



THE CRAWFORD FUND  
For a Food Secure World

# HIGHLIGHTS

NEWSLETTER

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## Cause for 'Malthusian' Optimism?

An overview of the Crawford Fund 2012 Parliamentary Conference  
by DG Blight, Chief Executive, Crawford Fund

The Crawford Fund's 2012 Parliamentary Conference, "The Scramble for Natural Resources: More Food, Less Land?", addressed a question of fundamental importance to Australia and to the international community: How to feed, adequately, an extra two or three billion people without irretrievably damaging the planet?

The consensus response from the panel and attendees was that 'the world probably has enough land, nutrients and water' to do so. But a food secure world will only be possible if 'major distributional and degradation problems' are addressed with efforts to close the gap between achievable and actual yields as well as increased investment in research to raise yield potential. Even with all of this, food price spikes and horrifying episodes of famine seem likely to recur, requiring specific policy interventions and emergency.

Australia can contribute to a food secure world by growing and exporting as much food as possible within constraints formed by our natural resource base and by market demand and prices. Australia could become one of a number of food bowls. But by itself it cannot feed more than a fraction of the world. Its contribution through research, however, could be globally significant and contribute beneficially to the diets of 100 million or more.

In opening the Conference, Senator the Hon. Bob Carr, Foreign Minister for Australia, defined a food secure world as one in which there is sufficient nutritious food for all. He stressed the need to avoid stunting in children due to inadequate nutrition, a problem which, if left unattended, would seriously impact the capacity of a generation to contribute to society.

In the opening session, three keynote speakers - Professor Jonathan Foley, Dr Frank Rijsberman, and Dr Derek Byerlee - painted a global world food scenario characterised on the one hand with a burgeoning demand for food from a growing global population

that was living longer and consuming more, not always sensibly, especially as a global middle class of four billion became a reality. On the other hand, revolutions in the life sciences and information technology meant that biology and physics could now work in harmony to increase food production and distribution in ways that reduced pressures on the environment. Given absolute limits on the availability of land, more intensive agriculture on better lands already under cultivation, based on new and existing higher yield technologies could reduce degradation of marginal lands. Precision agriculture could fine-tune use of water and other essential inputs. Mobile phones, now widely available, could ensure farmers could have access to the latest information including on weather.

### Land, Lots of Land?

According to the review by Byerlee, additional land is available for cultivation (about 450 million hectares) especially in Sub-Saharan Africa and parts of Eastern Europe, Latin America and Australia. Strong commodity prices and relatively higher returns from farming, together with the availability of cheap land in some countries, have translated into a sharp rise in foreign and domestic investment into farmland, the so-called land rush. Where land governance is poor and institutional capacity weak, there



Dr Derek Byerlee addresses foreign direct investment in Australia and overseas  
(Credit: M Gyles)

## Cause for 'Malthusian' Optimism?

have been many failures especially in Sub-Saharan Africa and parts of Asia. Australia, on the other hand, has skilled farmers and strong institutions so that with advent of a transparent land register it has little reason to be concerned about foreign investment in farmland. Moreover, Australia has much to gain from freer agricultural trade and its corollary unrestricted (but monitored) foreign investment in farm land. It could continue to lead the world in advocacy for these policies.



*Prof Jon Foley addresses sustainable food production (Credit: M Gyles)*

Whilst new lands could make a contribution to increased food production, as Foley and Rijsberman pointed out, most increased food production (probably more than 75 per cent) will have to be derived from increased productivity - from raising the achievable yield ceiling and by closing the gap between actual and achievable yields. Speakers argued that both were possible.

### Closing the Gap in Nutrient and Water Use and in Natural Ecosystem Management

As Foley made clear, global yield variability is heavily controlled by fertiliser use, irrigation and climate. Elimination of nutrient overuse in parts of the globe, and encouraging increased use where it is needed, can potentially deliver the holy grail of increased production without adverse environmental consequences. In a similar vein, Dr Andrew Noble argued that new approaches to sustainable agriculture could have a major and beneficial impact on global land and water irrigation: a better understanding of interactions between agriculture and natural ecosystems enables, at least

theoretically, increased yields, lower costs and reduced erosion and water degradation.

Dr Ntyerana Sanginga also believed that production system intensification is key to achieving system level outcomes in Africa especially through increasing agricultural production per unit land area; reduced environmental externalities; improved resources use efficiency and increased supply of ecosystem services. A key issue was the restoration of soil fertility in Africa because of limited returns to crop breeding, high nutrient depletion rates (Africa has old and degraded soils) and crop/soil management challenges. He argued that soil fertility and organic matter restoration should partly be regarded as a social cost with environmental benefits - carbon sequestration in African soils is, he said, 'almost tantamount to soil fertility conservation.' Conservation agriculture was an essential component of reform in agricultural practice.

### Raising the Yield Ceilings

A revolution in the life sciences, linked to dramatic changes in information and communication technologies, provide the scope for growth in both achievable and actual yields according to Rijsberman. Rijsberman referred in particular, to the lowering cost of DNA sequencing, which opens the way for identification of beneficial plant and animal traits that could facilitate and enrich conventional approaches to crop and livestock breeding. The IT revolution had introduced the practicality of laser and GPS based land levelling, satellite information to predict crop growth and relatively cheap sensors of such factors as soil moisture and weather.



*Dr Frank Rijsberman discusses the work of the CG Consortium (Credit: M Gyles)*

### Forest Lands – More than Just Trees

Many developing countries face the dilemma: should forests be cleared and cut for higher incomes and to ensure food security. Or does forest conservation and food security really present a zero-sum trade off? Echoing a point made by Foley, Dr Christine Padoch argued not. In reality, she said forest resources are essential to the daily livelihoods and a substantial portion of the diet of 'a billion people.'

Forests, said Padoch, need to be 'valued' by defining food security as more than just calories. Studies show a positive correlation between forest cover and dietary diversity and vitamin A and iron are among micronutrients supplied by forest products; five to six million tons of bush-meat are eaten annually in the Congo Basin. But forests do much more than provide food - for example, through water filtration and regulation, pollination, temperature regulation, aquatic resources and as a genetic resource. Whilst there was no single silver bullet to resolve this dilemma, forest governance was key and decisions to convert forests should include the interests of people who depend on them and take into account the environmental services that forests provide.

### Lose Less, Feed More

Tracing 'build or buy' options to make more food available, Dr Trevor Nicholls added two sets of actions: reducing competition for resources from weeds, lessening the impact of pests and diseases, cutting losses in transit and storage; and moving farmers from subsistence to surplus or earning more through productivity gains, higher value crops and higher market values. He compared gains of 2.4 metric tonnes that could be won by halving pest and disease loss, which along current production levels and increased production through the use of hybrid varieties could convert the Philippines from a net rice importer to an exporter.

### The Urban Dimension

National food plans or land use planning have to engage with urban development. More than half of the Earth's population are urban dwellers and whilst growth of urban conglomerates might slow, urbanization will continue to interact both favourably and unfavourably on food production. Professor Xuemei Bai illustrated the 'land grab' effect of urbanisation with dramatic before and after photographs of the expansion of Shenzhen City in China



# Cause for 'Malthusian' Optimism?



between the years 1980 and 2005. Whilst the absolute amount of land dedicated to urban development is modest (roughly one per cent of the earth's surface is urban; this might grow to two per cent by 2030), the interactions are rich with potential and risk. Urbanisation, in one sense a consequence of the civilizing impact of agricultural societies, could drive economic growth, national prosperity and demand for more and better foods – there are opportunities for growth and in social and economic capital for agriculture in peri-urban areas. But urbanisation can increase social vulnerability in traditional farming communities in the same areas and cities can accelerate for better or worse dietary changes.

## Minerals, Energy and Agriculture

The need for an integrated approach was a feature of a presentation by Professor Chris Moran that challenged some popular 'factoids' about the so-called trade-off between mining and agriculture. Land occupancy by mining is relatively small for each mine although wider impacts of dust and water transport and pollution need

careful management; but mining is a minor competitor for land and water and a minor contributor to land degradation compared to poorly managed agriculture. The relative contribution of agriculture and mining to national incomes varied between countries and over time – cotton for example has been a major factor in Australian trade with China, Japan and Thailand, mining has assumed importance in exports in the last decade. He decried over-generalisation and alarmist communication of potential impacts that were not science-based; nor were they likely to lead to good governance and practical outcomes.

## Institutional and Policy Innovations

The predictions of Thomas Malthus, two centuries ago, that food production would eventually fall short of population growth, leading to 'misery vice, sickness and starvation' did not eventuate in full due to technological, institutional and policy innovations.' But to 'free the world of Malthus's shadow', Dr Shenggen Fan called for an integrated approach to enhance global food security. Technological innovations were well described by other speakers and rehearsed by Fan but he emphasised the importance of institutional and policy innovations with a mix of broad-based agricultural development such as had been seen in China, India and Vietnam and pragmatic and evolutionary trial and error practices in China. He gave an overview of total factor productivity growth pointing to the changing impact of capital, fertiliser, oil price increases, irrigation and land; the variability of productivity growth across countries; the uneven improvement of land and labour productivity across regions; and substantial variations in the ratio of actual and potential yields. He highlighted the global loss of primary production due to degradation of natural

resources; physical and economic water scarcity – a business as usual approach he said would by 2050 put at risk 52 per cent of the population, 49 per cent of global production and 45 per cent of GDP. His solutions embraced accelerated investments in agriculture, especially in smallholder productivity; a scaling up of social safety nets for the poor and vulnerable; improved global coordination to reduce food price volatility (including through global and regional grain reserves), transparent and free global trade, a halting of grain-based biofuel production, and monitoring of food prices and speculation; investments in agricultural climate change mitigation and adaptation; promotion of low carbon agriculture where he illustrated potential synergies between productivity, climate change adaptation and green house gas mitigation through a case study in Kenya; support for enhanced developing country capacity to originate policy that would maximise the local impact of a global reform agenda; and research to provide evidence of policies that have worked and those that have not.

## Conclusion – Is there cause for 'Malthusian' Optimism?

Perhaps the last word might be left to Jonathan Foley. In his final comments on the day he said: "I came out of this meeting with a renewed sense of optimism. Seeing evidence at the event of the incredible array of work happening in a diversity of areas; a breakdown of the old dichotomies between agriculture and the environment; between crop genetics and crop management; between forests and surrounding landscapes; between urban and rural interests; and that there is an encouraging recognition of a continuum across a lot of different sectors."

He saw that the participants had created opportunities for leveraging a very big global problem and some of the biggest challenges civilisation has ever faced; and we saw many new opportunities by bringing together different disciplines, than ever we have had before. We have come up with potential solutions and that makes me very happy and hopeful today.

*This summary is partially based on a review by Andrew Campbell in 'The Conversation', 18 October 2012 (available at <http://theconversation.edu.au/Australia-and-the-global-scramble-for-natural-resources>). Direct extracts from the review and other speakers are shown within quotation marks. In some cases speakers' remarks have been paraphrased.*



Sir John Beddington, UK Chief Scientist following his Sir John Crawford memorial address, with The Hon John Kerin, and Elizabeth and Jane Tribe



# NEW PARTNERSHIPS AND POLICIES FOR FOOD SECURITY

On the eve of World Food Day 2012, one billion people, most of whom live in South Asia and Africa, went to bed hungry. A further 200 million, mainly women and children, suffered from the 'hidden hunger' of malnutrition. After a decade of positive trends, now more people are falling back into poverty and food insecurity. Since the dramatic food price rises in 2008 and after a modest price fall in 2009, the global food security situation has deteriorated, with further price spikes in international markets, principally maize, rice and wheat, in 2010 and 2012. Why is this so? And what can be done to reverse these trends to improve food security?

The Crawford Fund's study "A Wider Canvas for International Agricultural Research" on emerging trends and new strategies in world food security, being led by Dr Gabrielle Persley and being supported by the University of Queensland's Global Change Institute (GCI) and with international partners, the Doyle Foundation in Scotland and the Syngenta Foundation in Switzerland, will work to answer these important questions through a series of briefs.

"Food from Thought – Bread from Stones", was launched by the Governor of Queensland, Hon Penelope Wensley AC, in Brisbane on October 15, the eve of World Food Day. The public event was co-sponsored by GCI and the Crawford Fund and was attended by 100 people who participated in an open forum on food security. The forum and launch involved the Hon John Kerin, Chair and Dr Denis Blight, Chief Executive of the Crawford Fund.

The new brief presents the case for expanding the scope for greater private sector investment in international agricultural research, and exploring new partnerships for development, including intersections with the mining and agricultural sectors, and with a special focus on Africa. The brief is summarised in this article with the full document available on our website or in hard copy from our office. Your comments on the brief are most welcome as we further refine and develop the issues and policy options within the "Wider Canvas" series.

## Current World Food Situation

Food insecurity is most pressing in Africa and South Asia. The highest proportion of rural poor live in sub-Saharan Africa, and most are smallholder farmers and livestock keepers. The highest absolute numbers of poor people live in South Asia. Reducing poverty and increasing food security are inextricably linked.

Emerging issues that will affect the likelihood of improving food security and reducing poverty in emerging economies include:

- the growing role of the private sector in food and agriculture
- the intersections between agriculture and mining
- the implications of food security challenges for public policies, including for investment in international agricultural research.

## Growing Role of the Private Sector in Food and Agriculture

The increasing attractiveness of emerging economies to the private sector is because it is where economies and markets for various goods and services are growing. While countries in Europe and North America are barely growing in terms of gross national income (GNI), several countries in sub-Saharan Africa have annual GNI growth of 5-10 per cent (for example, Botswana, Ethiopia, Kenya, Tanzania and Uganda).

A successful 'Green Revolution' in Africa will require viable private sector participants in the continent's emerging economies, through indigenous African private companies, including small and medium scale enterprises (SMEs), and multinational companies, including those who partner with African SME companies in various joint ventures.

The rapid growth of some African economies means the emerging economies now termed the 'BRICS' (Brazil, Russia, India, China, and South Africa) may soon be joined by several more booming African countries.

As the private sector expands in emerging economies, there is also a role for 'not-for-profit' private enterprises that are delivering products and services for small-scale producers in Africa. Public/private partnerships seek to deliver 'scalable solutions' for small-scale farmers, whereby a pilot project in one country and/or a few locations can be scaled out across many locations.



## NEW PARTNERSHIPS AND POLICIES FOR FOOD SECURITY

The private sector also has an important role in reducing food losses. Indeed, a concerted effort to reduce food loss in developing countries would have a major impact on the amount of additional food needed by 2050. Rather than requiring 70 per cent more food production, this could become 50 per cent if pre and postharvest losses are better managed. Private-public partnerships could build infrastructure to store and preserve food. This would include grain storage facilities that exclude vermin and solar-powered controlled-temperature facilities for other food commodities including animal-sourced foods. Private enterprise will also contribute to reducing food loss by developing new technologies to determine the optimal time of harvest and for the efficient recovery and handling of food.

### **Bread from Stones: Intersections Between Agriculture and Mining**

Revenue from mining and other resource extraction industries is an important source of national income for emerging economies, as it is in Australia. Mining attracts private investment in emerging economies from large international mining companies. Some of the challenges and opportunities in the intersections between agriculture and mining, many of which relate to food security, are:

- Competition between agriculture and mining for natural resources, especially land and water
- Competition between agriculture and mining for skilled workers
- Impact on local communities, including the impact of mining on indigenous communities that may be asked to resettle away from proposed mining sites.

Opportunities that could be shared by agriculture and mining include:

- Access to new transport infrastructure
- Food distribution networks
- Modern energy and water technology
- Shared social infrastructure for mining and agricultural communities
- Off-farm employment opportunities.

The challenges of the intersections between agriculture and mining in emerging economies are shared by industrial and developing countries where agriculture and mining are important sectors of the economy and where the two sectors are in competition for human and natural resources. There is also a public policy debate common to many countries as to how best to invest

some of the profits of mining into long-term economic and social development. The Crawford Fund's 2013 conference (highlighted elsewhere in the newsletter) will provide an opportunity to further explore these issues.

### **Implications of Food Security Challenges for Public Policy**

Some key issues that need consideration by decision and policy makers include how to encourage positive outcomes with new partnerships and new policies around:

- Where to invest and finding a balance between short-term gains versus where needs are greatest
- What to invest in and finding a balance between investing in 'global public goods' vs. private goods, as alternative means of generating and delivering new knowledge and technologies to increase agricultural productivity
- How to invest and finding new ways for public investment to 'crowd in' rather than 'crowd out' the private sector in food and agriculture
- Encouraging innovative approaches such as advance markets commitments; CGIAR Consortium Research Programs (CRPs), and public/private partnerships.

### **Conclusion**

The rapid economic progress made over the past 25 years by a number of developing countries, known now as the emerging economies is turning the traditional economic order on its side, if not on its head. Does it hold out

the 'good news' prospect of an end, eventually, of the era of development assistance as the dominant phenomenon it has been for the second half of the 20th century and the first decade of the 21st?

This may seem a distant prospect today with over one billion poor and hungry people in the world, concentrated in South Asia and sub-Saharan Africa. But when we reflect on the achievements of the many countries in Asia (especially China and India) and Latin America, in moving millions of people out of poverty within the past 50 years, it is by no means an unobtainable goal.

In regard to the future funding of international agricultural research, there may be, for example, a progressive shift away from funds coming mainly from OECD public sector donors to funding of international agricultural research by an array of national governments in emerging economies, private sector investors (including farming cooperatives), philanthropic organisations and more public/private partnerships.

Future briefs within the "Wider Canvas" series will highlight these and other options on the future financing of international agricultural research.

Another forthcoming topic in the series will be on the interface between food security and the environment, including the interface between biosecurity and biodiversity.

More information at [www.crawfordfund.org/](http://www.crawfordfund.org/)



*The Hon John Kerin AM, Dr Denis Blight AO, Prof Peter Hoj, HE Dr Penelope Wensley AC, Prof Ove Hoegh-Guldberg and Dr Gabrielle Persley AM at the launch*

# MAKING THE PUBLIC AWARE

The year has ended as it started – with a full agenda of events, international visitors and media announcements. And we're straight into plans for 2013. Hopefully, many readers have had time to catch up with news since our April newsletter by reading our annual report, released in early October. This update won't double up on work already covered there, such as the visit to Australia by Dr Shakeel Bhatti, Secretary of the FAO International Treaty on Plant Genetic Resources, and Dr Howard Bouis, Director of HarvestPlus. We assisted both with media and stakeholder meetings that resulted in national coverage on biodiversity conservation and biofortification of staple food crops. Between newsletters, you can keep up-to-date on our regular feature stories and news reports on our website, with audio and vision now incorporated as new capabilities in our website, or follow us on Twitter @CrawfordFund. Key activities for the last few months are highlighted below.

## The Scramble for Natural Resources

A report on the content of our annual conference, "The Scramble for Natural Resources: More Food, Less Land?" leads this newsletter. As the cornerstone of our public awareness activities, the event provides significant public awareness and engagement opportunities. Venues were filled; presentations were well received; the Q&A sessions were lively, and national media outreach resulted in quality national TV, radio and print coverage. Survey respondents reported high satisfaction rating, with 98 per cent rating it "Good" or better. Powerpoints are now available on the website and proceedings for the event are underway.

A key part of the conference are the 'add-on' activities organised around the event and in 2012 these included the launch of the ANU Photosynthesis initiative; the launch of the Derek Tribe biography (see page 7); presentation of a Crawford Medal to Lester Burgess; attendance and briefing activities for over 30 young Australian and African agricultural scientists; and a range of stakeholder side-meetings and related events in New Zealand and Adelaide. Quite a week!



Sen The Hon Bob Carr, Minister for Foreign Affairs, opens the Crawford Fund conference (Credit: M Gyles)

## World Food Day Event

The conference was followed with a World Food Day event in Brisbane. The Fund partnered with UQ's Global Change Institute to hold a Food Security forum and the launch by the Governor of Queensland of the next research brief in our policy series "A Wider Canvas for International Agricultural Research" being produced by Dr Gabrielle Persley and reported elsewhere in the newsletter. The brief is now available on our website. Further briefs are planned through 2013 and will be highlighted with public events and opportunities for your feedback.

## Food Security Across Africa

The Fund assisted with Australia's new International Food Security Centre's forum in Sydney at the end of November, titled "Food Security Across Africa — Bridging Research and Practice". Like our conference, the Forum was opened by Senator The Hon Bob Carr, expressing the Government's support for agricultural research for development. In addition to the Fund's Denis Blight and Gabrielle Persley being in the program, the Fund's Cathy Reade chaired the organising committee and facilitated national media coverage highlighting the importance of scaling up existing research and focusing on partnerships and collaboration for food security in Africa.



Professor Monty Jones presents the keynote address at the AIFSC conference (Credit: M Gyles)

## Bread from Stones

The Fund's 2013 conference will be held on 26 and 27 August, in Perth. While breaking from our tradition of the Federal Parliament House venue, the conference continues to be squarely focused on a key issue related to food security. Titled "Mining, Agriculture and Development: Bread from Stones?" it will centre on how to ensure positive, sustainable outcomes from mining for food security and development. Festus Gontebanye Mogae, former president of Botswana and Special Envoy of the UN Secretary-General on Climate Change has agreed to keynote the conference which will precede the annual "Africa Down Under" mining trade event which attracts over 2000 delegates including senior African decision-makers, business leaders and researchers. This, we hope, will provide an excellent opportunity to raise awareness of opportunities to enhance food security and economic development in co-existence with mining.

# MAKING THE PUBLIC AWARE

## Derek Tribe Biography: Doing Well By Doing Good for Food Security

"Derek Tribe was a gentleman and a scholar - and a visionary. He was the internationally renowned agricultural scientist who founded the Crawford Fund."

So began the speech by The Hon John Kerin, the Fund's chairman in launching a biography of Derek by Professor Lindsay Falvey, at the Fund's 2012 conference. John went on to highlight Derek's many achievements and recount his memories of being lobbied as a Federal Minister, noting the success of Derek's philosophy of 'doing well by doing good' by supporting international agricultural research. The book launch in Canberra was attended by Derek's wife, Elizabeth and his daughter Jane, as well as Jan Jones, who worked for Derek through many of his years at the University of Melbourne and all his years at the Crawford Fund. You can obtain a free copy of this biography directly from the Crawford Fund, or download a free copy from our website.

## Launching into the YouTube World

In partnership with the International Rice Research Institute, ACIAR and CIMMYT, the Fund facilitated a visit to East Africa by award winning documentary maker, Sally Ingleton, who produced the "Seed Hunter" documentary, well known to many with an interest in food security. Sally has developed short video clips for websites and YouTube that are being highlighted on the Fund's new YouTube site, as well as those of our partners.



*Sally Ingleton and Cathy Reade during filming in Africa*

"This pilot visit worked very well with very positive interest in further visits. The projects visited were inspiring as were the project leaders and African farmers who are working together to make a real difference," said Cathy Reade.

Projects included IRRI's work with ex-combatant women in Burundi, ACIAR and CIMMYT's conservation agriculture and maize project (SIMLESA), and AusAID/ACIAR's long-term project with Newcastle Disease (NCD) of chickens that is particularly benefiting women and children. So much so that it was highlighted by the Minister in his opening address to the AIFSC conference.

On returning from Africa, a range of interviews were organised for Dr Robyn Alders from the Kyeema Foundation on her 20+years commitment to working with women and their chickens in Africa. "They're important for petty cash, to pay school fees and for medicines," said Robyn during her Radio Australia interview, explaining the success of the disease vaccination program.



*Robyn Alders in Africa (Credit: S Ingleton)*

## Lessons for Australia From A Rice Paddy

This was the heading of an opinion piece by Louise Preece of Rural Press following her visit to Indonesia, supported by the Fund and DFAT's Australia Indonesia Institute. The visit provided Louise with an opportunity to report on a range of rice, biosecurity and vegetable projects and follows the visit by ABC foreign correspondent, Helen Brown reporting on TV and radio about ACIAR work in Aceh.

## PUBLICATIONS OF INTEREST:

**Annual Report:** The Fund's annual report is now available on our website or from the office on request.

**ATSE Focus Magazine:** the December edition will highlight speakers and issues from our 2012 conference on land use.

**Issues Magazine:** the magazine's special 100th edition will include food security articles by Denis Blight and Meryl Williams.

**ACIAR 30th Anniversary Partners:** The Fund's special relationship and our own 25th Anniversary are included in articles in the special 30th anniversary edition of ACIAR's Partners Magazine.

**AusAID AYAD Program Exchange** recently carried an article by Cathy Reade on Crawford Fund long-term involvement in AusAID's youth ambassador program, and by one of our ambassadors on their work.



# 2012 Conference - Young Scientists' Reflections

The Crawford Fund is keen to increase young Australian agricultural students' and scientists' involvement in international agricultural development. To this end, in addition to offering some free places to students to attend our annual conference, we funded seventeen young Australians to attend our 2012 conference, who will now join the alumni of our 2010 and 2011 events. Below is a selection of quotes from their reflections after the event. Their full articles are on our website. They will also be making a presentation to a group in their State on what they learned from the event, and we have a Facebook page for them to continue their networking and hopefully attract others at <http://www.facebook.com/YoungCrawfordGroup>

The students' quotes are focused around what seem to be three key themes in their responses - the issues addressed, the impact of specific speakers and the opportunity to network with likeminded people:

## More Food, Less Land:

*Reflecting on the conference it was great to be involved in a discussion about such an impending global challenge. I recognised that my own research in insect population dynamics in field horticulture has an important part to play in the development and implementation of agricultural science research. Madaline Healey, DAFF Qld*

*The conclusion I drew from the conference was that we are not going to grow our way out of this food shortage. An integrated, holistic approach of research, development and extension coupled with a reassessment of current supply chain systems and global distribution is needed to improve food security. Kelly Ryan, Department of Ag and Food, WA*

*The issue of food use and reducing waste as one approach to increase food security gave me a new context to continue my PhD research. Stephanie Fowler, Charles Sturt Uni, NSW*

*The second theme of the conference that I found particularly interesting was the importance of women in addressing global agricultural issues. In most developing countries women are the primary farmers and food producers for their family or village. It was demonstrated that empowering women, providing education and training them in new agricultural techniques will be key in overcoming future food shortages. Casey Doolette, University of Adelaide*

*The conference was a validation of all types of research, and we heard*

*from anthropologists through to plant physiologists. It was also a great forum for sharing research ideas, and promoting and discussing interdisciplinary research models. I took a few major thoughts away from the conference which I've used to formulate a research question for next year (PhD). Ben McGowan, Melbourne University*

## Speaker Highlights:

*I personally found Prof Jonathan Foley's presentation a highlight of the conference. Prof Foley's work modelling global sustainability issues was fascinating. It was great that he not only talked about the problems we are facing but summarised some potential actions that could be taken to fix these problems. Sarah Noack, University of Adelaide*

*I liked the point that Jonathon Foley from the University of Minnesota put forward on the need to look at agriculture and environmental sustainability as the same problem. Clare Kerr, Department of Agriculture, Fisheries and Forestry, Canberra*

*It was fascinating to hear Dr Trevor Nicholls and Dr Frank Rijsberman demonstrate the diverse and innovative ways that science is already being used to help address some of these challenges. The efforts and successes of groups such as CABI and the CGIAR networks were inspiring to hear. Michael Tarbath, University of Tasmania*

## Networking With Young and Old:

*I found the attendees were kind, and genuinely interested in offering advice and sharing knowledge with me as a young person just starting out in this field. Being able to meet and to form friendships with fellow students who are also passionate about agriculture and with whom I will likely cross paths in the future was another important aspect of the conference. Imogen Goode, La Trobe University*

*To have seventeen young people, from a range of Australian Universities, together in one place, and to briefly meet a number of African students towards the end of the conference, gave me new energy to keep moving forward in that direction. David Gale, Department of Primary Industry, NSW*

*The discussions throughout the conference with other delegates including students from both Australia and Africa were very inspiring. So much so that it has motivated me to pursue post-graduate study in*

*agricultural science. Laura Watson, CSIRO Plant Industry*

*My belief is that education is one of the key limiters to agriculture production in many underdeveloped countries. As such, education is one of the key areas that I desire to put my skills and education to use. I believe that upon completion of my degree, I would engage in an AYAD program as a stepping stone into the world of international development. Gavin Livingston, University of Tasmania*

*I was very excited to be able to speak to fellow scholars and exchange ideas and research foci. While everyone had a different background we all seemed to share the basic aim for a more food secure future. I enjoyed the group session on the last day, where all scholars spoke about their research background and also shared some feedback about the conference. Johanna Christensen, University of Melbourne*

*The gathering at breakfast! I have to say, how privileged I felt when two of the members of parliament sat with us. I can't imagine it in the country where I was born. Thank you Australia! Gausul Azam, University of Adelaide*

## And from some of the the African PhD students:

*This is just to appreciate the discussions that we held with you (Dr Sanginga) during the 2012 Crawford fund conference. We were indeed delighted to learn that we can collaborate and partner with each other in various projects that can go towards improving the food security status of our continent (through networking). We were also encouraged by how passionate you were in your message on how our beloved continent could benefit from the "Brown revolution" – this was very inspiring. Bosibori Bett*

*I would like to echo along with my colleagues in expressing our sincere gratitude and appreciation to you and the entire organizing body of the Crawford Conference. It was very educative, insightful and interactive. Bright Asante*

*The insight and opportunities for scientific research highlighted during the conference are valuable for food security interventions and will inform our focus into future studies/interests. Thanks to everyone and all organisers of the conference. Benard Mware*

*Thank you so much for allowing us the chance to participate in such an important event. It was a privilege for us to meet and interact with such important people. Betty Namukwaya.*



# CRAWFORD FUND TRAINING FOR IMPACT

We have supported another diverse range of hands-on, short-term training opportunities for men and women engaged in agricultural research in developing countries. A list of upcoming training is also on the back cover of Highlights. The Fund's training scheme is managed in large part by the State program committees, whose members volunteer their time and knowledge to match Australian talent with developing country needs.

The reports provided below cover a broad range of skills and topics including Landcare principles, rabies, digital soil mapping, biometrics, groundwater management, barley breeding, science translation, social science research techniques, bee mite control, the ageing of fish, floriculture development, animal research, rice production and rat control.

Participants in the highlighted training were from Uganda, Tanzania, Kenya, Ethiopia, Rwanda, Malawi, Nepal, Indonesia, Laos, Turkey, PNG, Bangladesh, Solomon Islands, Cambodia and Vietnam, highlighting the spread of our partnerships and collaborations around the world.



## MASTER CLASS



Kandy - Sri Lanka  
1 December - 13 December 2012





The isolation, identification and utilisation of root nodule bacteria (rhizobia) in promoting sustainable agricultural productivity

## MASTER CLASS UPDATE AND PLANS

The Master Class on the *Isolation, Identification and Utilization of Root Nodule Bacteria (Rhizobia) in Promoting Sustainable Agricultural Productivity* is in progress at The Institute of Fundamental Studies, Kandy, Sri Lanka. The Master Class runs from 1-13 December and resource persons have come from Murdoch University.

"The 15 participants, from five African countries and four Asian countries, are responding well to the largely hands on training in the greenhouse and laboratory," said Dr Eric Craswell, Director of the Fund's Training program, who is attending the class.

Eric also reports that topics for pipeline Master Classes next year include a second Master Class on Communicating with Stakeholders, to be held in Africa; on drought to be held in Perth in August 2013; on soil borne pathogens of cereals to be held in Tunisia in April-May 2014 and on market chain analysis, possibly in Vietnam. A fish biodiversity Master Class is also being planned.

## STATE TRAINING PROGRAMS VICTORIA

### Landcare in East Africa



Landcare training participants in Mbale, Uganda

Established in Australia in the late 1980's, Landcare has steadily spread worldwide and is now found in over fifteen countries. South Africa joined the movement in 1997 and in recent years a number of East African countries have been adopting Landcare approaches.

This year, the Crawford Fund supported a team of four Australians to deliver Landcare training in Uganda. The team consisted of Dr Julian Prior, Senior lecturer, University of New England NSW; Theo Nabben, social scientist and Landcare facilitator; Mary Johnson,

research fellow at RMIT University Melbourne and director of the Secretariat for International Landcare, and Rowan Reid, forest scientist and senior fellow at The University of Melbourne. Victorian Crawford committee member Mr Bruce Lloyd, who is a former Chair of the Australian Landcare Council and Rob Youl, forester and Landcare advocate also provided valuable insights during the sessions.

The class was hosted by the World Agroforestry Centre Uganda and held in Mbale, below Mount Elgon. The site was selected to showcase the work of the Kapchorwa District Landcare Chapter.

The aim of the class was to bring together current and potential Landcare practitioners from across East Africa to strengthen the network, further link research with development and to provide a unique learning opportunity for the participants.

The class was made possible thanks to significant support from the African Landcare Network. Over 30 participants from Uganda, Tanzania, Kenya, Ethiopia, Rwanda and Malawi attended – sharing their skills and knowledge as they participated in activities to further develop the network at a regional, cross-country and international scale.

Participants came from a diversity of backgrounds including country Landcare chapters, staff from Agriculture and Natural Resource ministries and boards, officers, major networks and NGOs.

Further training is planned, to be hosted by South Africa Landcare and supported by the African Landcare Network. A manual from the class in Uganda is being updated with lessons learnt and will provide a valuable tool to be used in other regions.

## Rabies in Asia

With support from the Crawford Fund, Ms Andrea Certoma and Dr Jemma Carlile – scientists from the Australian Animal Health Laboratory (AAHL) – travelled to Nepal to deliver a Rabies training course at the Central Veterinary Laboratory (CVL) Kathmandu.

# CRAWFORD FUND TRAINING FOR IMPACT

The course offered training on several Antigen Diagnostic tests that can be used to detect the presence of Rabies virus in dog brain samples and in Serological tests to determine the level of post vaccination immunity in dog populations. Participants included staff from the CVL, the Rabies Vaccine Laboratory and other regional government laboratories.

The Crawford Fund also supported a scoping visit to Nepal by Dr John Allen, Veterinary Leader of the AAHL Regional Program to assist the Nepalese Department of Livestock Services in their application of Rabies diagnostics and surveillance programs.

"The Crawford support has also allowed us to develop a new diagnostic test which is being adopted by many laboratories in the region including the Indonesian Rabies reference Laboratory based in Bukittinggi. The Rapid Indirect Rabies Detection Test uses lower cost reagents that are affordable to developing countries and has the potential to increase Rabies diagnosis in these countries," said Ms Andrea Certoma.

## NSW

### Animal Research in Laos

Livestock systems research is becoming increasingly important for countries in the Mekong region. This reflects growing prices for livestock products associated with increased livestock consumption, particularly in Vietnam, China and Thailand.

An important component of livestock capacity development is the enhancement of related statistics/biometrics skills of local research staff. To fill this need, funding support was provided by the Crawford Fund for biometrics training for 28 Lao researchers working in the areas of livestock and fisheries research in the Lao PDR. Many of the participants were directly linked to institutions associated with ACIAR supported research projects.

The training highlighted the importance of animal science research, how to plan good experiments, exploratory data analysis – as well as exploring common errors in statistical analyses and experiments.

### Digital Soil Mapping

Following a previous visit to Australia to attend training at the University of Sydney on the theoretical and practical principles of digital soil mapping and research aimed to achieve better land management for food availability

in Java, Mr Yiyi Sulaeman from the Indonesian Centre for Agricultural Land Resources Research and Development travelled to Sydney with the support of the Crawford Fund to take part in an international conference on soil mapping. The conference was attended by more than 140 participants, from 25 countries.

Mr Sulaeman presented a paper at the conference titled "Soil-landscape models to predict soil pH variation at regional scale in Java, Indonesia".

The conference enabled Mr Sulaeman to make new contacts with world-class researchers for future collaborations. He also gained fresh ideas on how to apply digital soil mapping techniques to assess and monitor agricultural soil to increase and maintain food production in Indonesia.



*Participants at the Biometrics Course in Laos*

## NT

### Better Identification for Quarantine

Dr April Wardhana, from the Indonesian Research Centre for Veterinary Science recently completed training in *Culicoides* taxonomy with Dr Glenn Bellis and other staff from the Northern Australian Quarantine Strategy of the Australian Quarantine Inspection Service.



*Dr Glenn Bellis from AQIS, Darwin and Dr April Wardhana from the Indonesian Research Centre for Veterinary Science*

"*Culicoides* midges are important vectors of arboviruses, causing diseases like Bluetongue, Bovine Ephemeral Fever and Akabane in livestock. Identification is important for both Indonesia and Australia, as *Culicoides* for future livestock development and marketing," said Tania Paul, coordinator of the Fund's NT Committee.

## SA

### Saving Water in Laos

Natural resources management, particularly in terms of water resources, is becoming critically important in Laos. Compared to other countries, Laos has a relatively good supply of surface water but the availability of this resource is becoming more and more uncertain and unreliable due to rapid economic and population growth, which is leading to escalating water demand. The exploitation of groundwater for domestic, industrial and agricultural use is increasing in Laos but with limited information available about this precious natural resource, it's important that communication improvements are made between sectors on groundwater management.

Two representatives from the National University of Laos, Mr Kanya Souksakoun and Mr Khaikheo Keokhamphouy were joined by Mrs Bounyaseng Senghammy from the Lao Ministry of Natural Resources and Environment on a research trip to Australia earlier in the year with the help of the Crawford Fund.

The participants spent time at the Australian Groundwater School at Flinders University in Adelaide where they met with a number of scientists and learnt more about groundwater management systems in Australia – including specific technologies and techniques adopted to solve water resource problems.

The knowledge gained during the training will directly contribute to work undertaken during the forthcoming ACIAR supported research project on groundwater use and management in Laos.

### Barley Breeding for Drought Tolerance

Mr Namuk Ergun, a barley breeder currently undertaking his PhD in "Determination of some barley (*Hordeum vulgare* L.) genotypes to drought tolerance" from the Center Research Institute for Field Crops, Ankara-Turkey, visited Australia's two key barley



breeding programs with the support of the Crawford Fund's SA and WA committees.

He spent time at Intergrain Pty Ltd in Western Australia and at the University of Adelaide under the guidance of Dr Jason Eglinton and Dr David Moody. During the training, he visited breeding and pre-breeding trials, grain quality laboratories and disease nurseries in WA and SA. He learnt new techniques for barley breeding and screening and selection techniques for frost, water logging, drought, salinity and some barley diseases such as scald, powdery mildew, leaf rust, net form of net blotch, spot form of net blotch and cereal cyst nematode.

"The depth of understanding and insight provided in the presentation made to the Crawford Fund Trustees at the end of the training period demonstrated the value Mr Ergun extracted from the visits. The training award also provides an opportunity for future collaboration. There are already plans for one researcher from Adelaide to visit Mr Ergun," said Professor Dr Jason Eglinton, Barley Program Leader at the University of Adelaide.

## Translating Knowledge

Mr Isman is an English language translator working with the International Potato Centre (CIP) in Indonesia and attached to an ACIAR funded project "Improvement and Sustainability of Sweetpotato-Pig Production Systems to Support Livelihoods in Highland Papua and West Papua, Indonesia".

With many of the project team only proficient in one language, direct discussions between Australian and Indonesian scientists have been difficult, and relying on Mr Isman to translate emails so that all team members are able to participate in discussions. To help improve his language skills, the Crawford Fund sponsored Mr Isman to travel to Adelaide to complete a five week General English for Academic Purposes (GEAP) intensive language and study skills course at the University of Adelaide.

The Crawford Fund support also enabled Mr Isman to receive private coaching from Dr Margaret Cargill – an expert in scientific writing using English as a second language. Dr Cargill has been involved in a range of earlier Crawford Fund supporting training courses. Mr Isman also participated in the University's Homestay program which enabled him to experience life with an Australian family.

He returned to Indonesia with improved English language skills to perform his very important task for the 30 scientists involved in the ACIAR funded project.



*Mr Isman with one of his English teachers in Adelaide*

## WA

### Social Science in PNG

How do socio-cultural factors impact on the adoption rate of good farming practices and uptake of new technologies in the cocoa, coffee and oil palm sectors in PNG? To learn more about incorporating social science research techniques into ACIAR funded research projects, the Crawford Fund sponsored 11 junior and middle-level research staff from the PNG Oil Palm Research Association (PNGOPRA), the Cocoa and Coconut Institute (CCI), and the Coffee Industry Corporation (CIC) to attend a three-day training course hosted by PNGOPRA in West New Britain Province.

Curtin University researchers, Gina Koczberski, George Curry and Sean Ryan ran the course and provided training on social science research design, qualitative and quantitative data collection techniques, analysis and interpretation, ethics – as well as designing and managing data bases. The training emphasised farmer-oriented approaches which value spending time with farmers and their families, involving agricultural extension officers in the research design and data collection and encouraging a more 'bottom-up' methodology.

Whilst most participants were involved in collecting socio-economic data associated with ACIAR projects, many were not familiar with the main types of social science methods, especially the collection, coding and analysis of qualitative data, and how to effectively combine qualitative and quantitative techniques.

Feedback from participants indicated they gained a greater appreciation of what socio-economics research entails and feel better equipped to incorporate social science techniques and procedures into socio-economic research projects.

## Chemical Consequences

In Bangladesh, fruit crops such as guava, lychee, mango, citrus and jackfruit are pollinated by bees. Vegetable seed crops like onion, cabbage, cauliflower and garlic also rely on bees for pollination. With mites such as Varroa wreaking havoc on bee populations, there are concerns about the long-term impact on the fruit and vegetable industry.

Assistant Professor Mohammed Sakhawat Hossain from the Department of Entomology, Sher-e-Bangla Agricultural University, Bangladesh travelled to the Centre for Integrative Bee Research (CIBER) at The University of Western Australia where he worked for over three months with the financial support of the Crawford Fund.

During his time at the Centre he performed a number of experiments on male honeybees to investigate the effects of chemicals used to control Varroa mite infestations.

While looking into this issue during his research trip, Assistant Professor Hossain found that exposure to these chemicals indeed reduced reproduction abilities within the tested male bee population. His work indicates that treatment of Varroa with chemicals should be avoided when males are in the hive.

The research is likely to not only impact the way beekeepers manage their hives in Bangladesh but it could also impact the way chemicals are used in treatment of Varroa.

## TASMANIA

### Fishy Business



*Indonesian scientists preparing sections of otoliths*

Scientists involved in the management of fish stocks in Indonesia have benefitted from a Crawford sponsored workshop which was held at the Research Institute for Marine Fisheries (RIMF) in Jakarta earlier this year.

# CRAWFORD FUND TRAINING FOR IMPACT

Conducted by Mr Simon Robertson, Co-Director Fish Ageing Services, Portarlington, Victoria and Mr Craig Proctor, Fisheries Scientist and Leader of Collaboration Projects with Indonesia, CSIRO Marine and Atmospheric Research, the workshop provided the 17 participants with skills for preparing sections of otoliths ('ear-bones') for the ageing of fish, interpreting the growth banding in the otolith sections, and assessing bias and the level of error in the estimates.

The foresight of Simon Robertson to take to Jakarta a large collection of whole and sectioned otoliths and an extensive library of images of sectioned otoliths of two species (black bream and estuary perch) proved extremely beneficial for providing adequate 'hands on' material for the two groups to work with. These materials were supplemented by the purchase of several local species of fish, which enabled training for otolith removal and fish measurements.

As a result of this workshop, Indonesia now has a good 'spread' of scientists, in both marine and freshwater research institutes, who have the basic skills for all stages in preparation of otolith sections for the ageing of fish. Another direct outcome of the workshop was the establishment of a well-appointed fish ageing facility at one of the country's key research institutes (RIMF). These outcomes place Indonesia in a good position to develop further capacity and expertise for ageing fish and for Indonesia's fisheries scientists to subsequently be able to make more significant contributions to the assessment and sustainable management of fish stocks.

Dr Neville Mendham, coordinator of the Tasmanian Committee of the Fund, noted "Craig Proctor has been working in Indonesia over the last 20 years, particularly on researching the Southern Blue Fin Tuna population and has been developing the skills of Indonesian scientists and fisheries workers to undertake the monitoring of this vital resource, which is of great value to Australia as well as Indonesia."

## QUEENSLAND

### Landcare in the Philippines

The Crawford Fund, ACIAR, Queensland's DAFF and a range of Landcare partners supported a group of farmer-leaders and facilitators from the Philippines to attend training and mentoring sessions in Queensland this year.



*Workshop participants from the Philippines wearing their winter woolies during a field trip in Queensland in July*

The key focus was building self-sufficiency and future security of the Landcare Foundation of the Philippines Inc (LFPI) as the lead agency for Landcare development in the Philippines. This is particularly important as the ACIAR Philippines-Australia Landcare Project moves towards its close.

Five trainees from the Philippines undertook five-day placements alongside Australian specialists at various Landcare Group locations around Queensland. The week of mentoring was followed by a group workshop where participants were able to share the things they'd learned and develop action plans. The participants will stay in touch with their mentors through email and regular Skype chats, and through possible future visits to the Philippines.

"I was particularly pleased to attend the farewell dinner and present awards since I had been involved in the development of the early ACIAR Landcare projects in Mindanao in the late 1990s," said Dr Kep Coughlan, coordinator of the Fund's Queensland Committee.

### Train the Trainer

How can floriculture be used to improve livelihoods in indigenous Australian and Pacific Island communities? This was explored in a Crawford Fund sponsored 'Train the Trainer' workshop for a group of flower growers and horticulturists from Fiji, the Northern Territory, Papua New Guinea and the Solomon Islands at the University of Queensland's (UQ) Gatton Campus.

All of the workshop participants were associated with an ACIAR project on "Strategies using floriculture to improve livelihoods in indigenous Australian and Pacific Island communities". The purpose of the workshop was to enhance the participants' skills in participatory trialing approaches.

Dr Mal Hunter from UQ presented the keynote session on the concept of 'Do

Our Own Research' (DOOR). DOOR has been used successfully in Australia by the nursery and the native flower industries. Training sessions covered collecting, recording and managing trial data, handling plant material for propagation, identifying and evaluating superior genotypes in ornamental plant species, and pre and postharvest handling of cut flowers. All the sessions had a complementary theme that enhanced the trainees understanding of the purpose of the related ACIAR Project.

The workshop participants were hosted on informative tours of the Brisbane wholesale market at Rocklea and of Pohlman's wholesale nursery in the Lockyer Valley. The tours allowed participants to see the operations of successful commercial enterprises involved in the production and sale of floricultural products.

By spending time together, the participants were also able to compare and contrast current floriculture activities in their different regions. Training aids were provided on USB memory sticks and a Facebook site was set up to enhance and sustain the workshop's learning outcomes.

Dr Coughlan noted that this is a good example of how indigenous Australian groups can be paired with groups from developing countries in capacity building and development of new industries.

## Animal Research in Cambodia

Thirty-four Cambodian scientists took part in a five-day Crawford Fund sponsored training workshop at the Royal University of Agriculture (RUA), Phnom Penh, Cambodia in October this year.

The training, entitled 'Experimental Design, Data Analysis and Interpretation in Livestock Research', was the result of a collaboration between John M. Schiller, Honorary Senior Fellow, Faculty of Science, School of Agriculture and Food Sciences at the University of Queensland (who is profiled elsewhere in the newsletter) and Dr. Monchai Duangjinda and Dr. Wuttigrai Boonkum from the Department of Animal Science, Faculty of Agriculture, Khon Kaen University in Thailand.

During the course participants learnt about the importance of statistics in animal research, data collection, analysis and statistical tools and participants like Pheng Vutha said the training was very helpful: "I really appreciate the effort on the statistic training for Cambodian participants."



The instructors were well-resourced for such academic training. All participants are keen for future training opportunities."

## ACT

### Sampling for Rice

Rising sea levels and climate change are threatening current rice production systems in the Mekong Delta Region of Vietnam. An understanding of these production systems is becoming increasingly important in relation to water supply, water quality, human health and agro-ecosystem maintenance.

To help address this, the Crawford Fund sponsored a workshop on "Soil and water sampling for rice based agriculture" at Can Tho University, Vietnam. The workshop was attended by 29 staff and students from Can Tho University, Cuulong Rice Research Institute and a number of other Delta organisations. The workshop was split into theory and field work sections, which aimed to provide opportunities for the attendees to develop skills in experimental design and sampling, and the analysis and presentation of

data that relates to rice base agriculture characteristics and processes.

The participating staff and organisations were Dr Ben Macdonald (CSIRO Land and Water), Dr Annabelle Keene (SCU), Kyle Horner (ANU), Dr Violeta Bartolome (IRRI) and Dr Chau Minh Khoi (CTU).

### The Rat Flood

It's known as 'bamboo death' and it's an ecological phenomenon that happens every 50 years in India, Bangladesh and Myanmar, causing widespread famine and devastation. The cycle involves *Melocanna baccifera* – a species of bamboo which features mass flowering which takes place across a large area of forest. After flowering, the bamboo dies and regenerates from the seeds. Rats feast on these seeds, which are in abundance, and this causes a sudden boom in the rodent population. Once they've exhausted the supply of seed, the rats then flood into rural areas, feasting on crops and stored grain.

Bangladeshi PhD student Nikhil Chakma from University of Dhaka has been undertaking research to understand the cycle of these rodent outbreaks. With

the help of the Crawford Fund, he was able to travel to Australia where he trained in rodent taxonomy and genetics at the South Australian Museum and CSIRO in Canberra. This involved careful preparation of rodent specimens so that detailed body and skull measurements could be taken and used for specific identification.

Mr Chakma gained detailed skills and knowledge in dissection, fixation, histological preparation and staining, and then interpretation of stained sections of reproductive tissues from males and females.

He returned to Bangladesh with an understanding of the drivers of reproductive activity and a range of new techniques and ideas for further research to improve rodent population management in his country.

"Without this award, it would have been extremely difficult for me to accurately identify the rodent species that I have collected during my PhD research. I am now very confident in the use of various rodent taxonomic keys and undertaking detailed morphometric measurements," Mr Chakma said.

## 40 Years Developing Research Capacity in SE Asia "Taking the time to develop links & trust"

Dr John Schiller is an Honorary Research Fellow at the University of Queensland's School of Agriculture and Food Sciences. John has a distinguished career of outstanding contributions to international development through strengthening scientific capacity in the countries of South East Asia.

He led the education and training program for the Australian Contribution to the Thai National Agricultural Research Program throughout the 1980s, through which about 130 Thai ag scientists gained their Masters and PhDs from Australian universities, and a further 300 upgraded their qualifications. Many of these graduates now hold senior positions in Thai institutions and have helped set Thailand on a path of food security and agricultural prosperity. John continued his work in Laos, where he was lead rice scientist for 11 years with the International Rice Research Institute (IRRI). John's linguistic abilities are one of the keys to his success in being able to relate to his colleagues in Asia. John continues his work on capacity building through his current work with ACIAR in Indo China, with the Crawford Fund on short term training courses and through the University of Queensland where he is a patient mentor to many overseas students, especially when it comes to helping them prepare their theses.

The Crawford Fund has recently honoured this tremendous contribution to agricultural R&D with the awarding to John of a Crawford Fund medal. In this short interview, John talks about his work and motivation to develop capacity in South East Asia.

### What research areas does your training cover?

My work in Southeast Asia from 1972 until 2001 was primarily focused on the development of research institutional capacity in these countries. In one AusAID supported project in Thailand (1982-1990), I was directly responsible for the 'human resource development' component of a large project aimed at improving the capacity of researchers in the Thai Department of Agriculture. The leadership of a Swiss (SDC) project

in Laos between 1990 and 2001, in collaboration with IRRI was also focused on the development of research capacity on rice within the country. The involvement in these projects reflects my own personal interest in developing the research capacity and capabilities of young researchers in S.E. Asia, particularly Laos and Cambodia.

The area of need that I have more recently been focusing on is biometry. Unlike Australia, neither Laos nor Cambodia have any institutional statistical advisory capabilities.

A second area of training for which CF support has been sought has been in 'Technical Writing Skills'. Reporting of output within countries developing their research programs and capabilities is important and needed. In the case of Laos, during the late 1990s, Swiss support was obtained to establish a Lao Journal of Agriculture and Forestry. The journal is now being published on a regular basis with articles in Lao and English on the internet.

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## 40 Years Developing Research Capacity in SE Asia

### "Taking the time to develop links & trust"

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### Why is such training needed?

The training is needed as part of the process of 'capacity development' for both the national research staff and their related institutions. Without this 'capacity development' there is a real danger that the quality of research in national programs will not achieve 'acceptable international standards'. Similarly, without appropriate 'reporting' of research output in 'local' national journals, there is a danger of duplication of research and a related lack of awareness of technologies capable of bringing about improvements in agricultural production.

### What has been the most important impact from this training?

The most important impact of the training has been an increase in the confidence of local/national researchers and a gradual improvement in the standard of local/national research. The publication of the research locally/nationally, has also resulted in greater recognition of the research capabilities of national researchers.

### How did you first become involved with the Crawford Fund?

I have been aware of the Crawford Fund for many years but the first actual direct link was in October 2009 when I lodged an application to bring two Cambodian researchers to Australia to visit The University of New England, University of Queensland, CSIRO and representative cattle production areas in Southeast Queensland.

### Why have you maintained your commitment for so long?

My work and commitment to research in SE Asia started in 1972. On completing my PhD studies at The University of New England, I had the opportunity of taking up a position of a 'young research agronomist' in an AusAID (then AIDAB) supported agricultural development project in Northern Thailand. This represented the start of 30 years of living and working in SE Asia on agricultural development projects. The links with researchers in these countries were/are critical. It takes time to develop links and mutual trust.

My interest in Thailand and later, Laos, has partially reflected my earlier interest in learning the languages of these countries. When starting to work in northern Thailand in 1972, I decided to learn the language. The similarity of the culture and languages in Thailand and Laos, was also reflected in my decision to apply to work in Laos with the IRRI in the period 1990 and 2001.



*John with the King of Thailand, 1976*

A legacy of the period in the 1970s working in Northern Thailand is the photograph of the King of Thailand and myself, taken in 1976, which was featured in the Australian Embassy/Bangkok calendar for 2012.

### Can you tell us about your most recent work in Cambodia and its impact?

Livestock systems research is receiving increased attention in countries in the Mekong Group. This reflects increasing prices for livestock products associated with increased livestock consumption, particularly in Vietnam, China and Thailand. Improved livestock production is increasingly becoming

acknowledged as a means of household income improvement in lower income environments in both the upland and lowland agricultural environments of Cambodia. This is being reflected in

increased attention of donor agencies, including ACIAR, in providing support for more livestock production focused research.

Between 8-12 October 2012, a biometrics training course (Experimental Design, Data Analysis and Interpretation in Livestock and Fisheries Research) was conducted at the Royal University of Agriculture in Phnom Penh, with support from The Crawford Fund. There were 32 participants in the course, representing seven universities and agricultural colleges and two national research organisations. The participants also included key research collaborators in current ACIAR supported livestock research projects.

The course was conducted by lecturing staff attached to the Faculty of Agriculture of Khon Kaen University (KKU) in Northeast Thailand.

The perceived value of the training course to the Cambodian participants was reflected by 80 per cent of course participants rating the course as 'very good', with the remaining 20 per cent rating it as good. A by-product of the training course was the development of close links between senior staff of the Royal University of Agriculture and KKU, which are expected to facilitate future collaboration.

### What would you say to other researchers thinking of getting involved as trainers?

It is critical to fully appreciate the needs and constraints of local research staff. A major constraint in countries like Laos and Cambodia is a lack of ready access to experts/advisors in their own country. Researchers need to have ongoing access to experts/advisors, rather than just during a period of training. Local capacity development is an important component of any training initiative.

#### Rice in Laos

Edited by J.M. Schiller, M.B. Chanthengxay, B. Unquist, and S. Appa Rao



IRRI ACIAR



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# 22nd International Grasslands Congress

Sydney | 15 - 19 September 2013

## Revitalising grasslands to sustain our communities

The Crawford Fund is pleased to be supporting the 22nd International Grasslands Congress on 15 – 19 September 2013. The program will explore the current issues facing grasslands around the world and share the latest industry developments and solutions.

The Fund will be assisting with media and, as Grasslands Youth Futures sponsor, providing training opportunities for young developing country scientists.

More information at <http://www.igc2013.com/>

# What is the Crawford Fund?

The Crawford Fund's purpose is to encourage investment in international agricultural research (IAR) by governments and the private sector, in the belief that it is an essential, high priority, international activity.

We believe that IAR holds the key to alleviating rural poverty in developing countries, and can thus open the door to economic progress. Good news is worth sharing, and the Fund's Public Awareness Campaign increases understanding of the importance and potential of IAR, its achievements and needs.

The Fund also has a training program that fills a niche by offering practical, highly focused non-degree instruction to men and women engaged in agricultural research and management in developing countries.

HIGHLIGHTS is the Crawford Fund newsletter. Letters from readers are welcome and should be sent to the editor, Cathy Reade at [cathy.ream@crawfordfund.org](mailto:cathy.ream@crawfordfund.org)

Highlights and other publications and materials are on our website:

[www.crawfordfund.org](http://www.crawfordfund.org)

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THE CRAWFORD FUND  
*For a Food Secure World*

## Awards and Training Courses supported by The Crawford Fund

The following awards to individuals and courses for groups will be reported in future newsletters:

### Training awards to individuals:

**Prof Honglian Li** – China - 1st international crown rot Workshop and post workshop training program

**Abel Ximenes & Joaquim Cabra** – East Timor - Plant pathology and entomology training

**Acacio Guterres** – East Timor - Research planning, proposal development, experimental design and publication planning

**April Hari Wardhana** – Indonesia - Collection and identification of culicoides species

**Dr Renata Bacaltos** – Philippines - Introduction to seagrass watch monitoring

**Mohamed Salah Gharbi** – Tunisia - Durum breeding strategies and integrated disease management strategies for soil-borne pathogens of wheat in direct-drill/no-till cropping systems

**Mr Isman** – Indonesia - Writing and translation skills in agriculture, animal production and rural development

**Mr Mogomotsi Moatswi** – Botswana - Training in plant disease diagnosis

**Murni Indrawatmi** – Indonesia - development of procedures to rear entomological specimens and associated quality control procedures

**Ugele Collins Majaule** – Botswana - Assessment of the contribution of pulse legumes to the nitrogen economy of cropping systems

### Training courses to groups:

Microspore culture and flow cytometry for double haploidy in plant breeding - *Dr Wallace Cowling*

Training in glasshouse, laboratory management and analytical chemistry of soils and plants - *Professor Richard Bell*

Learning from farmers- training in beef cattle production for Vietnamese farmers and extension workers - *Dr David Parsons*

Increasing skills in farm systems research in Laos and Cambodia - *Dr Neal Dalgliesh*

Protecting potato germplasm through seed certification in East Timor - *Dr Nigel Crump*

Integrated catchment management for improved rural livelihoods: valuing environmental services in East Timor - *Dr Bronwyn Myers*

Australian Master Treegrower Course for several African countries - *Rowan Reid/ Jon Lambert*

Postharvest management of mangoes in Indonesia - *Dr Peter Johnson*

Peach cultivation and breeding focusing on control of blossom blight in Pakistan - *Mr Mark Drew*

Techniques for using molecular markers in tree breeding studies in Vietnam - *Professor Rod Griffin*

Mentoring laboratory technicians to undertake soil chemical analysis in East Timor - *Dr Dave Lyons*

Improving market and valuechain research: workshop on agribusiness research for development methods in Vietnam - *Dr Rodd Dyer*

Experimental design, data analysis and interpretation in livestock research in Cambodia - *Dr John Schiller*