya. Proposal development involved dialogue and discussion between key partners which contributed to development of partner relations that will provide a solid base for future calls.

dissemination: plant health and food security

CDF funding has enabled us to publish our research in peer-reviewed journals and at key international conferences. Four papers were prepared with CDF support during January-June 2010:

- Agwanda, C., Kadere, T.T., Musebe, R., Akiri, M. & Flood, J. (2010). *Raising incomes of smallholder coconut producers in Kenya through more efficient value chain management*. In: Aspects of Applied Biology 102. Delivering Food Security with Supply Chain led Innovations: Understanding supply chains, providing food security, delivering choice. Ed. W. Martindale. pp 59-64.
- Flood, J., Hasan, Y., Rees, R., Potter, U., Cooper, R.M. (2010). Some latest R&D on Ganoderma Diseases in Oil Palm. In: Proceedings of a IOPRI/MPOB seminar. *Advances in the controlling of devastating disease of oil palm (Ganoderma) in South East Asia*. Jogjakarta, Indonesia. May 31st 2010.
- Viridiana, I., Hasan, Y., Aditya, R. & Flood, J. (2010). *Testing the effects of oil palm replanting practices (windrowing, fallowing, poisoning) on incidence of Ganoderma*. Proceedings of the Indonesian Oil Palm Conference. June 1-3rd 2010. Jogjakarta, Indonesia.
- Flood, J. (2010). *The importance of plant health to food security*. Food Security, 2 Issue 3, 215-231.

the CABI Development Fund (CDF)

income and expenditure account

April – September 2010 (£)

		Balance b/fwd as at 1st April 2010		136,301	
income		Switzerland: SDC	213,704		
		UK: DFID	0		
		Australia: ACIAR	183,402		
	CABI code		397,106	533,408	
expenditure	WP60001	Development of prototype Plantwise website	72,416		
	GK10001	Plantwise clinics: Rwanda	695		
	GK10002	Plantwise clinics: Kenya	66,638		
	GP10001	Plantwise clinics: Pakistan	14,908		
	GU10004	Plantwise clinics: Nepal	12,267		
	GU10005	Plantwise clinics: India	22,887		
	GU10006	Plantwise clinics: Bangladesh	12,926		
	GU10007	Plantwise clinics: Uganda	29,614		
	GU10008	Plantwise clinics: Sierra Leone	28,411		
	GU10009	Plantwise clinics: DRC	10,933		
	GU10011	Plantwise clinics: Nicaragua	14,826		
	GU10012	Plantwise clinics: Bolivia	21,735		
	GU10001/ GU10013	Plantwise clinics: UK (diagnostic services)	220,023		
	DR60003	New variety of kale seed for smallholders in Kenya	12,247		
	CC60006	Management of Cocoa Pod Borer (CPB) in PNG	13,200		
	CF60009	Management of Coffee Berry Borer (CBB) in PNG and Indonesia	13,200		
	CF60010	African inputs to Coffee Berry Borer work	8,933		
	VM60015/ CC60007	Tackling invasive species in the insular Caribbean	12,566		
	CP60001	Weed management for oil palm	4,362		
	CR60018	Biofuels Information Exchange	21,127		
	KH60012	FARA membership of the Invasive Species Compendium	21,084		
	DR60002	Impact evaluation	17,736		
	DR60001	Building partnerships	10,302		
	CR60017	Dissemination: plant health and food security	10,930		
	PT2	CDF Management Fee	20,000		
				693,968	
			Excess income over expenditure		-160,560



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