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# partners

IN RESEARCH FOR DEVELOPMENT

LINKING FARMS TO  
MARKETS

THE VALUE OF  
BIOSECURE PRODUCE  
MARKET-DRIVEN  
INNOVATION

PRIVATE-SECTOR  
ENGAGEMENT





# FOREIGN AID AND THE PRIVATE SECTOR

By the Hon. Julie Bishop MP  
MINISTER FOR FOREIGN AFFAIRS

I am pleased to introduce this edition of *Partners in Research for Development* magazine, featuring ACIAR's engagement with the private sector. One of the key messages of the new aid paradigm, launched on 18 June 2014, is that the private sector is the engine of economic growth and prosperity in our region.

The Australian Government will be a catalyst for change and to drive development assistance through private-sector partnerships. We are bringing the expertise, creativity and innovation of the private sector into our policy consideration.

ACIAR has been at the forefront of brokering profitable partnerships with private-sector companies, as demonstrated by this edition of

*Partners in Research for Development* magazine.

ACIAR's latest Impact Assessment Series publication—*Returns to ACIAR's investment in bilateral agricultural research*—provides compelling evidence of the economic returns to ACIAR's investments. The report finds that even under conservative estimates ACIAR has the remarkable benefit:cost ratio of 5:1.

I am looking to ACIAR to take a lead in testing, trialling and developing new collaborations with private partners so that ACIAR's projects continue to make a real difference to the livelihoods of the world's poor.

This edition of *Partners in Research for Development* marks the beginning of an exciting year for private-sector engagement across Australia's aid program. ■



The Hon. Julie Bishop MP, Minister for Foreign Affairs.

PHOTOS: DR SARAH VANDERMARK



# ACIAR AND PRIVATE-SECTOR ENGAGEMENT

By Dr Nick Austin  
CEO OF ACIAR

**A**CIAR is the Australian Government's specialist agency for brokering international agricultural research partnerships to promote economic prosperity and address poverty in the Indo-Pacific region.

As a research broker with high credibility in the Indo-Pacific region, ACIAR is in a unique position to further enhance and facilitate the development of new partnerships in the sectors and countries in which we work.

The Australian Government's aid policy framework encourages more innovation in engaging private-sector investments, capacity and networks that can contribute to poverty reduction.

The aid policy emphasises two development pathways—supporting private-sector development and strengthening human development—to achieve sustainable economic growth and poverty reduction.

ACIAR has long recognised the value of engaging with the private sector. We have increasingly worked with private-sector partnerships when commissioning collaborative research but we can do more.

Our focus on private-sector development reflects the fact that the private sector is crucial to economic

growth and prosperity. It recognises that people leave poverty when they have the opportunity to develop and use their skills more productively to get a job or a better-paid job.

ACIAR offers the private sector strong partnerships built on trust, transparency, complementarity and mutual benefits that lead to innovation in research for development and to benefits (both direct and indirect) to the economies of developing countries and Australia.

On their side, the private sector has resources, capabilities, networks and partners that ACIAR can leverage to stimulate local economic development.

The success of these partnership approaches will be demonstrated by an increase in productivity and number of smallholder farmers with access to markets, as well as other impacts that are attributable to our work, including capacity building, policy development, sustainable practices and engagement with women.

ACIAR can offer the private sector access to high-quality research along value chains; valuable impacts from agricultural research; extensive networks and credibility in Australia and the countries in which we work.

The private sector can offer ACIAR exposure to a diversity of partnership models; access to value-chain knowledge, technologies and innovation capacity; potential to leverage private-sector investment; increased access to markets; and increased scale and impact.

Partnering with agribusinesses offers the opportunity to take research-based improvements to scale, thereby improving smallholder farmer productivity and livelihoods.

Given the rapid globalisation of agri-food chains and the opportunities and the risks these present for smallholder farmers, the imperative for ACIAR to work closely with the private sector has never been stronger.

ACIAR will continue to maximise the impact of our research-for-development investments. We will do this by capitalising on new ideas and opportunities to link with the private sector. We will not be risk averse as we develop new strategies and inclusive business models that contribute to poverty alleviation and the generation of profits. ■



ACIAR CEO  
Dr Nick Austin.



# ENGINE OF ECONOMIC GROWTH

The focus on private-sector development in this edition of *Partners* magazine reflects the fact that *it is the private sector that is the engine of economic growth*.<sup>1</sup> It recognises that people come out of poverty when they have the opportunity to develop and use their skills more productively by getting a job or finding a better one. It also recognises that when ACIAR works in partnership with researchers, the private sector and consumers, extraordinary achievements can occur.

By working to enhance agricultural competitiveness and sustainability, increasing market access and value-chain efficiencies and effectiveness, ACIAR contributes to economic diplomacy and the aid-for-trade agenda of the Australian Government.

Private investment by farmers is the largest and most important source of investment in agriculture in developing countries, averaging around US\$170 billion.<sup>2</sup> Official development assistance ranks as only the third largest source of financing flowing to the developing world behind private capital and remittances.<sup>3</sup>

ACIAR understands this and continues to build on the strength of the private-sector partnerships it has established over many years. As Dr Graeme Wright from the Peanut Company of Australia notes, it is investment in R&D that leads to innovation: "That's why there has been such a focus on quality traits in our breeding program; and it was ACIAR projects going back nearly 20 years that played a significant role in our investment portfolio."

ACIAR is also exploring new ways to support inclusive business models. Engagement of stakeholders along the whole of the value chain ensures that all parties better understand how an industry operates, what each stakeholder's role is and its relationship to others.

For example, by supporting the 'Healthy Farm' brand of chilled chickens and fresh eggs for Indonesian supermarkets, ACIAR has provided a test of what it takes to develop a clean supply chain in this country's complex poultry sector. By adopting biosecurity measures, egg and broiler producers receive production benefits such as reduced mortality of their birds and better feed conversion rates, as well as reduced risk of disease outbreaks—enough of an incentive for farmers to continue to invest in improving the biosecurity on their farms.

In Fiji, ACIAR-funded research into pearl production is now increasing its focus on value-chain analysis. Not only is the project producing gorgeous jewellery, but it is also providing an opportunity to empower local women. Over the next couple of years, the trainees will participate in further workshops to learn about product distribution, expand their jewellery-making skills, and develop their business and marketing acumen.

In Vanuatu, a value-chain partnership has developed in ways that benefit research outcomes, enhance private-sector opportunities and improve cocoa smallholder livelihoods. Through ACIAR's Pacific Agribusiness Research for Development Initiative, cocoa researchers are engaging with the private sector at multiple levels and at all project stages—concept, planning, execution, monitoring, evaluation and knowledge transfer.

Success of ACIAR's ventures in private-sector engagement will be demonstrated by an increase in market-ready smallholders, market access, productivity and other impacts that are attributable to our work, such as capacity building, policy development, sustainable practices and engagement with women.

It is hoped that this edition of *Partners* will provide you with some useful insights into engaging with the private sector.



**Dr Nick Austin**  
CEO OF ACIAR

<sup>1</sup> DFAT aid policy. Policy summary can be viewed at: [www.dfat.gov.au](http://www.dfat.gov.au)

<sup>2</sup> Food and Agriculture Organization of the United Nations, 2012

<sup>3</sup> Alison Ion, Kristin Beyard and Santiago Sedaca (2014). Trends in public-private partnerships (PPPs) and inclusive business models (IBMs) for improving food security and rural development through agriculture. Report prepared by CARANA Corporation for The Food Systems Innovation initiative, a partnership between ACIAR, AIFSRC, CSIRO and DFAT. The report can be viewed at: <http://foodsystmsinnovation.org.au/type/fsi-publications>



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*Partners in Research for Development* is the flagship publication of the Australian Centre for International Agricultural Research (ACIAR). *Partners* presents articles that summarise results from ACIAR-sponsored research projects and puts ACIAR research initiatives into perspective. Technical enquiries will be passed on to the appropriate researchers for reply. Reprinting of articles, either whole or in part, is welcomed, provided that the source is acknowledged.

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# From little things big things grow

Private-sector partnership scales ACIAR research in Indonesia into a sustainable business model

A project proposal that started in January 2001 and ended in 2005 set two records for ACIAR—the fastest project development from concept note to project start and the first commercial project partnership, with chocolate manufacturer Mars Inc.

A family-run business, Mars Inc has long been dedicated to giving smallholders more control over the long-term sustainability of their produce, by transferring skills and knowledge, and increasing the availability of high-quality materials.

The collaboration with ACIAR began with a chance meeting at the International Cocoa Research Conference in Salvador, Brazil, in 1996, between Dr Smilja Lambert, whose work at the Mars Research Station in Brazil focused on cocoa quality, tissue culture and biocontrol of fungal diseases, and Dr David Guest, a Phytophthora expert from the University of Melbourne.

The Mars Inc–ACIAR partnership starkly demonstrates the immense benefits of collaborating with the private sector on projects to sustainably promote economic growth in smallholder farming communities.

The ACIAR project identified a small suite of pest and disease-resistant clones of cocoa. On its own, this might have amounted to interesting science that is devoid of practical impact. Instead, Mars Inc saw commercial opportunity in these clones.

Through its sustainability program, Mars Inc worked with about 30 farmers in South Sulawesi, Indonesia, helping them with the technical and business skills required to become small businesses supplying grafted seedlings to other farmers. Over time, this became around 600 farmers nationwide selling about six million grafted seedlings annually.

Not only was this a huge benefit to those small farm businesses, but the improved germplasm is also driving the revitalisation of the Indonesian cocoa industry as the clones—

Chocolate, created by fermenting cocoa beans from the fruit of the *Theobroma cacao* tree, contains high levels of health-promoting antioxidants. Cocoa butter, extracted from the same beans, provides the basic ingredients for many cosmetics.

PHOTO: 123RF.COM



combined with good agricultural practices—have the potential to increase productivity two to threefold.

“The partnership between ACIAR and Mars Inc has led to some extremely influential results at the research level,” says Peter van Grinsven, cocoa and sustainability director of Mars Inc. “Improved planting materials are now part of an extensive breeding program. Some clones are now officially approved by the Indonesian Government and are even being used in parts of Vietnam and the Philippines.”

Now earning up to US\$15,000 (about A\$18,900) per year, the Mars Cocoa Village Centers (CVCs) are an attractive business model for other smallholder farmers who, in turn, may be encouraged to establish their own centres and roll out much-needed goods and services.

“To get the planting material to scale will require effort not just of Mars, but a coalition of the entire cocoa industry and government,” says Fay Fay Choo from Mars Inc. With increasing global demand for cocoa showing no signs of slowing, partnerships between research agencies and private companies have become more important than ever. They represent the nature of long-term sustainable agricultural change, grounding commercial frameworks in scientific methods for success.

### MARKET OPPORTUNITY

Cocoa is produced from fruit of the tropical tree *Theobroma cacao*, which literally translates as ‘food of the Gods’. Chocolate is made by fermenting the beans found in the fruit and contains high levels of antioxidants that are linked to reducing blood pressure and enhancing happiness. Cocoa butter, extracted from the same beans, provides the basic ingredients for many cosmetics.

Most of the world’s cocoa supply comes from West Africa. As world chocolate consumption increases, particularly in the developing economies of Asia and Latin America, chocolate manufacturers are increasingly concerned about the sustainability and security of production and the industry’s ability to meet future demand.

Consequently, many chocolate companies looked to significantly increase production from South-East Asia and the Pacific. Sustainably

increasing cocoa production provides an opportunity to drive economic development that brings better living standards to smallholder farming communities.

### RESEARCH BEGINNINGS

The ACIAR project team included participants from La Trobe University, the University of Melbourne and the Indonesian Coffee and Cocoa Research Institute. They worked with Mars Inc to select new cocoa genotypes with improved yield, disease resistance and higher bean quality.

A germplasm collection was initially established and maintained at the PT Effem (Mars Inc) factory in Makassar, Indonesia, and later at the Mars Cocoa Development Center (MCDC). The Mars training centre has recently been upgraded to become the Mars Cocoa Academy and Cocoa Research Station, both at the same location in Tarengge, South Sulawesi.

Recognising the need for a significant revival of the flagging industry, ACIAR supported a varietal-improvement program to increase the resilience of cocoa trees to external influences. This involved grafting high-performing cocoa trees to produce superior-quality seedlings.

ACIAR funded a follow-on project (2006–10) that shifted the focus to South Sulawesi and linked with Hasanuddin University to develop improved cocoa-management strategies.

Project activities were extended into Papua, where Mars Inc had established a local Cocoa Development Center (CDC). A third phase (2011–15) added soil fertility management and the development of effective extension policies and methodologies to the ongoing breeding and cocoa-management activities.

Mars Inc has also been in a position to align the activities of several aid projects involving non-government organisations (NGOs), thus avoiding duplication.

Mars Inc and ACIAR were instrumental in establishing the Cocoa Sustainability Partnership, based in Makassar. This alliance brings together stakeholders, including government organisations, aid agencies, NGOs and cocoa traders to facilitate and support complementary activities to promote cocoa sustainability in Indonesia.

The collaboration has now extended beyond Indonesia. Mars Inc has supported the



PHOTO: COCOA CARE

The increasing number of partnerships between growers, buyers and researchers of cocoa is evidence of a growing commitment to the development of a sustainable cocoa industry.

development of a cocoa industry in Vietnam and supported the establishment of a regional cocoa breeders forum (the Asia-Pacific Cocoa Breeders Working Group) aimed at sharing germplasm resources and building cocoa-breeding capacity across the region.

Mars Inc has supported travel and training for cocoa breeders, including helping Peter Epaina from the Papua New Guinea Cocoa and Coconut Institute (PNG-CCI) to undertake part of his University of Sydney PhD studies at the US Department of Agriculture’s Cocoa Research Center in Florida.

In PNG, Mars Inc has also been a key collaborator supporting ACIAR projects based at PNG-CCI, including a new project aimed at intensifying cocoa management, diversifying farm income and connecting farmers with high-value markets.

“Rather than just increasing access to superior-quality produce, scientific research must be paired with a commercial framework if it is to drive sustainable success,” Mr van Grinsven says.

“Applying the principles of good agricultural practice—such as using better planting materials and appropriate fertiliser—smallholders can rehabilitate their crops and triple their average yield within two to three years. But for this to become a self-perpetuating process, it also requires a deep understanding of research-based farming practices and how to run a commercially viable enterprise.”

### A GLOBAL COCOA SHORTAGE?

In November 2014, news headlines announced that the world could be facing a global cocoa shortage as early as 2020. International market prices for cocoa rose a staggering 25% since 2013, representing significant economic

PHOTOS: COCOA CARE



The Mars Cocoa Development Center has recently been upgraded to become the Mars Cocoa Academy and Cocoa Research Station in Tarengge, South Sulawesi.



Mars Inc is delivering training on how to produce superior quality, high-yielding cocoa, and the principles of running a successful small enterprise.

and environmental pressure, and highlighting the need for more sustainable practices across the industry.

Now more than ever there is a need for long-term commitment between growers, buyers and researchers of cocoa. In the eastern Indonesian province of Sulawesi, for example, private-sector partnerships are focusing not only on improved cocoa farming processes through agricultural research, but also on sustainable business models through which smallholders are reaping—and driving—the rewards.

As the world's third largest producer of cocoa, more than half a million smallholders in Sulawesi rely on the revenue from sales to secure their livelihoods, up to 80% of which flows directly back into their pockets.

### COMMERCIAL FRAMEWORKS FOR LONG-TERM SUCCESS

For many smallholders, thinking and working within a commercial framework represents a fundamental shift in perception and practice given most have used traditional farming methods to support their direct livelihoods.

Another organisation helping to facilitate this shift is Cocoa Care, which is building on ACIAR and Mars Inc research to train Sulawesi cocoa smallholders in good agricultural practice.

"Unless they are provided with support and guidance from stakeholders across the industry, cocoa farmers will have no choice but to abandon their crops," says Kate Janetski, managing director of Cocoa Care. "Yet, by applying basic agricultural practice, appropriate levels of fertiliser and managing pests and diseases, farmers can be rewarded quickly for their efforts, and once again see a future in the industry."

Mars Inc agrees and works with many

partners across the industry, including Cocoa Care, which uses its training facilities in Sulawesi to scale-up important developments in cocoa research.

"There are so many NGOs and donor bodies working with farmers to improve the cocoa industry, but very few that are operating at the scientific level in a systematic and logical way," Mr van Grinsven says.

"Building on applied research such as that produced in partnership with ACIAR is absolutely critical to long-term success, and without it represents a huge opportunity lost."

"There is a lot of hesitancy among smallholder farmers when it comes to embracing new technologies," explains Dr Peter Horne, ACIAR's general manager for country programs. "Understanding that running a farm can be a business—and a highly profitable one at that—comes with breaking down the barriers between farmers and the broader industry, and reinforcing the fact that they're all connected."

For Mars Inc, the key to this transition lies in connecting farmers with the knowledge and motivation they need to support a well-planned business.

"We know that if we are going to see a revival of the cocoa industry, farmers will need access to high-quality planting and fertilising materials," Mr van Grinsven says. "Yet in the absence of an ongoing donor process or outreach system, how can we be assured of smallholder access to these?"

To improve linkages, Mars Inc has established four CDCs in Sulawesi—research hubs staffed by expert agronomists that focus on refining models for sustainable cocoa development.

Using this knowledge, Mars Inc is delivering a training program for local village

entrepreneurs—dubbed 'Cocoa Doctors'—focusing not just on how to produce superior quality, high-yielding cocoa, but also the principles of running a successful small enterprise.

After their training, Cocoa Doctors are supported by Mars Inc to set up CVCs in their communities. CVCs are locally owned and operated businesses that meet community demand for plant materials, fertiliser and grafting expertise.

"As a small business, a CVC provides a sustainable model for cocoa rehabilitation," Mr van Grinsven says. "Thanks to their extensive training through the Mars Inc program, Cocoa Doctors can grow and produce the right types of planting material, which is then sold on to other cocoa farmers in the community, like a nursery.

"Cocoa Doctors also have the agronomic knowledge to work with other farmers to implement good agricultural practice. They become local experts who can then service the community and support up to 100 smallholder cocoa farmers in their region." ■

**ACIAR project: HORT/2008/046: Rehabilitating cocoa for improving livelihoods in the South Pacific; SMAR/2005/074: Improving cocoa production through farmer involvement in demonstration trials of potentially superior and pest/disease resistant genotypes and integrated management practices; HORT/2010/011: Improving the sustainability of cocoa production in eastern Indonesia through integrated pest, disease and soil management in an effective extension and policy environment.**

**More information: Dr Peter Horne, ACIAR general manager, country programs, peter.horne@aciarc.gov.au**



# FOUNDATION PARTNERS BUILD A BRIDGE TO BUSINESS THINKING

BY KATE LANGFORD

ACIAR is finding that partnerships with private foundations can be an alternative and rewarding way of engaging with the private sector, albeit indirectly.

There are many foundations that operate altruistically, have a similar agenda to ACIAR and are not driven by profits. But importantly, some foundations have private-sector knowledge and ways of doing things.

ACIAR is tapping into this knowledge through the alliance formed in 2014 between ACIAR's Australian International Food Security Research Centre (AIFSRC), the Syngenta Foundation for Sustainable Agriculture (SFSA) and the Crawford Fund. The first project of the Alliance for Agricultural R&D for Food Security is focusing on demand-led plant variety design.

Through the partnership with SFSA, the project will access and use breeding knowledge

and experience of the 'parent' Syngenta company to help address the low uptake of new crop varieties in Africa. By developing new training programs and additions to university curricula on demand-led approaches to plant breeding, the aim is to help crop breeders focus more strongly on the needs of farmers, traders, processors and consumers when setting their breeding targets.

The project's co-leader, Dr Gabrielle Persley from the University of Queensland, explains that there is a dearth of plant breeders in Africa. "During a recent meeting in Nairobi of educators of the next generation of African plant breeders, there was enthusiasm that this new alliance project could draw on the experience of the private sector in targeting plant breeding and apply this experience to develop new demand-led varieties of crops important for food security in Africa," Dr Persley says.

SFSA's project co-leader Dr Vivienne Anthony explains that the partnership will enable public-sector breeding organisations to benefit from the private sector's expertise in 'demand-led' R&D. "Breeders in national and international institutes perform top-quality work," she says. "However, farmers only grow new varieties that bring them real advantages. We believe that global food security will benefit enormously from a closer focus on meeting smallholders' needs."

AIFSRC director Mellissa Wood is excited about what ACIAR and its partners can learn from foundations such as SFSA about private-sector processes and ways of working. "Partnerships such as this will help ACIAR align itself better with business thinking," she says.

The Syngenta Foundation is a non-profit organisation funded by the international agribusiness company Syngenta; however, it runs as an entirely separate legal entity. ■



PHOTO: BRAD COLLIS

"During a recent meeting in Nairobi of educators of the next generation of African plant breeders, there was enthusiasm that this new alliance project could draw on the experience of the private sector in targeting plant breeding and apply this experience to develop new demand-led varieties of crops important for food security in Africa."

— Dr Gabrielle Persley,  
University of Queensland



# Bean to bar: Vanuatu chocolate

Chocolate connoisseurs are an essential project partner to Vanuatu's cocoa growers

PHOTOS: CONOR ASHLEIGH

BY RANDY STRINGER

Chocolate is a US\$80-billion-a-year (A\$102 billion) global industry forecasted to grow as much as 30% by 2020. A substantial share of this growth is at the premium end of the market. Most cocoa beans are produced by millions of smallholder family farmers in the world's tropical and subtropical zones. In the Pacific islands, where cocoa trees have been planted since the 19th century, harvest of this potentially high-value commodity has been relatively haphazard until now.

The challenge for ACIAR's research partners is to identify what Pacific island producers need to do differently to meet the high-quality standards required by the world's best chocolate makers.

To find out, the Pacific Agribusiness Research for Development Initiative (PARDI) research team began a collaboration with premium chocolate makers in Australia, the USA and now Europe, which has grown in unexpected and highly beneficial ways.

Initially, this initiative involved sending cocoa bean samples from five Vanuatu communities to three luxury chocolate companies:

- Bahen & Co in Margaret River, Western Australia
- Haigh's Chocolates in Adelaide, South Australia
- Guittard Chocolate Company in San Francisco, USA.

After analysing the cocoa beans, all three chocolate makers returned with the same conclusion, the same recommendation and—surprisingly for the researchers—the same question.

Their conclusion: the beans are too smoky, too mouldy, too astringent, improperly fermented and improperly dried.

Their recommendation: the project team should focus much more research on fermentation and drying.

Their question: how can we help?

## AN EVOLVING PARTNERSHIP

From that first step more than four years ago, the value-chain partnership has developed in ways that benefit research outcomes, enhance private-sector opportunities and improve cocoa smallholder livelihoods.

Today, PARDI's cocoa researchers engage with the private sector at multiple levels and

at all project stages—concept, planning, execution, monitoring, evaluation and knowledge transfer.

The chocolate companies are active project participants, identifying research priorities, capacity needs, regulatory impediments and information gaps. For example, the companies help the cocoa agronomists, postharvest specialists and social scientists to refine research questions and to overcome barriers to adoption. They also provide insights into the preferences of chocolate consumers. These contributions help the research team understand how to better target extension to the needs of individual households and adapt production processes to specific market requirements.

The chocolate companies are committed value-chain partners, whose role now extends far beyond assessing bean quality, which they continue to do. They plan and organise training in chocolate tasting for lead farmers. They visit the cocoa plots, meet with the communities, offer options for improving drying and fermenting processes, and recommend appropriate equipment for researchers to test.

On the business side, they suggest alternatives for group financing and

## Vanuatu's first chocolate competition

In October 2014, Vanuatu held its first chocolate competition as part of Salon Culinare 2014. The chocolate competition followed four years of R&D supported by two ACIAR projects. Researchers have helped local cocoa farmers to intensify production and to improve the quality of their beans through better fermentation and drying, thereby opening access to new, higher-value markets.

Farmers representing 10 communities on the islands of Malakula and Epi, as well as a researcher from Espiritu Santo, brought their very best cocoa beans to Vanuatu's capital, Port Vila. There, project partner Sandrine Wallez, of the local NGO Alternative Communities Trade in Vanuatu, transformed the beans into chocolate.

Seven judges including Ben Kolly (from Haigh's Chocolates, South Australia) and father and son, Mark and Josh Bahen (from Bahen & Co, Western Australia) put the anonymously presented samples to the test. The judges marked each chocolate for its flavour and other qualities, using criteria as sophisticated as those for judging fine wines. Mr Kolly commented on the unique flavours of the local beans, saying "the fruitiness and the complexity are exciting".

When the placings were announced, Denis from Rory Village was awarded first place, followed by Fredy from Bisa Village and Joseph from Epi in third place. Filmmaker Conor Ashleigh followed the competition and the farmers' personal stories. This video is available on the ACIAR YouTube Channel ([www.youtube.com/user/ACIARprojects](http://www.youtube.com/user/ACIARprojects)).

The enthusiasm kindled by the competition was palpable and there are plans to make this an annual event—or even to compete in the global Salon du Chocolat in Paris, France. Certainly the newly forged links with international markets and fine-chocolate makers will help to drive future research in Vanuatu and help local cocoa farmers to gain the maximum possible benefit from this promising industry.

### More information:

<http://aciarblog.blogspot.com.au/2014/11/vanuatu-chocolate-its-all-in-smell.html>



1. Litamat Benua, mother of four, is a proud farmer from Bremway village on Malakula Island, Vanuatu. Litamat talked passionately about the role of female farmers with cocoa farmers.
2. Drying beans on mat under cover.
3. Basille, manager of the Cocoa Growers Association, shows Denis Nambbith and other farmers techniques for scraping cocoa tree trunks to promote new growth. Basille supports the cocoa growers' co-operatives across Malakula Island, Vanuatu.

organisational structures to overcome cashflow issues based on their own experiences with other growers around the globe.

Furthermore, the companies are supporting a small chocolate factory at the Association for Alternative Communities Trade in Vanuatu (ACTIV) in Port Vila. ACTIV is a Vanuatu-based non-government organisation. The director of ACTIV, Sandrine Wallez, is a key PARDI project cocoa-chain partner. Her role includes connecting the research scientists, government agencies, growers and chocolate companies.

Bahen & Co and Haigh's Chocolates recognise the importance to growers of receiving quick feedback on bean quality and benefiting from price premiums when they reach higher quality standards. To address these two key issues, Josh Bahen trained Ms Wallez in the art of fine-chocolate making. Likewise, Ben Kolly and Peter Milliard from Haigh's Chocolates provide Ms Wallez with chocolate-making advice and guidance on storing and packaging.

A local bakery and an ice-cream maker are keen to add Vanuatu chocolate as an ingredient in their products. In addition, the cruise ships visiting Port Vila recently began organising tours to visit ACTIV. Soon, the tourists will be

able to buy Vanuatu chocolate and learn about the growers, communities and the islands where the cocoa beans are grown.

### ACHIEVING BROADER IMPACTS

Today, PARDI's Vanuatu cocoa value-chain project includes an increasingly diverse research community. Improving the lives of the cocoa growers and their families remains the focus of the project's efforts. Eight producer groups from four islands represent more than two-dozen communities, expanding its reach to 1,000 cocoa-producing households, or 4,000 people.

At the retail end of the cocoa value chain, the artisan and luxury chocolate-makers consortium is expanding in positive ways. Rodney Nikkels, the owner of Dutch company Chocolate Makers, plans to visit Vanuatu in 2015. Like Bahen & Co, Chocolate Makers acts as a 'lead representative agent' for dozens of other artisan chocolate companies in Europe and North America actively searching for suppliers of South-Pacific cocoa beans.

This larger private-sector consortium of artisan chocolate companies seeks research support to understand how they, as a group,

can cooperate, innovate, organise and operate at a more effective scale or develop appropriate structures to support South-Pacific producers, households and communities—from Fiji, Papua New Guinea, Samoa and Solomon Islands, as well as Vanuatu.

By continuing their collaborative research with chocolate makers across Europe and North America through the auspices of Bahen & Co and Haigh's Chocolates, the Pacific island cocoa growers look set to expand their exports to the luxury chocolate market, and bring greater prosperity to their communities. ■

### ACIAR project: AGB/2008/044:

Pacific Agribusiness Research for Development Initiative. PARDI Research Activity 2011-01 Facilitating improved livelihoods for Pacific region cocoa-producer networks through premium market access

Other Pacific cocoa projects: ASEM/2012/072, HORT/2008/046, HORT/2012/026, HORT/2013/032

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# SMALLHOLDERS LINK TO SUPPLY SUPERMARKETS

A food safety crisis in Vietnam has opened the door to smallholder vegetable producers in the north-western highlands to pioneer an agribusiness model that is now supplying Hanoi with certified safe produce

BY GIO BRAIDOTTI

New vegetable supply chains developed in an ACIAR agribusiness project have linked Vietnamese smallholder farmers in poor highland villages in the Moc Chau District with the modern retailers that are changing the way people shop in Hanoi.

Even midway through the proof-of-concept stage, 43 participating farmers in three villages more than doubled their household income to 26 million dong (A\$1,500) in 2013. This was achieved by retailing vegetables produced in an innovative, value-adding system. It was custom built for the farmers by an ACIAR team of public and private research, development and extension providers in Australia and Vietnam.

The key to the project's marketing success hinged on three innovations. First, the ACIAR team exploited the villages' good soil and elevation to produce temperate vegetables—such as tomatoes, lettuce and cabbage—when demand is high but supplies are low. This occurs during Hanoi's hot summer months.

Second, growers were encouraged to adopt accredited 'safe vegetable' agronomic practices. These practices aim to eliminate health risks from pesticide and nitrogen fertiliser residues, which are so prevalent in Vietnam's existing supply chains that they are considered to be a major concern by both consumers and government.

Third, the ACIAR team engaged with the market and created direct links between Moc Chau farmers and retailers supplying Hanoi to exploit the district's climatic advantages.

In the process, the project established that, by working together in a coordinated fashion, remote smallholder farmers can reliably meet the supply needs of modern chain stores, supermarkets and hypermarkets. This can be achieved, despite farms being less than one hectare in size.

Furthermore, they can work together in ways that measurably profit the growers, retailers, consumers and the environment. The only 'pre-given' was the existence of good roads over the

200 kilometres that separate the villages from consumers in Hanoi.

The project is now nearing completion and its leader, Dr Gordon Rogers, director of the agribusiness company Applied Horticultural Research, says that neighbouring villages to the project sites are clamouring to adopt the new production, accreditation and marketing system.

"The project has enormous potential to expand," he says. "The dream is for the highland district of Moc Chau, Son La province, to imitate in the north (and in Hanoi) what vegetable producers in Da Lat have accomplished supplying

the south of the country and Ho Chi Minh City."

Production—even before the project's final harvest—has already reached 400 tonnes over an 18-month period. The retail value of those vegetables was estimated at about A\$2 million in Australian terms, given their 'safe vegetable' certification.

"The key to a broader rollout of project outcomes to more villages is an effective and sustainable link between the growers and modern retailers," Dr Rogers says. "That drives everything."

Currently participating are: Hanoi Metro



Cash & Carry, a self-service wholesaler catering to professional customers, such as hotels and restaurants, rather than end consumers; the supermarket chain FiviMart; the hypermarket Big C; the Son Ha Company; and a chain of safe vegetable stores called Big Green—with more retailers showing interest in participating.

Reaching out to those retailers, however, required a lot of technical innovation to not only improve the quantity, quality and consistency of vegetables, but also to provide assistance with safe vegetable quality-assurance systems and certification.

Training was also needed in postharvest techniques, in coordination with the retailers, and in record-keeping both to ensure the produce's traceability and to capture changes in socioeconomic activity in the three participating villages—Tu Nhien, Ta Niet and An Thai.

Surveys in Hanoi also established consumer associations with produce from the Moc Chau District and these associations were used to inform marketing strategies.

"It has worked really well," Dr Rogers says. "The farmers are keen, they are making more money and there is a lot of retail and consumer interest in the vegetables they are producing."

PHOTO SUPPLIED BY DR GORDON ROGERS



Dr Gordon Rogers (left) and Mr Duyen from the Ta Niet village. Dr Rogers heads an ACIAR project that linked smallholder vegetable producers in the northern Moc Chau highlands with markets in Hanoi. The highly successful project introduced a 'safe vegetable' production system that also exploits climatic advantages to deliver temperate vegetables when supplies in Hanoi are at their lowest during the hot summer months.

Delivery involved a partnership between the Northern Mountainous Agriculture and Forestry Science Institute, the Research Institute of Fruits and Vegetables, Hanoi University of Agriculture, the French Agricultural Research Centre for International Development (CIRAD), and the vegetable marketing firm Fresh Studio. Together they provide services related to sustainable agriculture, particularly agronomy, quality assurance, and coordinating supply and demand. Testing for pesticide residues is done by the Department of Agriculture and Rural Development, which also oversees 'safe vegetable' accreditation.

"Innovative public–private partnerships, or PPPs, are a key instrument to improve food security and agricultural sustainability in Vietnam," says Fresh Studio, the company that has provided platforms for national and international businesses to meet key stakeholders from the public sector.

"The successful results of agricultural projects implemented as PPPs show great opportunities for the participation of more foreign and domestic companies to realise the sustainable development of five industries in Vietnam, including vegetables."

Having laid the foundations for a new agribusiness model at the three participating villages, ACIAR team members have high expectations for Moc Chau's vegetables, especially given the growth in demand for vegetables in Vietnam of 6% per year.

Rollout of the model to more farmers and villages will occur in the next phase of the project, due to commence in the second half of 2015, at which time Dr Rogers will also undertake activities to ensure the model is self-sustaining and ultimately self-funding.

In the meantime, the established farmer groups have bought two trucks to take their produce to markets, set up new packing facilities, built protected cropping structures, and are now coordinating supply directly with the retailers.

They have even developed and registered a trademark, owned at the district level, to capitalise on their success with leveraging safe vegetable production techniques.

"If the sector can be successfully developed, forecasts show that regions in Son La could supply 50% of total consumption of temperate vegetables during the six-month supply window," Dr Rogers says. "There are gains not only for consumer welfare, but also in poverty alleviation and income generation for smallholder farmers throughout the province." ■

More information: Dr Gordon Rogers, project leader, Applied Horticultural Research, Australia, [gordon@ahr.com.au](mailto:gordon@ahr.com.au); Dr Rodd Dyer, research program manager (agribusiness), [rodd.dyer@aci.gov.au](mailto:rodd.dyer@aci.gov.au)



ACIAR project: AGB/2009/053: Improved market engagement for counter-seasonal vegetable producers in north-western Vietnam

## Fast facts

- Vegetable production in Vietnam is focused in the specialised production region of Da Lat and the urban–rural interfaces around Hanoi and Ho Chi Minh City that are under pressure from urban development. Neither area has the capacity to meet growing market demand for vegetables in the north of the country.
- The transportation of vegetables from Da Lat in unrefrigerated trucks means that poor-quality produce is offered to customers in the north, including Hanoi. Excess demand has been met by Chinese imports but has raised safety concerns over pesticide residues.
- Regulatory guidelines for safe vegetable production were first enacted in the late 1990s. By 2009, there were 40 provinces and cities nationwide involved with a total area of 60,000 hectares, which accounts for about 8.5% of the total vegetable cultivating area (705,300 ha).
- The rapid development of safe vegetable production areas introduced marketing opportunities and, with them, challenges relating to accreditation, monitoring and certification to build consumer trust.
- The price of 'safe vegetables' is usually 20–30% higher than that of regular vegetables.

# Biosecurity earns market premium

Developing and building consumer trust in 'clean supply chains' are part of Indonesia's market-driven strategy to reduce the spread of poultry diseases, particularly the deadly 'bird flu'

PHOTO: 123RF.COM

BY CATHERINE NORWOOD

Indonesian smallholder farmers have trialled and launched innovations to the egg and poultry production system that minimise food safety risks throughout the supply chain. Establishing this clean supply chain required ACIAR to engage with all parties in the poultry industry, from the contracting companies who provide day-old chicks and feed, to contracted poultry farmers, transporters, abattoirs and supermarkets.

The project culminated in the creation of the now popular 'Healthy Farm' brand of chilled chickens and fresh eggs for Indonesian supermarkets and provided a test of what it takes to develop a clean supply chain in the country's complex poultry sector.

The brand has also successfully tested consumers' willingness to pay a premium for the products delivered, as these products have continued to sell in supermarkets more than two years after the trial ended.

The brand was developed as part of an ACIAR-funded project in the Indonesian provinces of Bali, South Sulawesi and West Java. The project evaluated the potential of market incentives to improve biosecurity for non-industrial commercial poultry farmers.

In the first year of the four-year project, surveys at supermarkets in the three provinces indicated that consumers would be willing to

pay a premium of at least 10% for broilers or eggs from biosecure farms.

Lead researcher Associate Professor Ian Patrick, from the University of New England, says the premium reflects growing concerns among consumers about health and food-safety issues, particularly following the outbreak of highly pathogenic avian influenza (HPAI-H5N1)—better known as bird flu—in the country.

First diagnosed in Indonesia in 2003, the costs of bird flu have been significant, including the death or culling of more than 18 million birds, US\$1 billion (A\$1.2 billion) in economic losses, and more than 220 human deaths. The disease is now well established after spreading to 32 of Indonesia's 33 provinces.

Chicken is the primary source of meat protein for most of Indonesia's 240 million people, and more than 90% of broiler chickens are still sold through traditional markets. The trading of live birds is standard practice, but one that also creates a high risk of the build-up and spread of poultry-related diseases.

The remaining 10% of the broiler market is chilled product sold through supermarkets and poultry stores.

As part of its efforts to improve biosecurity and reduce the risk of poultry diseases, the Indonesian Government has indicated it would like to see the chilled product

market expand. However, the issue of trust in the chilled supply chain competes with concerns about disease.

When consumers buy a live bird they can check for themselves how healthy it is and they know their meat will be fresh. The same cannot be said of pre-packaged and chilled products.

The 'clean supply chain' developed for the Healthy Farm brand did not provide a certified or guaranteed product to consumers. Limited regulations and the ability to enforce regulations make this difficult to achieve. However, the brand offered assurance that the products were produced on approved and audited farms and that food safety risks throughout the supply chain were being actively assessed and managed.

When the project was initiated in 2008, the peak industry body, the Indonesian poultry industry forum, Forum Masyarakat Perunggasan Indonesia (FMPI), signed on as an official project partner. "This is the first ACIAR project to have an industry association as a formal project partner and the participation of industry was critical to the project's success," Associate Professor Patrick says.

Through the provincial industry partners, the project developed value-chain stakeholder training and management programs. More than 613 stakeholders



including 317 smallholder farmers received biosecurity training to help them better understand disease movement and how to reduce disease risk in and around the farm.

The idea behind the project was that the 'clean supply chain' would reward smallholder farmers for their investment in biosecurity through a premium price.

The support of government in Indonesia (national, provincial and local or 'kabupaten') was also important. Other project partners included the Directorate General Livestock and Animal Health Services, Bogor Agricultural University and Udayana University.

"Just bringing these stakeholders together has given them a greater understanding of how the industry works and their roles in it," Associate Professor Patrick says. "Stakeholders at all levels worked together to develop processes and protocols to approve farms, ensure hygiene and segregation during transporting and processing, and supply branded products to supermarkets.

"The involvement of a broad range of stakeholders has contributed to the continuing influence of the project beyond its official end date in 2012."

The trial of Healthy Farm branded broilers was most successful in Bali, where the abattoirs received an extra 12% from the supermarket to supply the new product, and consumers paid a premium of 38% over the price of regular chicken.

During the trial the Healthy Farm broilers made up about 10% of the total sold at the Carrefour supermarket in Denpasar, Bali. Following the trial, Carrefour has continued to stock a differentiated broiler product, although the company supplying the product has since adopted its own labelling and marketing.

In Makassar, South Sulawesi, the Healthy Farm broilers also attracted a premium for the short time they were on the market. However, the major success in this region was the development of Healthy Farm eggs.

"There was one very supportive egg producer who took on the project and worked with his customers to market the differentiated product, and he is continuing to do so," Associate Professor Patrick says. About 120 cartons of Healthy Farm eggs are being sold each month with a price premium of up to 56%.

The egg producers received a greater share of the premium price than the broiler meat producers. This is largely a reflection of the different market structures and more complex supply chains in the broiler industry.

Overall, Associate Professor Patrick says that egg and broiler producers involved in the project now have a better understanding

of disease movement and risk factors. As a result they continue to invest in improving the biosecurity of their farms, even though the benefits of a higher price for their birds is not flowing back to their farms.

"There are production benefits such as reduced mortality and better feed conversion rates, as well as the reduced risk of disease outbreaks. It appears these benefits are enough for producers to adopt better biosecurity practices."

There has also been a flow-on effect to neighbouring broiler producers, who have "looked over the fence" and begun to adopt some of the simpler biosecurity measures the project identified.

These include the use of boots used only in poultry sheds, footbaths to reduce the spread of disease, biosecurity signage, and fencing to keep wild birds out of poultry sheds. Videos produced in both English and Indonesian provide ongoing access to biosecurity information for growers.

ACIAR research program manager for animal health Dr Mike Nunn says the project has successfully developed a market model that addresses both biosecurity and foodborne diseases through the entire food chain. "In Indonesia, these issues are intrinsically linked in the minds of consumers," he says, noting that consumers in growing urban areas are increasingly prepared to pay more for food safety, and for high-quality, pre-prepared products.

"The model developed through this project could be adapted in other industries looking to improve their biosecurity," Dr Nunn says. "ACIAR has already initiated a similar project to develop biosecurity incentives in Cambodia's beef-cattle sector." ■

**ACIAR project: AH/2006/169: Cost-effective biosecurity for non-industrial commercial poultry operations in Indonesia**

**More information: Associate Professor Ian Patrick, project leader, University of New England, [ipatrick@une.edu.au](mailto:ipatrick@une.edu.au); Dr Mike Nunn, ACIAR research program manager (animal health), [mike.nunn@aciarc.gov.au](mailto:mike.nunn@aciarc.gov.au)**

**Videos produced in both English and Indonesian that provide ongoing access to biosecurity information for growers can be viewed at: [www.youtube.com/user/ACIARprojects](http://www.youtube.com/user/ACIARprojects)**

***Developing a clean market chain for poultry products in Indonesia* (ACIAR Impact Technical Report No. 82), is available on the ACIAR website: <http://aciarc.gov.au/publication/tr082>**

## Fast facts

**The Indonesian poultry industry:**

- is the country's primary source of meat protein
- employs more than 10 million people
- has an annual turnover of US\$30 billion (A\$36 billion) a year
- holds 13,000 markets a day
- produces 1.37 billion birds a year.

PHOTOS: IAN PATRICK



1. At the Healthy Farms launch in Makassar, egg supplier Rahmawati (left) with South Sulawesi Provincial coordinator Makassar, Hasmida Karikm.
2. Healthy Farm eggs.
3. West Java provincial coordinator Bugie Kurnianto (left) helps farmers to prepare a farm biosecurity plan.
4. Healthy Farm egg packaging.

## FOREIGN MINISTER LAUNCHES MARIA'S FAMILY BOOKS

The Foreign Minister, the Hon. Julie Bishop, was in Goroka, Papua New Guinea (PNG), in December 2014, to launch the 'Maria's Family' series of books, published by ACIAR. The books are bilingual (English and Tok Pisin) and were developed as part of an ACIAR-funded project that examined women's business acumen among smallholder food producers in PNG. They aim not only to teach key agricultural and marketing messages to women smallholders, but to also help build literacy for both mothers and their children.

Authors Professor Barbara Pamphilon and Dr Kym Simoncini (University of Canberra), and illustrator Damien Veal, developed two books: one on preparing and getting produce to market, and the other on saving money. After initial studies by the University of Canberra, along with the PNG National Agricultural Research Institute, Baptist Union PNG and Pacific Adventist University, the researchers discovered many women smallholders were making simple mistakes in marketing their produce, and almost all were not budgeting for their futures. They also found that the literacy rate among the women was low, and that many of the women were not comfortable attending traditional agricultural training due to their illiteracy. The researchers decided to address both issues in the one series of books, and that is how the 'Maria's Family' books were born.

The market book was produced in two versions (Western Highlands and East New

Dr Lalen Simeon (below left) presents Foreign Minister the Hon. Julie Bishop with the books at Goroka's Buk bilong Pikinini Library; and the Minister reads a large version of the book to children.



PHOTO: EVA KUSON, DFAT

Britain) so the women farmers can relate to the local illustrations and market types. Big Book versions of both titles were also produced.

The next steps are to train teachers on how to use the Big Books in the classroom and in after-school classes for illiterate mothers so they can support their children's learning. Village community educators who have already been trained as part of the ACIAR project will also be taught how to use these books in community activities such as church fellowship groups.

For more information about the launch, read ACIAR's assistant PNG country manager Rebecca Bogosia's firsthand account on the ACIAR blog (<http://aciablog.blogspot.com.au>). The books can be downloaded for free from the ACIAR website (<http://aciar.gov.au>). ■

## NEW FUNDING FOR BA WOMEN'S FORUM

Australia's Ambassador for Women and Girls, Natasha Stott Despoja, visited Fiji in November 2014.

The Ambassador met with business and community representatives as part of the Australian Government's 10-year Pacific Women Shaping Pacific Development Initiative, which aims to improve the political, economic and social opportunities for women in the region. She says communities cannot resolve the issue of poverty if women are not allowed to effectively participate in business.

While there, the Ambassador announced new funding for the Ba\*

PHOTO: MERE NAILATIKAU, DFAT



Trainee Urmila Devi presents Australia's Ambassador for Women and Girls, Natasha Stott Despoja, with a piece of mother-of-pearl jewellery created by the Ba Women's Forum.

## CELEBRATING 40 YEARS OF AUSTRALIAN AID



PHOTO: MARK GRAHAM

Foreign Minister the Hon. Julie Bishop with ACIAR Commissioners (from left) Dr Joanne Daly, Catherine Marriott, Dr Nick Austin, Don Heatley, Lucinda Corrigan, Dr Tony Gregson and John Cook, at the launch of a photographic exhibition in Canberra, December 2014, to celebrate 40 years of Australian aid.

Australia has been providing assistance to developing countries for many decades but it was in 1974 that the Australian Government established a single body to manage the aid program.

While the size and shape of the aid program has changed over the years, Australia's commitment to promoting prosperity and reducing poverty has remained strong.

ACIAR has been part of Australia's aid program since 1982. ACIAR plays a significant role in reducing poverty by increasing the production, competitiveness and sustainability of agriculture, through brokering collaborative research partnerships between Australian and developing-country scientists.

A book of the exhibition photographs can be downloaded from the Department of Foreign Affairs and Trade website ([www.dfat.gov.au](http://www.dfat.gov.au)). ■

Women's Forum—the umbrella body of all the women's organisations in Ba. The Ba Women's Forum has been working with ACIAR's Pacific Agribusiness Research for Development Initiative (PARDI) and the Ba Town Council to provide opportunities for women (including mature-aged and unemployed) to make mother-of-pearl jewellery. Through this initiative, the forum is empowering women by teaching them the production skills of mother-of-pearl jewellery and the associated business and marketing skills. Further information about this project can be found on pages 20 and 21, and in the ACIAR blog (<http://aciablog.blogspot.com.au>). ■

\*Ba is a town in Fiji, 37 km from Lautoka and 62 km from Nadi.



## CRAWFORD FUND FELLOWSHIP 2014

Each year the Crawford Fund awards a fellowship to a young, promising researcher from a developing country for training at an Australian institution. The 2014 fellowship was awarded to Dinar Hartawan, a veterinary virologist from the Disease Investigation Center in Denpasar, Indonesia.

While in Australia, Dinar trained at the University of Sydney's Faculty of Veterinary Science and at the New South Wales Department of Primary Industries' Elizabeth Macarthur Agricultural Institute. This training enhanced Dinar's diagnostic and epidemiological skills, and has prepared him to take a lead role in an ACIAR-funded project on classical swine fever in eastern Indonesia and Timor-Leste, due to commence in 2015.

Dinar also visited Canberra, where he met Indonesia's Ambassador to Australia, His Excellency Mr Nadjib Riphath Kesoema. He also made a presentation at ACIAR, in which he explained the top priority animal diseases in Bali and eastern Indonesia, which include rabies, avian influenza, brucellosis, anthrax and hog cholera. New technologies and tests that were part of Dinar's fellowship can now be transferred to help with the management of animal disease in Indonesia.

The Crawford Fund Fellowship for 2015 will be advertised in May 2015. More information is available on the Crawford Fund website ([www.crawfordfund.org/awards/crawford-fund-fellowship](http://www.crawfordfund.org/awards/crawford-fund-fellowship)). ■

PHOTO: YUDHI PRAMONO



2014 Crawford Fund Fellowship recipient Dinar Hartawan (right) with Indonesian Ambassador, His Excellency Mr Nadjib Riphath Kesoema.

## WORKING WITH CANADIANS TO IMPROVE FOOD SECURITY

ACIAR and Canada's International Development Research Centre (IDRC) have clubbed together to fund five projects in eastern and southern Africa to address food security problems. The projects are funded through Cultivate Africa's Future (CultiAF), a four-year, A\$15 million partnership between the two agencies. These high-quality research projects in Zambia, Malawi, Zimbabwe, Kenya and Uganda are running for 30 months and will promote the adoption of solutions to tackle persistent problems of food insecurity, as well as build capacity in the countries' national research institutions. According to Mellissa Wood, director of ACIAR's Australian International Food Security Research Centre, "the CultiAF projects have great potential to deliver commercial benefits and growth for the region". ■

PHOTO: LIZ OGUTU, ACIAR AFRICA REGIONAL MANAGER



At the launch of the CultiAF partnership between ACIAR and IDRC, (from left) Dr Pascal Sanginga and Dr Dominique Charron (IDRC), Dr Fiona Opio (Association for Strengthening Agricultural Research in Eastern and Central Africa), Dr Timothy Simalenga (Centre for Coordination of Agriculture Research and Development for Southern Africa), Mellissa Wood (ACIAR) and Alhaji Muhamed Sanoli (Sierra Leone Agricultural Research Institute).

## ACIAR AND SCOPE GLOBAL FORM ALLIANCE FOR VOLUNTEERING IN AGRICULTURE

ACIAR and project management organisation Scope Global have formed a strategic alliance to target the specific engagement of Australian volunteers in agricultural projects in developing countries.

While collaboration between the two organisations is longstanding, the alliance recognises the mutual benefits of engagement through the Australian Volunteers for International Development (AVID) program, which is administered by the Department of Foreign Affairs and Trade. Scope Global is a core partner of the AVID program.

Scope Global and ACIAR will work together to facilitate the placement of Australian Government-funded volunteers on ACIAR projects throughout the Indo-Pacific region.

Volunteer placements will support agricultural production, market supply and business development opportunities in the region. The alliance will promote links and the recognition of the role of volunteers in international agricultural research and development.

ACIAR and Scope Global have worked together for more than 10 years. Since 2002, ACIAR partner organisations in Australia have supported more than 150 skilled

Australians working on international agricultural research projects.

This new arrangement recognises the mutual areas of importance for ACIAR and Scope Global, the shared history of success and the common goal to encourage Australian specialists to volunteer their skills to develop solutions to agricultural problems in developing countries in direct support of the Australian aid strategy. ■

More information: [www.scopeglobal.com](http://www.scopeglobal.com), [www.australianaidvolunteers.gov.au](http://www.australianaidvolunteers.gov.au)

PHOTO: JESSICA PLUMMER, SCOPE GLOBAL



ACIAR CEO Dr Nick Austin (left) and Scope Global managing director Kym Davis sign a Memorandum of Understanding at Scope Global's Adelaide office in November 2014.

PHOTO: JESSY BETTY, SEEDS OF LIFE



1

PHOTO: ALEXIA SKOK, SEEDS OF LIFE



2

PHOTO: JESSY BETTY, SEEDS OF LIFE



3

PHOTO: CONOR ASHLEIGH, SEEDS OF LIFE



4

# 10 GOOD THINGS ABOUT COMMERCIAL FARMERS' GROUPS

There is great potential for commercial activity once the right crop varieties are in the hands of farmers

BY KATE BEVITT

There is an ageless philosophy that the Seeds of Life (SoL) program in Timor-Leste subscribes to as team members partner with the young country to build a vibrant primary industries sector:

**Give a man a fish and you feed him for a day; teach a man to fish and he can feed himself for a lifetime.**

In Timor-Leste that has meant helping farmers' groups grow high-quality seed of productive crop varieties for commercial sale. Since 2013, SoL has helped 57 farmers' groups with more than 1,500 members to become commercial seed producers (CSPs) under the National Seed System for Released Varieties (<http://seedsoflifetimor.org/national-seed-system>).

Following harvest, these producers sell up to half their seed to the Timor-Leste Government and NGOs for distribution to farming households, while traders and agricultural shops buy seed for resale in kiosks across the country.

Turning these farmers' groups into businesses has had many positive impacts. Here are just 10 benefits for farming families, the country of Timor-Leste, producers and the rural communities.

## For the farmers

### INCREASED ACCESS TO IMPROVED VARIETIES

**1** Past government efforts at distributing imported seed were often ineffective due to inappropriate varieties (incorrect genetics), variable seed quality (too old and with low germination) and late delivery (distributed past the optimum planting date). CSPs provide a more effective mechanism for getting improved seed into farmers' hands as they have a commercial incentive to have seed ready before the planting season.

### GREATER SEED CHOICE FOR FARMERS

**2** Improved distribution of the improved seed varieties enables farmers to access high-quality seed that is locally produced, productive, open-pollinated, reproducible and well-adapted to Timor-Leste's climate and soil. This gives families greater choice over the varieties they plant, instead of using varieties less suited to local conditions.

## For the country

### IMPROVED SEED SECURITY AND SOVEREIGNTY

**3** Having skilled and experienced Timorese farmers locally producing sufficient quantities of improved-variety seeds will help the country achieve its goal of seed security and sovereignty. The government stores reserve stocks of this seed, enabling the country to better withstand natural disasters and pest or disease outbreaks. The government also saves money by not having to buy, transport and store imported seed.

## For the producers

### GUARANTEED MARKET FOR BUYING AND SELLING SEED

**4** CSPs have a guaranteed buyer for their seed in the Ministry of Agriculture and Fisheries (MAF), which will forward-contract a specified amount of seed for the coming cropping season at an agreed price. Agricultural shops, NGOs, traders and other development projects are encouraged to do the same, improving producers' certainty that they can sell their seed after harvest.

### MONEY-MAKING OPPORTUNITIES

**5** Selling seed is a profitable business in Timor-Leste, where 63% of all households engage in crop production and subsistence agriculture is the main source of livelihood for many rural households<sup>i</sup>. In a country where 68% of the total population is considered poor<sup>ii</sup>, individual CSP members can earn hundreds of dollars each year, significantly more than the US\$110 (A\$135) average annual household income<sup>iii</sup>.

### ECONOMIC FLOW OF PROFITS

**6** Many groups reinvest money into their CSP business to build a seed warehouse, or buy group assets such as motorbikes and 1,000 or 2,000-litre steel silos. Members receive a portion of their group's profits, helping to support their families, renovate their homes and pay for their children's school fees. Extra profits also mean CSP members are likely to buy more food, as research shows that an extra dollar of income from selling food crops translates to 87 cents more spent on food consumption.

## MORE FOOD FOR EATING

**7** Beyond selling seed, CSPs also reserve undersized seed for their members to store and eat throughout the coming year. “Thanks to our good production results, the members are not only able to make a good living but also have food to eat,” says Martinho dos Santos, chief of Naroman CSP in the Liquica district. This higher agricultural production—thanks to the improved varieties—is notable in a country with some of the lowest yields in South-East Asia and where 62% of farming families experience one or more months of food shortage each year.

## SUCCESS BUILDS CONFIDENCE OF MEMBERS

**8** Making money and having success as a commercial producer builds the confidence of members, who independently start generating other business activities, such as raising livestock or running a kiosk. To support this, SoL has given business-plan training to each CSP to build their skills in managing group activities, finances and the marketing of seed.

“This training helped us understand how we can add another business activity [selling traditional Timorese fabrics] to the group to supplement our income from producing and selling seed,” says Belinda Ximenes, a member of Fitun Leste CSP in the Baucau district.

## For rural communities

### CREATION OF SOCIAL CAPITAL

**9** The activities and successes of a CSP help to strengthen the relationship not only between group members, but also with their wider community. SoL has helped interested CSPs establish savings and loans initiatives, thereby enabling members to securely save money and locally access credit. CSPs also share information and improved seeds with other community members and vulnerable households, so the benefits of the improved varieties are spread further.

### A POSITIVE EXAMPLE TO OTHERS

**10** CSPs are a positive example to other farmer groups and communities of their ability to make a successful livelihood from selling high-quality seeds. To encourage the sharing of their knowledge and experiences, SoL organises cross visits for CSP representatives and extension officers from each district to visit other CSPs in neighbouring districts.



PHOTO: CONOR ASHLEIGH, SEEDS OF LIFE



**1.** A farmer from the 26-member Rai Mean commercial seed producer group in Gariwai, Baucau district, sits on his group's bumper Sele maize yield. **2.** A milling machine used to prepare maize for eating. **3.** Women from a community seed production group in Natarbora, Manatuto district, show some of the group's Utamua peanuts. **4.** Labourers pick young rice seedlings on a farm outside Maliana, Bobonaro district. **5.** Francisco Jose Martinez tends to the Sele corn crop planted by his 10-member community seed production group outside Maubisse, Ainaro district. **6.** Alberto da Costa is a contract grower with Seeds of Life.

The introduction of improved food crop varieties has been a game changer in Timor-Leste. Now with commercial farmers' groups producing larger quantities of this seed, this will further strengthen Seeds of Life and the Timor-Leste Government's efforts to achieve food and seed security and sovereignty. ■

ACIAR project: CIM/2009/049: Seeds of Life 3

More information: Kate Bevitt, Seeds of Life communication adviser, [kate.bevitt@seedsoflifetimor.org](mailto:kate.bevitt@seedsoflifetimor.org)

More on project activities can be viewed at: [www.seedsoflifetimor.org](http://www.seedsoflifetimor.org), <http://vimeo.com/109073628>

## The Seeds of Life program

Seeds of Life (SoL), a program based within the Timor-Leste Ministry of Agriculture and Fisheries (MAF), is funded by the Timor-Leste Government, ACIAR and the Australian Department of Foreign Affairs and Trade. The SoL has been working since 2001 to identify more productive varieties of staple food crops. To date, 12 improved varieties of maize, rice, peanut, sweetpotato and cassava with 24–131% yield advantages have been released, and about 41,000 families (33% of food crop households) are already growing one or more of these varieties.

However, for the benefits of improved varieties to reach farmers, enough seed must be produced for commercial and community spread. That's why MAF–SoL launched the National Seed System for Released Varieties in mid-2013 to ensure farmers have secure access to good seed of improved varieties when the rains come.

A key tenet of this system is the involvement of private-sector actors—contracted farmers to produce certified seed, commercial seed producers to grow commercial seed, and traders and agricultural shops to sell the seed.

These commercial stakeholders also complement the more than 1,200 community seed groups producing low-cost community seed for planting by their 14,000 members and sharing or bartering in their communities.

<sup>1</sup> Government of Timor-Leste (2010): [www.statistics.gov.tl/category/publications/census-publications/2010](http://www.statistics.gov.tl/category/publications/census-publications/2010)

<sup>2</sup> United Nations Development Program (2013): [www.hdr.undp.org/en/2013-report](http://www.hdr.undp.org/en/2013-report)

<sup>3</sup> Centre for Development Economics, Monash University: [https://www.youtube.com/watch?v=h4LnPpSUepU&list=PL5-wYcyMylz\\_J9YdqCwyVSN215rsAbqol](https://www.youtube.com/watch?v=h4LnPpSUepU&list=PL5-wYcyMylz_J9YdqCwyVSN215rsAbqol)

# A CRAFT OF THEIR OWN FOR FIJIAN WOMEN

The intersection of pearl aquaculture, tourism and the handcrafting of unique jewellery is providing business opportunities for Fijian women that are being carefully nurtured by ACIAR

PHOTO: ISTOCK.COM

BY ELISE CRABB

**F**iji is a prominent tourist destination and ideal mooring point for cruise ships. It is not hard to understand why; Fiji has stunning natural scenery and renowned hospitality. As is often customary on holiday, tourists like to remember their visit by purchasing authentic locally made souvenirs. Unfortunately, many of the souvenir items found in Fiji are imported from outside of the Pacific region, which provides limited commercial benefits to Fijians.

A local industry in which this can be redressed is the pearl industry. Pearl farming is the Pacific region's most valuable aquaculture activity, presenting many beneficial opportunities along the pearl-industry supply chain: from the collection of oyster spat (juvenile oysters) to the production of half-pearls and pearl shell (a less complex technology than round-pearl production).

Furthermore, pearl shell, or mother-of-pearl (MOP), can be used to make jewellery and other artefact souvenirs.

ACIAR has been helping to develop the pearl industry in the Pacific region, particularly in Fiji and Tonga. While ACIAR-funded research has previously focused on the technical aspects of pearl production, it is now increasing its attention on value-chain analysis.

## VALUE-CHAIN ANALYSIS

The potential for local businesses is highlighted by ACIAR's Pacific Agribusiness Research for Development Initiative (PARDI), which has shown that approximately A\$5 million (FJ\$8.1 million) worth of pearl handicraft items are imported to Fiji each year.

There is also an estimated annual market value of A\$2.5 million (FJ\$4 million) for Fiji's MOP jewellery, of which only about 10% is currently met by local production. This represents considerable potential for local handicraft production, particularly if geared towards items with a unique Fijian identity. The Fijian pearl project is working to lift the standard and volume of Fiji's pearl industry to meet consumer demand, while empowering local women through the process.

Ba is an agricultural and tourist town in Fiji, located 62 km from Nadi, and has been the focus for Fiji's MOP project. As part of this project, the PARDI research team is working with the Ba Women's Forum (an umbrella organisation comprised of 79 women's groups in the Ba district) and the Ba Town Council to teach local women (and some men) the skills of MOP handicraft and jewellery production.

In 2014, the University of Adelaide organised and ran a series of MOP training workshops for the Ba Women's Forum. The workshops

engaged Marie Erl (a New Zealand-based traditional jewellery designer and trainer) and Robert Kennedy (a Fijian fashion designer) to teach trainees about the design and production of high-quality pearl-shell jewellery and handicraft items.

Dr Maria Doton, chair of the Ba Women's Forum, praises the project for already changing the lives of the local Ba women. "In the 12 months since the training started, the mindset of the trainees has changed," she says. "The women have become more independent, confident, enthusiastic and business-minded. They look forward to the day they will have a stable source of income and improve their financial status."

By the end of 2014, the workshop trainees were introduced to the challenges of retailing, including producing enough stock to meet demand, developing packaging and product presentation, and appropriate pricing models. The project launched a trial retail campaign and is now monitoring sales and customer reaction to the products.

The project group has designed and produced two jewellery ranges: everyday-wear items, which range in price from FJ\$20 to FJ\$80 (A\$12 to A\$50), and fashion-wear items, ranging from FJ\$120 to FJ\$200 (A\$75 to A\$125). There is a niche market for these high-quality products



1. Ba Women's Forum team (from left): Marie Erl, Dr Maria Doton (chair of BWF), Vani Saurara (trainee) and Theo Simos (project manager, University of Adelaide).
2. The Fiji-made mother-of-pearl jewellery is presented with the Ba Women's Forum's story about hand-made merchandise printed on the inside cover of the boxes.
3. Trainees learning the technical skills of jewellery making.
4. Australia's Ambassador for Women and Girls, Natasha Stott Despoja, meeting with trainees and seeing their mother-of-pearl jewellery.

and they have been developed to differentiate from imported products in the market. The MOP project is also working towards getting 'Fijian made' country-of-origin accreditation, to indicate their products are high quality, unique and not imported.

#### PRIVATE-SECTOR ENGAGEMENT

The MOP project team has been engaged with the buying and design team from Tappoo department stores to trial sales of their MOP jewellery products in the Suva and Sigatoka stores. Tappoo is a complementary retailer for selling the jewellery as it is popular tourist stop in Fiji, especially for cruise ship passengers, and they stock high-quality products.

Working with a private-sector retailer has allowed the Ba women involved in the project to gain an insight into how commercial businesses are run. Some of the Ba women have travelled to Tappoo in Suva to promote the MOP jewellery in-store and to learn practical business skills.

This experience develops the women's customer-relationship skills, including understanding customer needs, product promotion and customer education, dynamics of sales, customer satisfaction and operating in a competitive market.

The in-store experience also provides the women with marketing skills including

merchandising, product placement and point-of-sale promotions, pricing and trading margins, product awareness and commercial transactions. So far sales have been encouraging and it is anticipated this will continue to improve. In its next phase, the MOP project will identify and develop wider channels for marketing and distribution.

The global economic, political and social environment all influence the tourism industry and can impact the local Fijian market. It is therefore very important to identify and target particular segments of the market where these products have appeal and meet tourists' needs and wants.

#### FUTURE DREAMS

The MOP project not only provides an opportunity to empower local women, but it is also producing important products for the tourism market—beautiful MOP jewellery and handicrafts. Over the next two years, women from the Ba Women's Forum will participate in further workshops to learn about distributing products, expanding their jewellery-making skills, and developing their business and marketing acumen.

The long-term goal is for the women trainees and value-chain representatives to build their own business models and establish

#### PARDI

The Pacific Agribusiness Research for Development Initiative (PARDI) is a partnership involving the Secretariat of the Pacific Community, the University of the South Pacific and a consortium of Australian organisations, funded by ACIAR. The initiative is made possible through the Australian Government's focus on developing opportunities for high-value agriculture, forestry and fisheries products in Pacific island countries. Australian organisations include: University of Queensland, University of Adelaide, University of the Sunshine Coast, James Cook University, Southern Cross University and the Queensland Government.

their own jewellery and handcraft-making businesses for sustainable and profitable livelihood benefits. ■

ACIAR project: AGB/2008/044: PARDI Research Activity 2010-01 Supporting development of the cultured pearl industries of Fiji and Tonga

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# TIMBER QUALITY AND WORLD TRADE CHALLENGE JAVA'S FURNITURE MAKERS

ACIAR partnerships are helping smallholders make the most of their timber in Java's central furniture-manufacturing region

PHOTOS: KRIS SUGIYANTO



Hand crafter making a mahogany cabinet.

BY HOLLY REID

**A**t the centre of Indonesia's furniture industry is the Javanese region of Jepara. For the past 100 years, furniture making has been the region's main economic activity, contributing to more than a quarter of local incomes. It also constitutes 10% of the country's furniture exports.

The industry is characterised by more than 12,000 companies, mostly small-to-medium enterprises (SMEs). These form a long supply chain from tree growing to exporting. It spans loggers, processors, carpenters, retailers and traders.

Despite keen international interest in carved furniture products, thousands of livelihoods that depend on furniture manufacturing in Jepara are at risk, owing to inefficiencies along the supply chain. These create difficulties for small-scale businesses trying to compete in a global market.

## SUPPLY CHAIN CHALLENGES

At the processing level, demand for timber outstrips supply and furniture makers are increasingly reliant on younger and lower-quality raw materials.

There is pressure on SMEs to reduce waste

and improve the standard of timber. This is compounded by external pressure from the global furniture community for fair-trade compliance and sustainably sourced timber.

For manufacturers and retailers, the seller-buyer relationships are largely confined to domestic brokers, who absorb up to 50% of the sale profits.

A lack of business acumen exists within SMEs, many of which do not keep financial accounts or know how to efficiently market their products.

To help secure local timber markets and the future of the furniture-manufacturing industry, ACIAR has been involved with the rollout of two projects in Jepara aimed at strengthening the supply chain and protecting the future of small-scale enterprises in the community.

## AT THE SOURCE: IMPROVING FURNITURE QUALITY

In 2009, ACIAR began a project that investigated the use of plantation timber for furniture production in the Jepara region. Working directly with SMEs, the project aimed to improve sawing, drying, treatment, manufacturing and finishing practices, and to enhance the quality of wood products made from plantation timbers.

One particular challenge facing SMEs was an increased reliance on younger teak, which was being harvested early to meet farmers' need for cash incomes.

"Younger teak requires different processes for sawing, drying, treatment and finishing to maintain its quality," explains ACIAR's research program manager for forestry, Tony Bartlett.

The project delivered a series of initiatives to improve wood-processing techniques and to add value to the finished product. In the process, it strengthened links between SMEs and partner organisations in education, research and training.

"Building strong networks was an integral part of this project, with many stakeholders coming together to upskill SMEs across the region," says project leader Associate Professor Barbara Ozarska from the University of Melbourne. "This was done through project workshops, seminars and courses, as well as training materials, which were distributed throughout the community."

Improved drying practices, trialled as part of the project, reduce the risk of degradation such as warping or cracking. The Indonesian Government and industry partners recognised these benefits and banded together to establish a community-owned kiln for SMEs in Jepara that did not have the resources to set up their own.

"It's such an excellent example of what you can do with ACIAR research when the private sector is involved," Mr Bartlett says. "If you get a community working together to achieve a common good, everyone is able to contribute something along the way."

### TO MARKET, TO MARKET

As well as improving the quality of wooden furniture in the region, ACIAR has partnered with SMEs at the retail level to help improve the cost-benefit flow back into the community. Collaborating with Australian and Indonesian forestry research agencies, including the Center for International Forestry Research (CIFOR), another ACIAR project is working with SMEs to strengthen their market position.

Through the establishment of the Small-Scale Furniture Producers Association (APKJ), more than 200 SMEs in the Jepara region have come together to improve bargaining power against larger Indonesian companies and international furniture markets, such as Vietnam and China.

The APKJ has set up initiatives to support SMEs in the development of practical marketing skills. This has enabled their participation in domestic and international trade exhibits, as well as the development of an online retail

## Indonesia's President a Javanese furniture maker

Newly elected President Joko 'Jokowi' Widodo's first job was in his father's furniture workshop. He eventually started his own business in the industry before making the move to politics. President 'Jokowi' has not forgotten his roots. His famous nickname was in fact coined by a French furniture buyer who had come to Java in search of the island's famous wood products.



portal, reducing the need for domestic brokers and 'middlemen'. The APKJ is also working with SMEs to meet growing demand for fair-trade products and tabling local policy to guide the sustainable development of the industry in future years.

According to project leader Dr Herry Purnomo from CIFOR, these efforts are helping SMEs return greater profits and stabilise the future of the industry.

"Involving multiple stakeholders from across the industry in the design and execution of a project is the only way to create long-term, sustainable change," he says. "If we are all committed to solving the problems, then we all become a part of the solution." ■

**ACIAR projects: FST/2006/117: Improving added value and small medium enterprises capacity in the utilisation of plantation timber for furniture production in Jepara region**

**FST/2007/119: Mahogany and teak furniture: action research to improve value chain efficiency and enhance livelihoods**

**More information: Tony Bartlett, research program manager (forestry), [tony.bartlett@aciar.gov.au](mailto:tony.bartlett@aciar.gov.au)**



Top: FST/2006/117 taught hand sanders how to sand correctly as well as providing them with masks as part of an occupational health and safety campaign.  
Above: Hand crafting of wooden teak chair.

# The rise of private investment in peanut R&D

The unique nature of ACIAR-brokered research partnerships can have special pay-offs for private companies, as in the case of ACIAR projects that generated incentives for private-sector investment in agricultural research and development in Australia

BY GIO BRAIDOTTI

**M**aintaining a viable peanut industry in Australia requires a competitive edge to survive within global commodity markets. That edge currently takes the form of high-value, 'Hi Oleic' peanut varieties with a unique and highly sought after oil biochemistry.

The industry's success, however, owes a great deal to the participation of Australian peanut breeders in ACIAR projects that improve cropping outcomes for smallholder farmers, particularly in India and Indonesia. It was a research and development (R&D) engagement that culminated in the introduction of important traits into both ACIAR's partner countries and certain Australian peanut varieties.

The genetic resources were brought to light by ACIAR's longstanding commitment to germplasm enhancement with partner countries in Asia.

The biological traits of Australian peanuts that provide the competitive advantage for food manufacturers are a high oleic acid content (such that the peanut oil resembles the profile of olive oil) and large kernels, which stay fresher longer. For growers, there are traits based around high yields, early maturity to avoid drought (which in turn reduces the risks of contamination from dangerous fungal toxins) and resistance to multiple diseases.

The resulting market success of the Australian varieties has encouraged private-sector investment in the Australian peanut-breeding program, with the majority of current costs absorbed by just one private entity—the Peanut Company of Australia (PCA)—in a joint breeding program with public-sector entities, the Queensland Department of Agriculture, Fisheries and Forestry and the Grains Research and Development Corporation.

It is a massive investment in agricultural R&D for a medium-sized company. However, the company's manager for breeding and innovation, Dr Graeme Wright, says that the scale of the investment reflects the value PCA



Lombok peanut farmer.



obtains from improved genetics.

“With PCA’s investment in R&D it is all about innovation and trying to differentiate our product in the market,” Dr Wright says. “And that comes down largely to plant breeding and developing peanut varieties with traits that the market really wants.

“That’s why there has been such a focus on quality traits in our breeding program; and it was ACIAR projects going back nearly 20 years that played a significant role in our investment portfolio.”

PCA is an old company—it was established in 1924—yet has routinely played innovative and visionary roles in the peanut industry. Today, PCA is involved in all aspects of the peanut-processing value chain, from developing new crop varieties to drying and shelling, grading, blanching, sorting, roasting and marketing.

While PCA has never partnered directly with ACIAR—at least not yet—key staff members such as Dr Wright have.

Prior to joining PCA in 2007, Dr Wright was one of the scientists at the then Queensland Department of Primary Industries, funded by ACIAR to improve the productivity of legume crops (such as peanuts), which play a vital role in many tropical smallholder farming systems.

“I was involved in ACIAR projects from 1986 to 2005 and I did a lot of work on the development of drought-tolerant and early-maturing peanut varieties,” Dr Wright says. “We were able to access really interesting and unique genetic resources that have underpinned a lot of the variety development in Australia.”

The first peanut plants were wild, woolly and unsuited for cropping, he recalls. That means the starting kernel size, taste and oil chemistry were not appropriate for Australian crop varieties. It required many years, a lot of expertise and some luck to exploit some of their unique traits in commercial production systems.

“With the earliest ACIAR projects, it was all about germplasm enhancement,” Dr Wright says. “The material we worked on was raw but it was unique globally.”

All the ACIAR project partners have since developed their own varieties, including through Indian breeding programs. Each country’s scientists worked on producing varieties relevant to their farmers’ cropping needs, with project outcomes producing independently verifiable benefits in each country.

“For the Australian team, the engagement with ACIAR allowed us to develop a really viable team of peanut breeders, physiologists and pathologists to work on a range of different problems in Australia,” Dr Wright says.

“Internationally, it opened our eyes to

the scale of the problem facing breeders. Then there was the access to highly diverse germplasm and different strategies of breeding. Overall, it was a really productive project.”

Today, Australia is one of the few exclusive processors of Hi Oleic peanuts and PCA’s trading partners include some of the world’s leading food manufacturers.

Additionally, the high yields from cultivars developed with PCA investment allow Australian farmers to remain price competitive relative to imported varieties. PCA is also looking at commercialising its varieties internationally.

“The whole area of international commercialisation is mainly about protection of intellectual property,” Dr Wright says. “So we are cautious about who we partner with to avoid losing control of our unique genetics.”

Dr Wright would also like to see the company engage with ACIAR directly in the future. In November 2014 in Canberra, he attended an ACIAR workshop on stimulating greater private-sector engagement in research-for-development projects.

The conference highlighted the reasons why private companies are motivated to engage with the public sector, including access to science innovation, research credibility and capacity building.

According to Dr Wright, a private company such as PCA is generally interested in investing in R&D if it gets a competitive edge in the marketplace. However, government initiatives are about public good, public access and public accountability. So a key element in developing successful partnerships between the public and private sectors is identifying the common goals with mutual benefits.

Dr Wright thinks opportunities for public-private co-benefits are particularly valid in the area of long-term, pre-commercial pre-breeding (that enhance germplasm but do not produce the finished varieties that farmers grow). He also sees opportunities in training graduates on market realities and R&D strategies that are market-driven and outcome-orientated.

“PCA is part of Australian Research Council training centres at both the University of NSW and the University Sydney,” Dr Wright says. “That is a really good model of engaging public and private sectors to assist agricultural science students to work with industry on real-world issues.”

He thinks the model could work well in developing countries wherever the divide between public and private-sector R&D is especially huge. Such a model could see a company such as GarudaFood in Indonesia host government-funded students in the form of an industry placement that broadens and deepens

the student’s experience and prospects.

There may also be opportunities for PCA to develop early-maturing, foliar-disease-tolerant, high-biomass, forage-type varieties into tropical northern Australia and countries such as Indonesia, where using the vegetative components of the peanut plant for feeding animals is an increasingly important role of peanuts in crop-livestock systems.

“Unless you explore opportunities for new kinds of relationships no-one knows what you might end up with,” Dr Wright says. ■

**ACIAR project: SMAR/2007/068: Productivity and profitability enhancement of tropical pulses in Indonesia and Australia**

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PHOTO: CLARISA COLLIS

Dr Graeme Wright, Peanut Company of Australia.



PHOTO: PEANUT COMPANY OF AUSTRALIA

Peanut Company of Australia, Kingaroy, Queensland.

# TRACTOR POWER

## SUBSISTENCE TO SURPLUS

The right kind of machine can help transition smallholder farmers from subsistence levels of production to income-generating surplus, while also creating private-sector economic activity in rural communities through supplying and repairing machinery

FACASI field trials in Laikipia, Kenya.



PHOTOS: DR. FREDERIC BAURON, CIMMYT

BY KATE LANGFORD

### "The hoe has to go!"

This was the catchcry repeated many times at the African Green Revolution Forum held in Ethiopia in September 2014.

In order to transition a smallholder-driven agricultural system from human to machine power has many challenges, not least of which is demonstrating the benefits of mechanisation to farmers for whom it is unknown.

Added to this is the need to ensure a functioning business sector that can supply and repair suitable farm machinery.

A 4-year ACIAR project in Sub-Saharan Africa is working to address these challenges: the Farm mechanisation and conservation agriculture for sustainable intensification (FACASI) project aims to identify and test two-wheel tractors (2WTs) that are suitable for local conditions.

The project also aims to develop appropriate business models to deliver these tractors to smallholders, and identify institutional and policy constraints and opportunities that may influence their adoption.

The project is operating in Ethiopia, Kenya, Tanzania and Zimbabwe in places characterised by smallholder mixed-cropping systems, largely maize and legumes. Work is focused on two sites in each country with the hope of wider adoption in the region.

#### MACHINE POWER

2WTs are relatively inexpensive, easy to operate and easy to maintain. Furthermore, they have a proven track record transforming smallholder farming practices, having been widely adopted in India and Bangladesh.

A range of 'accessories' can be fitted to these tractors to perform different farming functions,

including trailers to transport inputs and produce. The tractors can also serve as a stand-alone power source and be fitted to water pumps, wheat threshers or maize shellers.

In Africa, 2WTs have the potential to make many improvements to farming practices. They can increase the area of land that can be cultivated, thereby increasing profits and improve livelihoods. They can reduce labour costs and free up family members to pursue other income-generating activities. The tractors also have potential to increase rural employment opportunities, such as through fuel supply, repair services and hire businesses.

While the main beneficiaries of 2WT technology are expected to be smallholder farmers, particularly women, the project's efforts are strongly focused on engaging those involved in the private sector.

According to Dr David Kahan, agribusiness



Project partners demonstrating two-wheeled tractors at project launch.

specialist with the International Maize and Wheat Improvement Center (CIMMYT), the private sector in this case includes farmers, small enterprises, importers, dealers, manufacturers, mechanics and many businesses that operate as a combination of two or more of these.

“We have dealers who are also importers, and dealers who run small repair workshops or stock spare parts,” Dr Kahan says. “Then there are manufacturers of equipment and accessories such as ploughs and trailers.”

Added to this are two types of service providers: small commercial enterprises (which in some cases are farmers) and producer organisations/farmer cooperatives. These service providers typically own machinery and offer agricultural services that use the machinery.

Through the project, Dr Kahan and colleagues are seeking to unravel the complex web of potential private-sector partners. They aim to identify the main players and promote business models that can function in an unsubsidised way to support the introduction of 2WTs at the project sites and into African agriculture more widely.

“There are gaps in the chain because of the newness of this technology in Africa,” Dr Kahan says. “What we are trying to do is fill these gaps and strengthen the linkages in the supply chain.”

He outlines how, with this project, the private sector is being engaged early on to generate awareness of the potential of 2WT technologies, and to ensure that marketing systems are in place and ready for when suitable tractor models come off the ‘research line’.

This research line is the other arm of the FACASI project, which involves systematically testing the most suitable 2WT technology at the study sites over a couple of seasons and, importantly, creating awareness about them.

“Farmers in Africa are largely unaware of the existence of the tractors and what they can offer,” says project leader Dr Frederic Baudron, cropping system agronomist with CIMMYT. “In the four countries where we are working, there is a big difference in awareness about 2WTs and we need to demonstrate how the tractors can improve farm productivity.”

In 2013, public and private-sector representatives—agricultural engineers, agronomists, machinery importers and machinery manufacturers—from the four

countries took part in a study tour to India so they could see various low-cost technologies for postharvest operations and weeding, sowing, fertilising, spraying and harvesting in operation.

While 2WT technology is new to Ethiopia and Zimbabwe, in Kenya there are some machines that were introduced through non-government organisations. In Tanzania over the past 10 years, the government has had credit schemes in place to encourage farmers and service providers to purchase 2WTs imported from China. This has created a market for the technologies and the private sector is stepping in to take advantage of these business opportunities.

With a full package (2WT plus accessories) costing between US\$5,000 and US\$6,000 (A\$6,150 and A\$7,400), Dr Kahan believes it may be the better-off smallholders, private-sector service providers or farmer groups who are most likely to promote the technology in Sub-Saharan Africa—that is, once they become aware of the multiple benefits it could offer.

“This follows the general trend globally in mechanisation where it is the more ‘entrepreneurial’ farmers who are most likely to start out,” Dr Kahan says.

#### OPPORTUNITIES AND CHALLENGES

While the uptake of 2WT technology has been rapid in Bangladesh—with one out of every 30 users owning a tractor—there are hurdles to overcome in Africa.

“In Bangladesh, rice-paddy farming is the predominant cropping pattern and population densities are high,” Dr Kahan says. “This means there is always a demand for the equipment close by. In Africa, we are dealing with mixed-cropping systems, lower population densities and hard soils that 2WTs cannot always plough.”

The hard soils present an opportunity for the project to encourage the adoption of conservation-agriculture (CA) principles. The tractors are able to sow seeds in unploughed fields (a practice known as minimum tillage), which is a feature of CA. The use of tractors instead of animal draught power also reduces the need for crop residues to be used for animal fodder. Instead, they can be left in the field to provide soil cover, another principle of CA.

Melissa Wood, director of ACIAR’s Australian International Food Security Research Centre, highlights how Australia is considered a world

leader in CA. “The FACASI project offers an opportunity for Africa to draw on our expertise while at the same time introducing labour-saving mechanisation that allows farmers to sustainably intensify.”

Training was recently conducted for Kenyan and Tanzanian service-provision entrepreneurs on 2WT-based CA and on business models, financial management and marketing. It is anticipated that these entrepreneurs will extend this knowledge to other rural service providers as the project develops.

Another element of 2WT technology that Ms Wood is particularly passionate about is its ability to reduce the burden of farm labour, which rests heavily on the shoulders of women in Africa, literally.

In Africa, women perform most of the labour-intensive tasks involved in farming, such as weeding, threshing, shelling and transporting inputs and agricultural commodities to and from the market by head-loading. “Mechanisation of transport and postharvest operations would directly reduce women’s labour burden,” Ms Wood says.

Early gender analysis, conducted as part of the project, is showing that mechanisation of tasks considered the domain of men could also indirectly reduce women’s labour burden. Mechanising land preparation and seeding could reduce women’s workload in weeding and caring for livestock.

Dr Kahan also believes 2WT technology offers tremendous entrepreneurial opportunities for women, especially as education in Africa improves at a rapid rate, and more credit schemes open up targeting rural women entrepreneurs.

With three years still to go with the FACASI project, it remains to be seen how many hoes will be replaced with 2WTs. But as more farmers see the benefits of mechanisation, and more businesses and entrepreneurs seize the opportunities, we may well be on the verge of an agricultural revolution in Africa. ■

ACIAR project: FSC/2012/047:  
Farm mechanisation and conservation  
agriculture for sustainable intensification

More information: Dr John Dixon, research  
program manager (cropping systems and  
economics), [john.dixon@aciar.gov.au](mailto:john.dixon@aciar.gov.au)

# Private–public engagement set to strengthen

ACIAR held a workshop in late 2014 to seek ideas for strengthening its engagement with private-sector partners

BY NICOLE BAXTER

Private-sector engagement has been part of ACIAR's poverty alleviation strategy for many years, primarily as a way to link-up improved on-farm productivity to markets. A renewed policy focus on this important area has also brought opportunities to further expand ACIAR's role and capability to bring the private sector into developmental projects.

To support this work, ACIAR brought together influential Australian and international leaders from private agribusinesses and the public sector. They met in Canberra to discuss opportunities and challenges to broaden the base of private enterprises engaging with agricultural development.

Fifteen private-sector representatives met with ACIAR Commissioners and staff, along with personnel from the Department of Foreign Affairs and Trade.

Private-sector attendees came from the Indo-Pacific region including Fiji, Indonesia, Singapore, Vietnam, Timor-Leste, the Philippines and Australia. They represented small and medium enterprises, large global corporations and finance companies.

Dr Nick Austin, ACIAR CEO, says the one-and-a-half day workshop highlighted ACIAR's status as an 'honest broker' of partnerships in helping to alleviate poverty in developing nations and particularly among small landholders.

Workshop participants encouraged ACIAR to engage more strongly with the private sector and to work through the challenges to chart a successful course.

"I think the thing ACIAR brings to the table is an enormous amount of credibility, it has reach and networks that extend around the world," says Don Heatley, a cattle producer from Queensland and ACIAR Commission Chair.

"The private sector is always looking for ways, places, people and networks to engage and, actually, that is what ACIAR has."

Dr Graeme Wright, manager for breeding and innovation at the Peanut Company of Australia, identifies extensive opportunities for greater engagement during the pre-competitive phases of agricultural research. In particular, he points to pre-breeding for stronger engagement. This involves sharing public and private resources to translate advances in biology into practical solutions for improved farm productivity. He says collaboration in pre-competitive research helps overcome challenges relating to ownership of intellectual property and targets the research to areas of interest to the private sector.

Dr Wright says overcoming these challenges requires plenty of dialogue, planning and transparency between public and private-sector partners before a project starts, to ensure there are "no surprises during the project".

He believes ACIAR needs to examine case studies of successful and non-successful private–public partnerships to learn what works and what does not.

"Start small and build up to bigger models, and put some runs on the board," he says. "It may take five or more years to decide the most effective model for operation."

Noel Janetski, Indonesia-based technical adviser to PT Koko Smart, sees three benefits for ACIAR in building closer links with the private sector: impact, mutuality and sustainability.

"There is a greater chance of success if ACIAR works with the private sector," he says. "By working together, we are more efficient because expertise is used from both sides."

Mr Janetski says the private sector has resources, markets and distribution systems, and that pooling resources with ACIAR would result in greater adoption of research findings and more lasting impacts on small landholders.

In terms of mutuality, he says collaboration between ACIAR and the private sector develops trust and transparency, improves the credibility of each party and leads to shared benefits.



PHOTO: HILARY WARDHAUGH 1



PHOTO: HILARY WARDHAUGH 2



PHOTO: HILARY WARDHAUGH 3



PHOTO: NICOLE BAXTER 4

1. Victorian grain grower and ACIAR Commissioner Tony Gregson (left) and ACIAR general manager corporate David Shearer at the ACIAR Private-Sector Engagement Workshop.
2. Private and public-sector representatives at the ACIAR Private-Sector Engagement Workshop held in Canberra in November 2014.
3. Evi Eriana Wirawan (Sinar Mas Forestry, Indonesia) and Catherine Marriott (ACIAR Commissioner) share a laugh at ACIAR's Private-Sector Engagement Workshop. Sinar Mas Forestry, with Evi Eriana Wirawan in the lead, have collaborated for about 10 years with Australian researchers on ACIAR projects in Indonesia to understand disease, site management and sustainability of tropical acacia and eucalypt plantations.
4. (From left) ACIAR Policy Advisory Council president Professor Kym Anderson (University of Adelaide), Dr Nick Austin (ACIAR CEO) and ACIAR Commission chair Don Heatley OAM.

Most importantly, Mr Janetski sees collaborative R&D as a sustainable approach because the outcomes are commercially relevant and have life beyond the project.

Victorian grain grower and ACIAR Commissioner Dr Tony Gregson agrees that having a positive impact on small landholders is about interacting with the value chain to improve production, marketability and scale.

"The private sector is already part of the value chain and ACIAR needs to develop principles of engagement with agreed objectives, values, requirements, statements about intellectual property and outcomes, milestones, ways of doing business and responsibilities before collaborative projects start," he says.

Singapore-based Andrew McConville, who heads corporate affairs at Syngenta Asia-Pacific, agrees, adding that any collaboration needs to focus on technology and solutions through the value chain. For success, he says ACIAR needs to take private-sector partners to value-chain opportunities.

"Often ACIAR can achieve better access to decision-makers within and between governments to build successful projects," he says. "It's able to do that because it represents the Australian Government, brings a robust methodology, focuses on private-sector gaps and prioritises small landholders."

However, Mr McConville says achieving stronger private-public-sector engagement will take time and require patience.

Dr Austin agrees with Mr McConville, and adds that his ambition is to make shifts in tangibly different ways. He says short-term, concrete actions include assessing the mutual benefits to Australia of stronger private-public-sector partnerships, carrying out systematic due diligence about partnerships by drawing on the expertise of existing and past private-sector partners, and articulating ACIAR's approach to risk to determine future areas of investment.

"The workshop was key in articulating where ACIAR wants to be in more strongly engaging with the private sector," Dr Austin says. "Where are we going with this? It's about changing the way we invest. It's about really looking at what ACIAR does." ■

More information: Dr Nick Austin, [nick.austin@aciarc.gov.au](mailto:nick.austin@aciarc.gov.au); Dr Graeme Wright, [gwright@pca.com.au](mailto:gwright@pca.com.au); Andrew McConville, [andrew.mcconville@syngenta.com](mailto:andrew.mcconville@syngenta.com); Dr Tony Gregson, [tgregson@netconnect.com.au](mailto:tgregson@netconnect.com.au); Noel Janetski, [noel.janetski@gmail.com](mailto:noel.janetski@gmail.com)

Videos on the private-sector workshop can be found on ACIAR's YouTube channel: [www.youtube.com/user/ACIARprojects](http://www.youtube.com/user/ACIARprojects)

## WHAT THEY SAID

"When working with ACIAR, we have an honest broker that can help to leverage the learnings from working together into other companies and into local government bodies as well."

– Noel Janetski  
COCOA CARE INDONESIA, MARS INC

"As a group of farmers, we are looking to forge international connections as a part of this strategy of developing northern Australia. We don't see our connectivity anymore with southern Australia but with Brazil and, particularly, Indonesia; and we see ACIAR as an important piece of glue in how we might go forward."

– Ian Baker  
MANGO FARMER, PRESIDENT OF  
THE NORTHERN TERRITORY MANGO  
INDUSTRY ASSOCIATION

"The people I've worked with at ACIAR have been real partners around the table. That is a big lesson and we expected similar when we went elsewhere and we just have not found it."

– Ernest Bethe  
INTERNATIONAL FINANCE  
CORPORATION

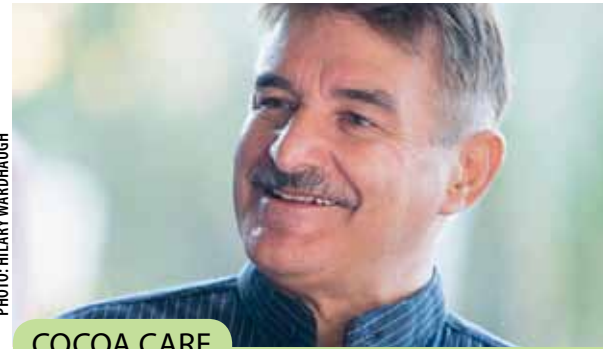
"What I'm interested in, is how a company like mine that is small and is private, can work with an organisation such as ACIAR because we have got ourselves involved with a couple of projects and we really, really enjoy it. I think there are a lot of opportunities for ACIAR from engaging more with companies like ours."

– Tom Lewis  
RDS PARTNERS, TASMANIA

"Scientists in Indonesia love to talk to Australian experts. ACIAR has deployed lots of PhD specialists working on forestry from the University of Tasmania to work with us, especially in the area of disease control."

– Evi Eriana Wirawan  
SINAR MAS FORESTRY, INDONESIA

PHOTO: HILARY WARDHAUGH



### COCOA CARE

**NOEL JANETSKI** runs PT Koko Smart, a family business that supports the Community Solutions International Cocoa Care program (see page 6). He assists with program development, farmer liaison, logistics, monitoring, reporting and problem-solving. He also directs the Mars Incorporated Marine Sustainability Program in Indonesia with a focus on development for small island communities and coral reef rehabilitation.

PHOTO: HILARY WARDHAUGH



### SYNGENTA

**ANDREW McCONVILLE** heads corporate affairs at Syngenta Asia-Pacific. Syngenta funds the Syngenta Foundation for Sustainable Agriculture—a non-profit organisation that seeks to help smallholder farmers become more professional growers. It focuses on productivity and the inclusion of farmers in remunerative value chains, particularly pre-commercial farmers, often in semi-arid areas, who display potential for agricultural growth. The Foundation runs projects in Africa, Asia, and Latin America, and contributes to agricultural policy development worldwide (see page 9).

PHOTO: HILARY WARDHAUGH



### PEANUT COMPANY OF AUSTRALIA

**GRAEME WRIGHT** manages breeding and innovation at the Peanut Company of Australia (PCA), which processes and markets high-quality Hi Oleic peanuts and peanut products. PCA is involved with all aspects of the peanut-processing value chain from developing new peanut varieties to drying and shelling, grading, blanching, sorting, roasting and granulating the final product (see pages 24 and 25 for more information).

## NEW APPOINTMENTS

**Dr Werner Stür** is research program manager, livestock production systems. For much of his working life, Werner has been involved in livestock research for development with a focus on forages, feeding and livestock production in smallholder farming systems in Asia. He has worked as a researcher for the University of New England, the University of Queensland and the International Center for Tropical Agriculture based in Australia, Lao PDR, the Philippines and Thailand. He did his undergraduate degree in Germany and PhD at the University of Queensland.



**Abigail Schol** is support officer, strategic corporate engagement. Abi comes to ACIAR with a Bachelor of Creative Industries. She has held communications and corporate roles in several government departments.



**Robyn Henderson** is manager, corporate engagement and communications. Robbie has held senior positions within both state and federal government, and has worked in a range of strategy and policy roles. Her qualifications include a Masters of Cultural Studies and Bachelors of Science, Arts (Hons) and Law (Hons). She has a strong interest in social justice and international development, and has worked in building capacity in several developing countries.



**Elise Crabb** is external engagement and media presence officer. Elise comes to ACIAR from Treasury, where she worked in several policy roles. Prior to that she worked in the Department of Industry, where she completed a graduate program and worked in diverse roles including communications for the Chief Scientist of Australia. She has bachelor degrees in commerce and science.



## FAREWELLS

ACIAR has farewelled the following staff members: Georgina Hickey (manager, external engagement and media presence), Stephanie Adler (executive officer, corporate governance), Bronnie Anderson-Smith (executive officer, food security centre), Mandy Gyles (public affairs officer), Wendy Henderson (science communicator), Souphalack Inphonephong (assistant country manager, Burma, Cambodia, Lao PDR and Thailand), Andrew Sinclair (manager IT) and Chiraporn Sunpakit (country manager, Burma, Cambodia, Lao PDR and Thailand).

## NEW PUBLICATIONS

For details on ACIAR's scientific publications series and corporate publications please visit: <http://aciar.gov.au/publication/latest>

## CORPORATE PUBLICATIONS



**ACIAR Annual Report 2013-14**

<http://aciar.gov.au/publication/ar2013-14>

## SCIENTIFIC PUBLICATIONS TECHNICAL REPORTS



**Experiencing and coping with change: women-headed farming households in the Eastern Gangetic Plains**

Kuntala Lahiri-Dutt

TR083

65pp., A\$38.00 (inc. GST)

<http://aciar.gov.au/publication/tr083>

Known as the 'feminisation of agriculture', farming women are no longer just part of the family labour unit, or just care for the household gardens. Because of increasing rates of male migration from poor farming households—usually to work in the cities—women have emerged as the key producers, performing a wide range of tasks related to planning, cropping, managing, processing and marketing, in and around the agricultural fields. Despite women's increased agricultural roles, in most developing countries rural women operate under serious constraints. They are often poorly educated, have little access to credit, markets, or training, are overburdened with domestic responsibilities, and have no title to the lands they till. This report is based on a survey into the issues, concerns and challenges of women-headed farming households in the Eastern Gangetic Plains—one of the poorest parts of the world, marked by male out-migration and deteriorating livelihoods.



### Sustainable plantation forestry in South-East Asia

C.E. Harwood and E.K.S. Nambiar  
TR084  
100pp., A\$46.00 (inc. GST)

<http://aciarc.gov.au/publication/tr084>

For the past 30 years, ACIAR has supported research on acacia and eucalypt species for plantation forestry, because of their potential for fast growth and production of wood suitable for a variety of uses. Future success and support for plantation forestry depends on achieving sustainable production with due environmental care from the current plantations. While some authors question the sustainability of short-rotation plantation forestry, there are few published studies that have looked at this issue in a systematic manner across many countries. This report reviews the state of knowledge and the current situation in plantation forestry in South-East Asia. The review emphasises that sustainability is not a destination but a journey, and that further research and creative partnerships between all stakeholders are required for successful progress.

## PROCEEDINGS



### A policy dialogue on rice futures: rice-based farming systems research in the Mekong region

Lisa Robins (ed.)  
PR142  
158 pp., A\$45.00 (inc. GST)

<http://aciarc.gov.au/publication/pr142>

ACIAR works closely with policymakers in partner countries to optimise the impact of its research-for-development investments. A policy dialogue on rice futures in the Mekong region was held at the end of

ACIAR's 5-year rice-based systems research program. These proceedings comprise the papers presented at the dialogue and synopses of the panel discussions. They emphasise that technical solutions alone are insufficient for improving the productivity and profitability of rice-based farming systems. Unless there are supportive policy settings, improvements in these systems will not occur.

## MONOGRAPHS



### Restoring agriculture after a tsunami: the experience from Aceh, Indonesia

New South Wales Department of Primary Industries  
MN159  
88 pp., A\$58.00 (inc. GST)

<http://aciarc.gov.au/publication/mn159>

The 2004 tsunami devastated coastal areas of the Indonesian province of Aceh, causing widespread destruction and loss of life. In collaboration with the Indonesian Ministry of Agriculture, ACIAR established a series of projects to assist with the recovery of agricultural capacity and production after the tsunami. This guide captures the lessons learned about agricultural recovery after a tsunami, and will help vulnerable rural communities in the event of another tsunami.



### Maria's family goes to market [Femili bilong Maria go long maket]—Western Highlands (MN160a) and East New Britain (MN160b) editions

Barbara Pamphilon, Kym Simoncini and Damien Veal  
MN160a and MN160b

25 pp., A\$10.00 (inc. GST)

<http://aciarc.gov.au/publication/mn160a> and

<http://aciarc.gov.au/publication/mn160b>

The 'Maria's Family' books were developed as part of an ACIAR-funded project on women's business acumen in Papua New Guinea. Initial research found women farmers in the highlands and East New Britain were making simple mistakes in marketing their produce, and almost all were not budgeting for their agricultural and families' futures. Rural women also identified a lack of basic literacy was limiting their economic and social opportunities (including stopping them from engaging in training). These were the drivers of the creation of the 'Maria's Family' books. The aim is to teach key agricultural messages to women smallholders, help mothers engage in reading activities with their children and develop literacy skills for both mothers and children. These books describe the preparation and setting up of produce for markets. There are two editions: one targeted at Western Highlands families, the other for East New Britain.

### Maria's family saves their kina [Femili bilong Maria sevim moni]

Barbara Pamphilon, Kym Simoncini and Damien Veal  
MN161  
24 pp., A\$10.00 (inc. GST)



<http://aciarc.gov.au/publication/mn161>

This is the second in the 'Maria's Family' series of books. This book is targeted at women smallholders and children in Papua New Guinea, and describes how to save and allocate income for core family needs.

## ACIAR'S DISTRIBUTION POLICY

ACIAR provides complimentary copies of its publications to developing-country libraries, institutions, researchers and administrators with involvement in agriculture in developing countries in ACIAR's operating areas, and to scientists involved in ACIAR projects. For enquiries about complimentary copies, please contact ACIAR's Communications Unit, [aciarc@aciarc.gov.au](mailto:aciarc@aciarc.gov.au).

For other customers, please use our online ordering facility at [aciarc.gov.au](http://aciarc.gov.au) or direct enquiries to our distributors, Canprint Communications, PO Box 7472, Canberra BC, ACT 2610, Australia, phone +61 2 6295 4422, fax +61 2 6295 4473, [aciarc@infoservices.com.au](mailto:aciarc@infoservices.com.au). Copies of most publications are available as free downloads from the ACIAR website [aciarc.gov.au](http://aciarc.gov.au).

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Food producers in Timor-Leste are building agricultural and market capacity in partnership with ACIAR.

PHOTO: CONOR ASHLEIGH

## ACIAR'S VISION

ACIAR looks to a world where poverty has been reduced and the livelihoods of many improved, through more productive and sustainable agriculture emerging from collaborative international research.

The Australian Centre for International Agricultural Research (ACIAR) operates as part of Australia's international development cooperation program, with a mission to achieve more productive and sustainable agricultural systems for the benefit of developing countries and Australia. ACIAR commissions collaborative research between Australian and developing-country researchers in areas where Australia has special research competence. It also administers Australia's contribution to the International Agricultural Research Centres.



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Front cover: The weekly market  
in Lospalos, Timor-Leste.  
PHOTO: 123RF.COM