Section 5

Rural Development **Boosters**

Improved Marketing, Processing & Storage

New market chain approach gives fast results

The Participatory Market Chain Approach (PMCA) stimulates networking, links small farmers to markets and fosters productive partnerships based on trust and knowledge sharing. Active participation—or a lack of it—by the many actors along the food chain can make or break the system. PMCA systematically involves people in identifying and assessing market opportunities and identifying commercial, technical and institutional innovations. A poverty filter helps identify the greatest probabilities of pro-poor impact. In just three to six months, partners are typically able to get new market products and innovations into use.

PMCA is currently being applied in Bolivia, Ecuador, Peru and Nicaragua, in Latin America, as well as in Laos, Syria and Uganda. Extensive testing has led to the publication of a PMCA User Guide.

■ Find out more by typing **CPH01** into the search box on the search page of the CD attached to this booklet.

Project title: Participatory market chain approach (PMCA)

From plough to plate—collaboration delivers results

Sorghum growers are generating new demand for their crop by promoting its use in place of maize in feed formulas. The feed technique was developed in India, where researchers provided farmers with seeds of improved cultivars and taught them better agricultural practices, while nutritionists collaborated with the feed industry to formulate the feed. Finally, farmer associations brought people together to store and bulk grain and negotiate better prices with the industry.

The partners produced easy-to-use brochures, training and extension materials and an institutional framework to sustain the advances over the long term. Perhaps more important, they demonstrated the forcefulness of the coalition approach. This knowledge can help in fine-tuning the approach for use with other crops and in other regions.

■ Find out more by typing **CPH05** into the search box on the search page of the CD attached to this booklet.

Project title: Exploring marketing opportunities through a research, industry and users' coalition …

Farmer marketing organisations help reduce poverty

Studies of the reasons behind the success or failure of farmer organizations in Malawi has generated new knowledge about the conditions that can help these organizations to succeed. Farmer organisations can help counter problems of market coordination and access—major obstacles in poor rural economies—by stimulating supply chain development, economic growth and poverty reduction. However, experience has shown that these organizations are not always effective or sustainable.

The knowledge gained in Malawi—including best practices, institutional innovations and enabling policy environments—will make it possible to extend the scope, reach and effectiveness of farmer organizations and to identify opportunities for sustainable pro-poor development.

■ Find out more by typing **CPH08** into the search box on the search page of the CD attached to this booklet.

Project title: Supporting farmer organisations for poverty reducing market access

Simple steps can strengthen marketing capacity

For many producers, participation in sub-Saharan Africa's market systems means taking on high marketing risks and transaction costs. Studies in Ghana, Tanzania and Zimbabwe have helped to clarify the causes behind these costs and develop solutions to them. The solutions include long-term contractual relationships, which help align incentives and motivate market participants to share information.

Written buyer–seller contracts offer several advantages over verbal agreements. First, they reduce uncertainty by specifying the terms of agreement. Second, the adoption of written agreements boosts the emergence of informal economic institutions, creating trust between buyers and sellers.

The set of recommendations also includes improvements in the coordination functions of local government. These guidelines can contribute to pro-poor institutional innovation in other countries.

■ Find out more by typing **CPH09** into the search box on the search page of the CD attached to this booklet.

Project title: Participatory approaches to decentralising market access, coordination and competition policies in developing market systems

Better organisation helps farmers to access markets

Smallholders can find a way out of poverty by increasing the competitiveness of their produce and strengthening public–private sector partnerships. In Uganda, although liberalisation of grain marketing systems empowered maize farmers to sell their produce at competitive prices, they were not prepared to reap the benefits of this reform. Their heavy reliance on traditional practices of handling and storage meant that their produce was poor in quality and their output was low.

Today, farmers have improved market access by using appropriate post-harvest technologies and they are producing large volumes and sustainable supplies of high-quality produce. The public sector has helped to catalyse linkages between the private sector, smallholders, agricultural advisors and NGOs to create strategic coalition partnerships. Furthermore, in the 63 pilot districts where the strategy was tested with maize, farmers have been able to apply it to many other crops.

■ Find out more by typing **CPH10** into the search box on the search page of the CD attached to this booklet.

Project title: Improving smallholder farmer market access and profitability through increased productivity, quality, organised storage and participation

Participation makes ethical trade work for the poor

Although social and environmental codes of practice are now widespread in the export horticulture sector, they are not always effective in improving working conditions and livelihoods. New models and methods developed through work in Europe (the UK) and Africa (Ghana and Zimbabwe) allow poor people to participate directly in developing and implementing ethical codes of practice.

They include guidelines on how to build support for such codes, as well as multi-stakeholder organisations to develop and implement them. The guidelines also set out how to develop practical criteria, indicators and verifiers, and how to conduct integrated social and environmental audits.

The new knowledge also provides a better understanding of how future strategies, options and constraints will affect the further development of codes of practice for the benefit of poor people. Key ethical trade or fair trade bodies, both in horticulture and in other areas, are already putting these insights into practice.

■ Find out more by typing **CPH16** into the search box on the search page of the CD attached to this booklet.

Project title: Back to ethics: Enhancing African ethical trading bodies in export horticulture

Improved marketing methods ensure smallholder access

Regulated warehouse receipt systems (WRSs) are helping to combat persistent problems in agricultural marketing and credit systems in sub-Saharan Africa. Such problems include highly variable seasonal prices (especially for staple grains), cheating on weights and quality, and limited access to credit. They stem from a lack of efficient storage facilities, poor rural transport, poorly developed systems of standard grades and measures, unreliable market information systems and lack of collateral for bank loans.

WRSs address many of these issues, to the benefit of both producers and consumers. The systems are open to all players and include specific mechanisms to ensure access by smallholders. They are being applied in Ethiopia, Ghana, Uganda, Tanzania, Zambia and Zimbabwe, as well as in Bulgaria, Kazakhstan, Moldova, Poland and Russia.

■ Find out more by typing **CPH18** into the search box on the search page of the CD attached to this booklet.

Project title: Transforming agricultural marketing and improving access to finance through warehouse receipt systems

More marketing choices mean better livelihoods for poor paddy growers

In Bangladesh, poor paddy growers are benefiting from new credit schemes that give them access to better prices for their crops. In the past, it was difficult for small-scale paddy farmers to have a choice concerning when and where to sell. Markets controlled by local elites left these farmers trapped in a vicious circle of poverty, indebtedness and dependence on the wealthy and influential households in their communities.

Better understanding of these problems made it possible to develop a series of institutional innovations that enhance crop marketing to the benefit of small-scale producers. These include inventory credit schemes, focused on the transaction costs that shape the structure of the paddy marketing system, and, in particular, the linkages between participants. This methodology is also applicable to many other marketable crops and livestock products.

■ Find out more by typing **CPH19** into the search box on the search page of the CD attached to this booklet.

Project title: Improving paddy markets for small-scale producers in Bangladesh …

A new system helps smallholders keep pace with world markets

Rapid urbanisation and globalisation have opened up a world of opportunities for smallholder farmers who supply fresh produce. Yet big supermarket chains have high food-safety, quality and agricultural-practice standards, which present both technical and financial challenges.

Partners in Uganda, Zambia, Zimbabwe and the UK have come up with a cost-effective and sustainable management and control system that allows fruit and vegetable smallholders to meet the stringent requirements of high-value EU retail markets. Either a farmers' organisation or an exporter acts as the primary marketing organisation, ensuring that all growers involved are complying with the requirements. In the process, farmers and cooperative organisations strengthen their ability to negotiate with buyers, suppliers, banks and service providers. Although developed for fresh fruits and vegetables, the system could readily be adapted for other crops, livestock or aquaculture.

■ Find out more by typing **CPH20** into the search box on the search page of the CD attached to this booklet.

Project title: Agriculture to agri-business: Management systems for high-value horticulture

Community enterprise doesn't have to be a burden

Communities are learning to harness the financial, social and employment benefits from small and medium-sized enterprises without taking on the burden of day-to-day management and marketing. The key is partnership between the community (the principal shareholder) and an entrepreneur (the professional manager) under the guidance of a management board. The board is chaired by an NGO with non-financial interest in the growth of the enterprise.

By bringing in professionals, the system helps communities to overcome deficiencies in marketing planning and strategy. It has been validated in several farming communities in Ghana, principally among women whose livelihood levels are very low.

■ Find out more by typing **CPH22** into the search box on the search page of the CD attached to this booklet.

Project title: Managing for value – a management model for accessing markets

New information takes farmers 'Together to Market'

Over one million farmers in Uganda alone have benefited from the radio programme 'Together to Market'. This series of 10 spots brings to life the main points and issues faced by farmers who seek to form groups to market their crops. It is designed to assist service-providers in advising them on marketing strategies and use of market information.

It is estimated that one million more people have heard the program in Zambia, and an additional one to five thousand people through community telecentres in Africa, India and Latin America. CDs have also been widely distributed worldwide in response to requests.

■ Find out more by typing **CPH26** into the search box on the search page of the CD attached to this booklet.

Project title: Market information tools: Combining radio and training …

Women stand to profit from a new look at indigenous vegetables

A new focus on indigenous vegetables has helped to highlight their strategic food security role, offering important opportunities for the poor—particularly women—who farm, process and trade them. Until recently, these vegetables were viewed as minor crops with little economic importance, and therefore were overlooked by research in Africa. This meant that next to nothing was known about their productive potential, economic value or contribution to household nutrition and livelihoods.

A workshop in 1997 helped to reverse this situation, identifying important species and priorities for research. Now, new methods for participatory selection are helping to produce improved varieties in Ghana and Zimbabwe, and information leaflets in local languages have been distributed to farmers, NGOs and government departments.

■ Find out more by typing **CPH29** into the search box on the search page of the CD attached to this booklet.

Project title: Improving the livelihoods of vegetable growers and processors …

New formulas for success are helping farmers to make vital choices

Ugandan extensionists and farmers are finding it easier to identify gaps in market information and skills, as well as options for filling them. Using information generated from farmers' own costs and revenues, they can calculate the initial investments, cash flows, speed of return to capital, risks, market access and environmental impact associated with an enterprise, making informed decisions on the crops to grow, buy or market.

Fact sheets synthesizing this information were pre-tested with extension staff and farmer groups. These deal with issues like margin analysis and the organisation of farmer groups. The knowledge is applicable, with little adaptation, across sub-Saharan Africa and South Asia, especially in situations where farmers are in transition between subsistence and market-oriented agriculture.

■ Find out more by typing **CPH33** into the search box on the search page of the CD attached to this booklet.

Project title: Making informed choices: facilitating farmers' enterprise selection processes

From mangos to markets

Mango farmers producing for UK export markets have benefited from new methods for evaluating the relationships among stakeholders, as well as their respective roles in marketing high-value produce. A manual helps them to establish individual responsibilities, providing trouble-shooting and feedback mechanisms. It includes procedures for strengthening the ability of the farmers and labourers to accurately assess their technology needs and communicate these to suppliers. It also provides tools to help in interactions with other stakeholders in the supply chain.

The manual will assist organisations working with smallholder producers producing a range of commodities. It will do this by helping them to access and monitor scientific resources more effectively – bringing them to bear on pre- and post-harvest problems affecting market access.

■ Find out more by typing **CPH37** into the search box on the search page of the CD attached to this booklet.

Project title: Optimisation of horticulture research and uptake in India

Sweet potato boosts health and incomes

Simple techniques for improved sweet potato transport, curing, packaging and storage can help farmers, market traders and consumers to cut their post-harvest losses. This crop's hardiness and, more recently, its promise for combating vitamin A deficiency have rightfully gained it a reputation as a lifesaver. Yet problems after the harvest limit its contribution to incomes, food security and health.

These technologies, which have enormous potential for saving lives and improving livelihoods, have been tested in Tanzania with good results and are now ready for wide dissemination. Consumers also have shown their approval of new vitamin A-rich orange fleshed varieties, which are being promoted in Kenya, Tanzania, Uganda, Mozambique, Ghana, Nigeria, Rwanda, Ethiopia and Zambia.

■ Find out more by typing **CPH40** into the search box on the search page of the CD attached to this booklet.

Project title: Maximising the potential of fresh sweetpotato for farmer and trader incomes

New sweet potato technologies make more the merrier

A programme designed to help farmers make the most of surplus production has identified 20 local and 300 potential global markets for fresh sweet potato grown in Kenya, Rwanda, Tanzania and Uganda. More than 2000 farmers were able to access new markets and cut their on-farm post-harvest losses by 20-30%. Previously, these farmers were unable to appreciate the benefits of new, high-yielding varieties that produce three times as much as the former ones.

The programme promoted a range of orange-fleshed sweet potato-based products. At the industrial scale, at least three private firms now absorb over 80 MT of dried sweet potato chips per month.

■ Find out more by typing **CPH44** into the search box on the search page of the CD attached to this booklet.

Project title: Sweetpotato technologies for food, markets and renewable energy

Yam exporters cut losses and build profits

A series of recommendations are helping exporters and market agents in Ghana to realize the full income generation and market potential of yams. Previously, biological and economic losses took a high toll on crops destined for local and overseas markets. Now, thanks to improved yam quality and new training and promotional material, exports to Europe and the US are growing.

The strengthening of links between yam producers and exporters has improved the quality and quantity of yams provided, eliminating the need for intermediaries and ensuring that advance orders and better market information are available to growers.

■ Find out more by typing **CPH47** into the search box on the search page of the CD attached to this booklet.

Project title: Improving the domestic and export marketing system for yams in Ghana

New opportunities for cotton croppers in Sub-Saharan Africa

A range of crop and pest management technologies have been tested in Uganda and Zimbabwe and are now available to make cotton growing more profitable in Sub-Saharan Africa. These go hand in hand with easy-to-understand tools like manuals and identification sheets.

One of the most innovative aspects of the project was the partnership that it formed with private cotton-processing companies (ginneries) to disseminate the results to farmers and provide them with new opportunities. To this end, around 600 ginnery staff were trained in integrated pest management. They then went on to provide training to 6000 farmers hosting on-farm cotton demonstrations.

■ To find out more, please type **CPP39** into the search box on the search page of the CD attached to this booklet.

Project title: IPM/ICM for smallholder cotton farmers in sub-Saharan Africa

A checklist for farmer-friendly information

People who advise farmers—government, non-government and private enterprise—can now use a checklist to make sure that they give farmers the information farmers want, in a form that farmers can use. Most poor farmers in sub-Saharan Africa and South Asia just don't get user-friendly information that would help them decide how to make best use of their land and resources.

The checklists reinforce the trend in agricultural information and extension towards demand-driven services. They're now used by national agricultural advisory services and universities in Uganda, private agricultural advisory services, and research and extension organisations. And, because they're not specific to any location or culture they have a huge potential to be used globally.

■ Find out more by typing **CPP40** into the search box on the search page of the CD attached to this booklet.

Project title: Linking demand for agricultural information with its supply

Private sector serves horticultural industry in Kenya

Small companies are springing up in Kenya to help growers comply with international food safety standards. The export market for fresh vegetables is fairly well-developed but small growers are often left out when it comes to know-how on food safety and hygiene, and consumer preferences.

But, by following advice from new small businesses, more than 23 farmer groups in the Central, Eastern and Rift Valley provinces have become certified, and more are in the pipeline. These business services spread very quickly to the Rift Valley, Coast and Western Kenya, and are rapidly expanding to other areas. Private-sector extension services could have a major impact on small-scale horticultural producers in East Africa, particularly for high-value crops where producers are more able to pay.

■ Find out more by typing **CPP64** into the search box on the search page of the CD attached to this booklet.

Project title: Development of private sector service providers …

Field manual helps create more equitable PFM projects

A new field manual is allowing local or national economists who have not had in-depth training on natural resources economics to study participatory forest management (PFM) situations. The aim is to promote more equitable projects and policies. The book contains six ways of comparing local stakeholder incentives in forest management with alternative land or livelihood uses. It also breaks down communities into wealth- and gender-based sub-groups to assess how much each one is benefiting. Spanish and Chinese translations have been made.

The manual was necessary because weak local involvement in PFM activities and poor understanding of the costs and benefits to local people have sometimes constrained the design of effective project interventions and policies. Also, there has been a lack of economic analysis of PFM, especially the incentives for local forest users.

■ For more information type **FRP15** in the search box on the search page of the CD attached to this booklet.

Project title: Practical guidance for economic analysis of local user incentives and equity …

Fair trade for forest products

Lessons learned from assessing best practice in ethical trade schemes are now guiding organisations around the world. Ethical and conventional trading systems were compared for three forest products: cocoa, brazil nuts and timber—in terms of both their impact on local people and their economic viability. Researchers also analysed wider policies, markets and non-forest sectors, to get the big picture.

An important conclusion was that assessing impacts on livelihoods and the environment must be a part of ethical trade initiatives. This and other findings have been disseminated through policy briefings and a draft manual on best practices. Lessons learned have already been used by Oxfam and CARE in Peru, Ecuador and South Africa, and by the Ecolabelling Institute of Indonesia (LEI).

■ To find out more, please type **FRP19** into the search box on the search page of the CD attached to this booklet.

Project title: Ethical Trade and Forest Livelihoods (ETFL) - helping producers and harvesters …

Weighing up the pros and cons ofcommercializing non-timber forest products

Three new tools are now available to help weigh up the pros and cons of commercializing non-timber forest products. A book looks at how harvesting and selling forest products could make a difference to the lives of the poor and what factors need to be considered. A manual, developed and tested in rural communities, maps out ways to scale-up, add value and overcome obstacles along the marketing chain. Then, a computer program helps compare options to reduce the risk of failure.

National networks, researchers and development agencies already draw on these tools to help shape their programmes. Both producing and importing countries and regions use them—Mexico, Cambodia, Indonesia, Laos, Vietnam, the Nile Basin, Sahelian West Africa, the Mekong Delta and the Philippines.

■ Find out more by typing **FRP42** into the search box on the search page of the CD attached to this booklet.

Project title: Policy information, decision-making tools and research methods …

Marketing training for small-business success

Researchers in India have developed a method to allow poor small-business owners to understand and react to the needs of the market. This kind of knowledge is essential if small businesses are to survive and flourish. The Market Orientation and Value Enhancement (MOVE) method was designed to train poor, illiterate women in market research and business planning.

By teaching the poor how the market works, MOVE helps them understand customer needs and wants. There is now considerable interest in the output. CARE India, for example, wishes to apply the system to recreate livelihoods in areas hit by the tsunami, and wants NGOs to be trained in the use of the system.

■ To find out more, please type **NRSP27** into the search box on the search page of the CD attached to this booklet.

Project title: Market Orientation and Value Enhancement (MOVE) …

Opening the doors to markets and credit for poor fishers

Better information about how to sell their catches and where and how to borrow money is improving fishers' livelihoods. When they know how market chains and fish distribution work they have better chances of getting good prices for their catches. It's also very helpful for them to know where they can borrow money at reasonable rates.

Participatory methods of collecting data have already proved useful in understanding markets and distribution chains for fish in Bangladesh. Governments not only in Bangladesh, but also in Cambodia and West Africa, and international development agencies are adopting these techniques to review and plan fisheries development. Fishing communities in South Asia, and East and West Africa stand to benefit particularly from better information on markets and credit.

■ Find out more by typing **PHF04** into the search box on the search page of the CD attached to this booklet.

Project title: A guide to the analysis of fish marketing systems …

Beating brucellosis and bovine tuberculosis

To boost livestock production and improve people's health, researchers in Tanzania have been working to increase people's knowledge of brucellosis and bovine tuberculosis—diseases which cause long-term illness in people and production losses in livestock. In Tanzania both diseases are a growing problem, and lack of knowledge is the major barrier to efforts to stop their spread.

This work has involved identifying the groups most likely to be affected by the diseases and developing better ways of showing them how contamination can be avoided—such as boiling milk, and taking extra care when handling raw milk and placentas. Work to educate health practitioners and vets has also given good results, because diseases like brucellosis are often misdiagnosed and mistreated.

■ To find out more about these findings, which are already being applied in 12 sub-Saharan African countries, type **AHP04** into the search facility on the CD attached to this booklet.

Project title: Identification of risk factors for tuberculosis (TB)/brucellosis and dissemination of messages to at-risk populations.

New techniques help get rid of unwelcome guests

Rodents have a serious impact on people's lives. They nest in the roof thatching of rural households, relying on food and human drinking water stored inside the home and causing serious losses to these stores. They also damage crops, personal possessions and buildings, and transmit dreaded diseases such as the bubonic plague.

Ecologically based management techniques—including the use of kill traps and multi-capture live traps—have enabled rural communities in Mozambique to reduce rodent numbers significantly. Before the project, rodent pests and their damage went largely unchecked in the project villages. Poisons were not available and traps were usually self-made and unreliable. At least a dozen villages are now intensively trapping rodents and, although the scale of use remains limited, the techniques are spreading through word-of-mouth.

■ Find out more by typing **CPH15** into the search box on the search page of the CD attached to this booklet.

Project title: Impact of rodents on rural household food security, health and nutrition

New tests keep poisons out of food—and off the table

A simple and affordable diagnostic tool is allowing food companies to measure the mycotoxin content of their foods. Mycotoxins are highly poisonous compounds produced by certain moulds that grow on a wide variety of foods and feeds. When eaten, they can cause disease and even death in livestock and people. Mycotoxin ingestion causes about 250,000 deaths a year in parts of sub-Saharan Africa.

In cereals, edible nuts and oilseeds, the distribution of mycotoxins is highly localised. The new technology addresses this problem, zeroing in on infested areas accurately. This will have a major impact on food safety and productivity, significantly reducing the costs of testing. What is more important, it is available to all players, including people in developing countries with limited resources.

■ Find out more by typing **CPH17** into the search box on the search page of the CD attached to this booklet.

Project title: The development of technologies for the control of mycotoxins in human food and livestock feed

New designs for storage structures give farmers important options

Modified farm stores are providing vital solutions to long-standing storage problems in Africa and elsewhere.

While grain storage structures help protect against crop losses from insects, rodents, moulds, theft and fire, traditional designs are not always effective and building them is difficult for poor communities where hardwood supply is limited.

Smallholders in Zimbabwe are using PVC pipes filled with concrete to replace timber, with the added advantage that rodents and termites don't attack these posts. A manual and video are facilitating extension to other countries. More than 1000 farmers in Ghana are using mud silos successfully, and guidelines for their promotion are available. Finally, metal silo storage is widely used in Latin America as well as in Swaziland.

■ Find out more by typing **CPH23** into the search box on the search page of the CD attached to this booklet.

Project title: Better grain stores for farmers and traders

Storage techniques boost food security over the long haul

Improved techniques for long-term storage are opening up new opportunities in developing countries.

Large-scale storage is essential for grain marketing chains and food security systems, yet over time, quality deterioration often leads to nutritional and financial losses.

Now maize stackburn, resulting from the build-up of heat in the interior of bag stacks, can be avoided by using passive ventilation. For milled rice in hot humid climates, quality is ensured over several years by sealing bag stacks into plastic envelopes flushed with phosphine or carbon dioxide. This long-term rice storage technique is used in Indonesia, the Philippines and Vietnam, to safeguard these nations' emergency rice reserves.

■ Find out more by typing **CPH24** into the search box on the search page of the CD attached to this booklet.

Project title: Preserving grain quality in long-term storage

Toolbox tailors extension to the needs of poor households and communities

New thinking—emphasizing pluralism, inclusion, farmer empowerment and demand-driven services—has changed the way extension service providers view poverty and production goals. The diversity response approach (DRA) is helping them to put these new approaches into action, and helping them understand the diverse demands and priorities of rural communities and households. DRA applies participatory and technical tools to match available technologies to the needs of identifiable groups, including vulnerable groups that are frequently overlooked.

This toolbox, which grew out of efforts to improve grain-store pest management, is helping to counter food insecurity and bolster the livelihoods of smallholder farmers in northern Ghana and Tanzania.

■ Find out more by typing **CPH25** into the search box on the search page of the CD attached to this booklet.

Project title: Diversity response approach: Sensitising service providers to farmer diversity …

Fossils bring insect control down to earth

Soft whitish powders formed from the fossils of tiny planktons that once lived in oceans, rivers and lakes can be ground and mixed with grain to kill insect pests. Known as diatomaceous earths (DEs), these powders have proven to be highly effective in a range of agro-ecological zones in Zimbabwe and Tanzania, protecting crops for more than eight months.

The food security and income opportunities of many rural households in sub-Saharan Africa are seriously undermined by storage insect pests. Farmers in Tanzania and Zimbabwe who tested DEs found that they offered an effective alternative to chemical pesticides—whose safety and efficacy are increasingly questioned—and to traditional materials such as ashes, botanicals and sand, which give inconsistent results.

■ Find out more by typing **CPH35** into the search box on the search page of the CD attached to this booklet.

Project title: Diatomaceous earths: Providing safer options for smallholder grain protection

Street food comes clean

Street vendors and consumers are benefiting from an innovative system for the systematic management and control of informal food vending. The system is designed to ensure food safety and quality through the involvement and participation of all key players. To make the approach practical and easy to implement, it was divided into a series of logical modules. Over 5000 vendors have also received training in improved food safety, hygiene and financial management.

Ghana, Zambia, Zimbabwe and India have systematically addressed specific issues affecting the informal sector. The new approaches have helped them to change the attitudes of food inspectors, from enforcement to providing sustainable support for vendor activities. The system is highly applicable to cities and towns across the globe.

■ Find out more by typing **CPH38** into the search box on the search page of the CD attached to this booklet.

Project title: Safer street and informally vended food …

Farmers zero-in on insect pests

Armed with new knowledge, farmers are taking action to reduce damage to crops in storage. A risk warning system, based on a model of insect flight activity and climate data, enables extension services to warn them of anticipated increases in the threat from a pest known as the larger grain borer (LGB). In addition, using targeted insecticide applications, farmers can reduce by at least 70% the amount of pesticide applied to their crops, zeroing-in on the portion they will be consuming during the storage season.

LGB can be devastating to maize and dried cassava. Without a warning system, the sporadic nature of LGB outbreaks can take farmers by surprise. The new techniques, developed and validated in Ghana and Tanzania, cut losses—and costs—considerably.

■ Find out more by typing **CPH42** into the search box on the search page of the CD attached to this booklet.

Project title: Larger grain borer (*Prostephanus truncatus*) risk assessment and control …

New groundnut production techniques promote health and wealth

Feed manufacturers, national agricultural research systems (NARS), NGOs, farmers, traders and consumers in India, Malawi, Mozambique, Mali, Niger, Nigeria and Senegal are benefiting from new technologies that enable them to defend themselves against deadly aflatoxins. Previously, these natural carcinogenic agents produced by fungi in the soil were reducing the ability of the poorest farmers to sell their groundnut crops and were also threatening the health of consumers.

The new control measures include a simple, low-cost aflatoxin diagnostic test kit, detection laboratories with staff trained in the use of the diagnostic kits, awareness-raising activities, farmer participatory testing of new varieties, and a range of pre- and post-harvest aflatoxin prevention techniques suitable for various agro-ecological and socio-economic conditions.

■ Find out more by typing **CPP16** into the search box on the search page of the CD attached to this booklet.

Project title: Simple food safety technologies for health and wealth …

Effective rodent control techniques

New methods of rodent control have been developed in Bangladesh that could greatly improve the lives of the poor. Rodents eat crops, fruits and vegetables and cause a lot of post-harvest damage as well—by eating or simply contaminating stored food. Most poor producers think that rodents are just a part of everyday life, and don't realise that technologies exist that could help to keep numbers down.

Project staff worked closely with local people from farming communities to assess how much damage rodents were doing and how effectively traditional methods managed them. Community rodent control strategies were then put in place in partnership with producers, and suitable technologies developed and tested. The project also produced a range of training materials, including a three-part video, and conducted various training events.

■ To find out more, please type **CPP32** into the search box on the search page of the CD attached to this booklet.

Project title: Ecologically-based rodent management technologies …

Rat catching in South Africa

Cheap, safe methods of controlling rats are now available to villagers in South Africa. New rat traps and an understanding of how and why rats should be controlled helps rural communities protect their stored grain and reduce risks to their health.

Rats not only damage and destroy crops but also affect humans—they contaminate water and food with debilitating and even deadly diseases. Safe baits to control rats are ineffective. So, people resort to rat poisons that are very dangerous. Cases of accidental poisoning are common.

Rural communities in the Limpopo and North Region of KwaZulu-Natal provinces in South Africa now use traps to control rats. The South African company that produces the traps—a low-cost, break-back design—already can't keep up with demand.

■ Find out more by typing **CPP62** into the search box on the search page of the CD attached to this booklet.

Project title: Ecologically-based and sustainable rodent control strategies in South Africa

Towards sustainable harvests of natural medicines

Three new books have sparked moves to balance competing demands on threatened forests in southern Africa. One in three people in developing countries use traditional medicines, especially the very poor. But, because gatherers collect tree bark and other natural medicines from communal or state-owned forests, supplies are threatened.

The new books suggest sustainable ways of harvesting bark for traditional medicine from forests and woodlands, commercialising medicinal plants and taking stock of non-timber products from forests. Together, the three books offer vital information for preparing forest management plans—including community management.

Already, many different stakeholder groups, from traditional healers to senior forestry officials use the books. This is a positive step towards collaboration to sustain forest resources in southern Africa.

■ Find out more by typing **FRP39** into the search box on the search page of the CD attached to this booklet.

Project title: Southern Africa sustainable indigenous resource use

Combating food poisoning from seafood

A rapid and highly sensitive DNA test is now available to screen seafood for bacteria. Infected seafood, particularly shellfish, can cause food poisoning. Outbreaks damage consumer confidence and producers suffer, especially the poorest. Previously, screening for bacteria was slow, taking up to 7 days, and was not always accurate.

These diagnostic techniques have been extensively tested on coastal and estuarine seafood in India, Bangladesh, China, Malaysia and Japan. They've been used not only for detecting bacteria in seafood but also for food safety tests and for monitoring bacteria in coastal areas popular for water sports.

Hundreds of laboratories have adopted these methods and they are widely accepted by international food safety authorities. They will probably become routine for ensuring that fish exports meet EU, US and Japanese import standards.

■ Find out more by typing **PHF10** into the search box on the search page of the CD attached to this booklet.

Project title: The development of a polymerase chain reaction (PCR) based method for …

Understanding the blowfly life cycle helps promote hygienic fish processing

Understanding the blowfly lifecycle is helping village fish processors raise the quality of their products. Traditional methods of smoking, drying and salting fish in the tropics are often very unhygienic and between 25% and 90% go bad. Previously, processors were slow to adopt simple hygienic measures, such as disposing of waste, making sure the fish and utensils are clean, preparing brines properly, and drying fish on frames rather than on the ground. But when they understand that maggots in their fish come from blowflies they are quickly converted.

The guide to help fisheries authorities and NGOs teach processors how to keep their products safe from blowfly maggots is being widely used in Africa, South Asia and South East Asia.

■ Find out more by typing **PHF11** into the search box on the search page of the CD attached to this booklet.

Project title: Guidelines on using a systems based approach to control blowfly infestation of traditionally processed fish

Saving fish from flies and beetles

Insects—flies and beetles—destroy vast amounts of fish in developing countries while it is being processed or stored. This means less fish for food, poorer nutrition, and lower incomes. Attempts to control insects have met with mixed success, mainly because people don't understand how, where and when insects infest fish.

A study bringing together all that's known about insects that damage fish vastly improves understanding. Now that processors are learning what to do to keep pests away from fish they are benefiting from fewer losses, better prices and lower costs.

The reference on insects is being widely referred to by development and extension staff in Southern India, Africa, Uganda and Tanzania, as well as by NGOs and processors.

■ Find out more by typing **PHF12** into the search box on the search page of the CD attached to this booklet.

Project title: A review of insect infestation of traditionally processed fish in the tropics

Better rice for higher incomes

A set of practical post-harvest technologies has helped the government of Ghana to improve the quality of locally grown rice, reducing imports by 30%. A range of actors along the production chain have improved their incomes while ensuring safety and boosting product quality.

Although the use of this knowledge initially focused on the townships where it was developed, training manuals summarizing the fully tested and validated practices are now available. Agricultural extension agents are using the training manuals to transfer the knowledge to more farmers and processors. It could benefit an estimated 400,000 small-scale farmers and 125,000 women parboilers in Ghana alone. New partners from Nigeria, Mali, Burkina Faso, Benin and Togo are finding the outputs relevant to their countries.

■ Find out more by typing **CPH03** into the search box on the search page of the CD attached to this booklet.

Project title: A partnership approach to enhancing rural livelihoods through the development and dissemination of improved post-harvest handling practices...

Millers bank on bambara processing techniques

New processing technologies are helping to ensure that bambara will continue to contribute to income and nutrition for people in West Africa—especially poor farmers. High-quality bambara flour, one of the principal innovations, is now widely used. Marketing opportunities for the flour have been identified and problems in the marketing system resolved, and millers report that demand for bambara has increased by 12.5%. To help the process, new bambara flour-based recipes have been tested and validated with consumers.

The technology is currently in use in Ghana, and a market study shows that there is high potential for its use elsewhere.

■ Find out more by typing **CPH04** into the search box on the search page of the CD attached to this booklet.

Project title: Development and dissemination of bambara processing technologies …

You name it, cassava can do it

Faced with the need to find solutions for a 30-40% surplus in cassava production in Ghana, researchers decided to get creative. They discovered that cassava-based products could provide substitutes for expensive imported raw materials in industries covering pastries to plywood.

They developed processing techniques to convert fresh cassava into high-quality cassava flour, plywood and paperboard adhesive, glucose syrup and industrial and potable alcohol. Commercial processors acted as market intermediaries between farmers and end-users and a system for conflict-resolution with independent arbitration was developed to maintain good relations throughout the supply chain.

Processing industries in Ghana and Nigeria are using the techniques to supply national, regional and international markets. This work meets the needs of countries with a relatively low level of development where expensive imported enzymes, adhesives and wheat flour are not affordable.

■ Find out more by typing **CPH21** into the search box on the search page of the CD attached to this booklet.

Project title: Cassava as a commercial/industrial commodity

Cassava processors reap the benefits of new techniques

New processing technologies are enabling resource-poor cassava growers in sub-Saharan Africa to produce popular products for the market. They are selling high quality cassava flour and chips at a range of outlets in Tanzania, Madagascar, Zambia, Uganda and Mozambique.

Processing equipment, produced locally at low cost, is reducing drudgery and credit schemes are allowing the cassava processors to get their businesses off the ground. Manuals and participatory methods are helping to spread the use of the new technology, monitor adoption and link cassava processors to markets.

■ Find out more by typing **CPH30** into the search box on the search page of the CD attached to this booklet.

Project title: Improved cassava processing for resource poor households ...

What's new under the sun? Partnerships for poor fruit and vegetable farmers

Poor farmers are avoiding the waste and low returns associated with overproduction of fruits and vegetables thanks to simple solar-drying techniques. Processing in this way helps preserve the quality of produce and provides opportunities for farmers to add value for local, regional and international markets. Enterprises known as primary marketing organisations (PMOs) are taking the lead in creating a commercially viable value chain, helping farmers to introduce the new technologies and access markets.

In Uganda, more than 700 fruit farmers at 85 sites—mainly women—are using 110 solar dryers. The equipment, and the associated business model, are also being used by poor smallholders in a range of other developing countries, including Burkina Faso, Colombia, Ghana, India, Pakistan, Sri Lanka, and Zambia.

■ Find out more by typing **CPH31** into the search box on the search page of the CD attached to this booklet.

Project title: Commercialisation of solar drying technologies for micro- and small-scale rural enterprise development

Oiling the wheels of coconut processing

New knowledge is helping small, domestic coconut processors to improve their techniques. The innovations include a rotary grater, hot oil immersion drying, the use of a ram press, a technique for recovery of waste heat and use of carefully controlled moisture. While household-level processing of coconuts for milk and oil is an important women's activity in many countries, traditional extraction methods are arduous, time-consuming and inefficient.

Tanzania, Côte d'Ivoire, Ghana, Indonesia, Sri Lanka and India participated in the field trials. The findings, which improve efficiency and output, are summarized in a series of processing manuals.

■ Find out more by typing **CPH32** into the search box on the search page of the CD attached to this booklet.

Project title: Improving small-scale extraction of coconut oil

Innovation reduces inputs and drudgery for shea butter processors

A new press for extracting shea butter reduces processing time by more than a third, cuts water consumption drastically and eliminates the need for fuel wood. This is important for many rural women in northern Ghana who depend on shea butter for income. It represents a huge improvement over the traditional method of processing, which is extremely arduous and time-consuming, and uses large quantities of scarce natural resources such as water and firewood.

The press is operated manually with minimal effort, alleviating the drudgery associated with traditional processing techniques, and the extracted butter meets the quality specifications of major European buyers. The new technology has been transferred to 400 rural-based community groups in Uganda, benefiting 10,000 people.

■ Find out more by typing **CPH36** into the search box on the search page of the CD attached to this booklet.

Project title: Improved processing of shea nuts in northern Ghana

Starch production techniques help cassava processors protect their profits

Some 60% of the water used in producing starch from cassava can be recycled using a hydrocyclone (a device that separates particles in a liquid suspension). The savings from water extraction offset production costs, and the technology can prove especially useful in areas with growing water shortages. Low concentrations of acetic acid (2%) can also help cassava processors to protect their profits, preventing the growth of micro-organisms in stored starch and thereby helping to maintain its quality.

This knowledge addresses two of the major constraints to the cassava starch industry in India, and can be applied in other cassava-producing countries.

■ Find out more by typing **CPH39** into the search box on the search page of the CD attached to this booklet.

Project title: Improving water use starch extraction and storage …

Fermentation helps meet growing urban demand for cassava products

Cassava producers are meeting growing urban demand for processed products thanks to new technologies for the manufacture of convenient, high-quality and environmentally safe foods. Private-sector partnerships are providing linkages between rural producers and urban markets, and a series of best practices and technologies are helping to match consumer preferences with the needs of rural processors, the private sector and market traders.

The innovations include new specially developed dryers and fermentation vats, training centres for local businesses, professionals and post-graduate students, and a food safety manual that brings cassava processors up to speed on the new techniques. Processors and consumers validated the techniques and products in Nigeria and Ghana, where they are currently in use.

■ Find out more by typing **CPH41** into the search box on the search page of the CD attached to this booklet.

Project title: Commercialisation of traditional processed cassava …

Poor farmers in Uganda boost their income with new groundnut varieties

Farmers throughout Uganda are using new disease-resistant groundnut varieties—validated in on-farm trials—to overcome a rosette disease, a problem that was seriously limiting their yields. Previously, their only recourse was chemical control, but this was too expensive for poor farmers.

To make seed of the new varieties widely available, a farmer-led multiplication plan was developed under the supervision of parish development committees. These committees oversee repayment and redistribution of seed to ensure that women and poor households receive priority. Farmer groups also learned improved groundnut production and seed handling techniques, as well as how to process the groundnuts using a manual grinder. Finally, collective marketing associations are building their links to markets.

■ Find out more by typing **CPP03** into the search box on the search page of the CD attached to this booklet.

Project title: Commercial incentives for sustainable groundnut multiplication