

KEYNOTE

Science for nourishing the world, sustainably

Professor Andrew Campbell

CEO, Australian Centre for International Agricultural Research (ACIAR)



In this talk I am going to cover some of the things we have learned and then come back to the present day and think about ‘Where to from here?’.

Some very far-sighted people in the early 1980s persuaded the then Prime Minister, Malcolm Fraser, leading up to the 1981 Commonwealth Heads of Government meeting in Melbourne, that Australia needed to share its agricultural science expertise. That is what the ACIAR Act says, and in my view it is as relevant today, or more relevant today, as it ever was.

ACIAR is a Commonwealth statutory authority. I report direct to the Foreign Minister. I have had an excellent meeting with Minister Wong, and she completely understands the value of science partnerships as a strategic component of Australia’s development aid program.

We have an eminent Commission and Policy Advisory Council, and the ACIAR ten-year strategy – which I’d encourage you to read – sets out an ambitious agenda. Because we are halfway through that ten-year strategy, we recently had an independent mid-term review chaired by Dr Wendy Craik and eminent colleagues. The review essentially says that, COVID-19 notwithstanding, the strategy is still fit for purpose. However, the review found some areas that need more emphasis over the remaining five years, and I shall come back to that. Meanwhile, though I cannot cover everything that has happened in the last 40 years, I can show you that ACIAR has had a really significant impact.



Figure 1. Some of ACIAR’s (not necessarily greatest) hits.

Figure 1 shows some of ACIAR's projects, to give you an idea of the breadth of our work. It includes social science, it includes hard-nosed agronomy, it includes fisheries work, policy work, community-based work. And that is just a tiny snapshot.



Figure 2. Wheat emergence through various weights of stubble trash, 2004.

Photo: John Blackwell.

One example is the way Australia's expertise in conservation agriculture has made a very significant impact in the Middle East, in North Africa and in India, in figuring out how to sow wheat into heavy rice stubbles, and how to use direct drilling. You can see the different levels of trash there in Figure 2, and that there is very good wheat emergence.



Figure 3. Fishway under construction at Xayaburi Dam on the Mekong River.

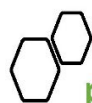
In the Mekong Basin, 60% of protein consumed by humans comes from fish, and all the fish need to be able to swim upstream to breed and then get back down again. And yet humans have put structures that block those streams all over the place for irrigation and now for massive hydro-electric schemes. Our challenge was to add a fish ladder at Xayaburi Dam on the Mekong River, where the fish ladder itself (Figure 3) has more concrete in it than the Melbourne Cricket Ground! Fabulous work by a Charles Sturt University team led by Prof Lee Baumgartner, funded by ACIAR and DFAT, is figuring out how to design and monitor these fish ladders to suit diverse structures. We are now writing new manuals for civil engineers in Lao on how to build fishways.

We have been involved in fantastic anthropological work in Papua New Guinea, on farm-family teams, led by Prof Barbara Pamphilon at the University of Canberra and NARI (the National Agricultural Research Institute). Farm financial planning and financial literacy, banking and savings, and treating the senior woman of the family with the senior man as equals and helping them to learn and plan as a team. Reducing domestic violence, improving livelihoods and incomes, improving the proportion that's left over for the education of kids and for health, empowering women.

We have been involved in developing a new community-based national seed system for Timor-Leste, dramatically increasing yields of staple crops (Figure 4). About 60% of all households in the country were involved in this high-impact work – which is funded by AusAID partnering with ACIAR.



Figure 4. Seeds of Life, Timor-Leste, a community-based new national seed system for staple crops.



Acacia plantations, Vietnam

- 2.1m ha estate of “Australian” acacia hybrids, 1.7m of which on smallholdings
- Previously degraded & war-damaged lands
- USD\$14Billion wood product export industry – e.g. Bunnings
- CSIRO, VAFS & other partners
- Sophisticated local expertise now



Figure 5. Acacia plantations in Vietnam provide wood for export.

Blast fishing in the Philippines is a, shall we say, ‘once-off’ operation. It’s very effective, once – and then you are left with a destroyed reef. How do you accelerate the coral reef regenerating? Prof Peter Harrison and his team at Southern Cross University have figured out a way to accelerate coral larvae reattachment to the reef. It is so effective in the Philippines that it is now being taken to scale on the Great Barrier Reef here in Australia.

As a forester it gives me a lot of pleasure that in the outdoor furniture section of Bunnings hardware stores you will see acacia-wood furniture. It comes from Vietnam, out of ACIAR projects (see Figure 5) using clonal propagation. Leading eucalypt and acacia clonal propagation labs in the world are in Hanoi, with scientists trained in Australia on ACIAR scholarships, at CSIRO and Vietnamese Academy of Forest Science (VAFS) for example. By productive revegetation of formerly degraded and war-damaged lands, this is now a US\$14 billion industry for Vietnam.

In Bangladesh, CIMMYT had predicted the possibility of wheat blast fungal disease spreading through seed, from Latin America to South Asia. Sure enough, it turned up in February 2016. Dr Eric Huttner (our crops program manager) had spotted the possibility very early on. ACIAR funded a workshop that got people together in July 2016, and later in 2016 I was in Mexico City with the Bangladesh Minister for Agriculture. She was completely up to speed with the risk and the need for a quick response. Being there with CIMMYT we were able to get a big screening exercise going, to find and breed resistant varieties. Luckily, there turned out to be some resistance within the breeding pipeline that CIMMYT and BARI (Bangladesh Agriculture

Research Institute) had underway. There is an excellent precision phenotyping platform in Bangladesh. They can look at 4000 lines per annum. There are several promising lines and one of those – BARI Gom33, which has the bonus of being high in zinc – was released by the end of 2017 and has been sown on 10% of the area planted to wheat in Bangladesh this year: about 30,000 hectares.

That is a really important story because it has several ingredients. If we didn't have the collaborative international architecture of research infrastructure through the CGIAR, via CIMMYT, the gene bank, and the long-term breeding programs, we wouldn't have been able to screen quickly for resistance. If we didn't have very good research collaborations in Bangladesh, with good leadership, we wouldn't have been able to get it into the field so quickly – and we also had sufficiently agile funding to be able to arrange the workshop and get the key people around the table very early on. To go from spotting a problem in 2016 to having resistant wheat on 10% of the planted area by 2022 is a terrific success, with huge implications for food security in Bangladesh.

What we have learned

We have learned along the way that long-term partnerships deliver; that they build trust and reciprocity and social capital. We have learned that while you can maintain a mature partnership over Zoom, it is very hard to develop a new one that way. You can't beat face to face contact time in the field.

Good leadership here and in our partner countries is characteristic of the best investments.

From our perspective, getting the right people around the table, including the private sector and people along the value chain, is essential. If your research is targeting policy, then make sure the policy people are in the room, getting a shared understanding of what you are trying to achieve here, and then make sure that the actual project – or the investment – you have designed is appropriate to that problem and that you understand how you are going to achieve impact. ACIAR was not set up to fund 'blue sky research' but, rather, to fund research that makes a difference on the ground. Therefore, we need to know how that is going to happen and then we need sufficient time and resources to actually do the job.

Many of our more successful longer-term investments are those that have been running for multiple phases, such as Seeds of Life for, I think, 16 years. ACIAR has a program now on peatland fire in Indonesia and I have suggested the researchers need to be thinking about it as a 20-year investment, because the idea that you could fix an issue as complex as peatland fire in a three-year project is naïve.

If you really want to make a difference in the long term, science and policy capability has to be built locally. We have fabulous collaborators across our whole portfolio in our partner countries, many of them trained in Australia, and many others trained in Japan, Russia, the US and elsewhere. Developing that collaborative capability with Australia has been fantastic.

And it is important to keep following the story, to keep going back and looking at adoption, tracking uptake, understanding impediments, evaluating impact ... those are factors that definitely help inform future investment.

Why invest in innovation?

To my mind, there are three reasons to invest in innovation. One is to invent new stuff and generate new knowledge. Another is to make sure that, in the words of my old mentor Prof Peter Cullen, *'at least we should be making new mistakes'*. ACIAR has been doing a lot of that. Figure 6 shows the two volumes of issue number 100 in the ACIAR Impact Assessment Series. They are a retrospective look at benefit:cost analyses.



Figure 6. Tracking and evaluating ACIAR's impact. Volume 1: Quantifying returns on investment. Volume 2: A qualitative comparative analysis.

Focusing on the quantitative, our modest investment has generated measured benefits worth at least \$64 billion. This is based on looking at a sample of about 10% of the portfolio going back over those 40 years, where we had good data. Of that 10%, there's a weighted benefit-to-cost ratio – allowing for the scale, the respective size of different projects – of 42 to 1, with a median of 22 to 1 benefit-to-cost ratio. We could argue to the Departments of Finance and Treasury that our work is a pretty solid way of investing ODA (overseas development assistance) funds. This gives a big 'bang for the buck' in partner countries – and, by the way, the benefits back to Australia are also positive, even though we are investing ODA funds overseas.

The Crawford Fund's 'Doing Well By Doing Good' report, which will be out later this year, will bring some aspects of that investment to life, and ACIAR is also producing a book for a popular audience which tells some of the human and other stories of our investments over 40 years.

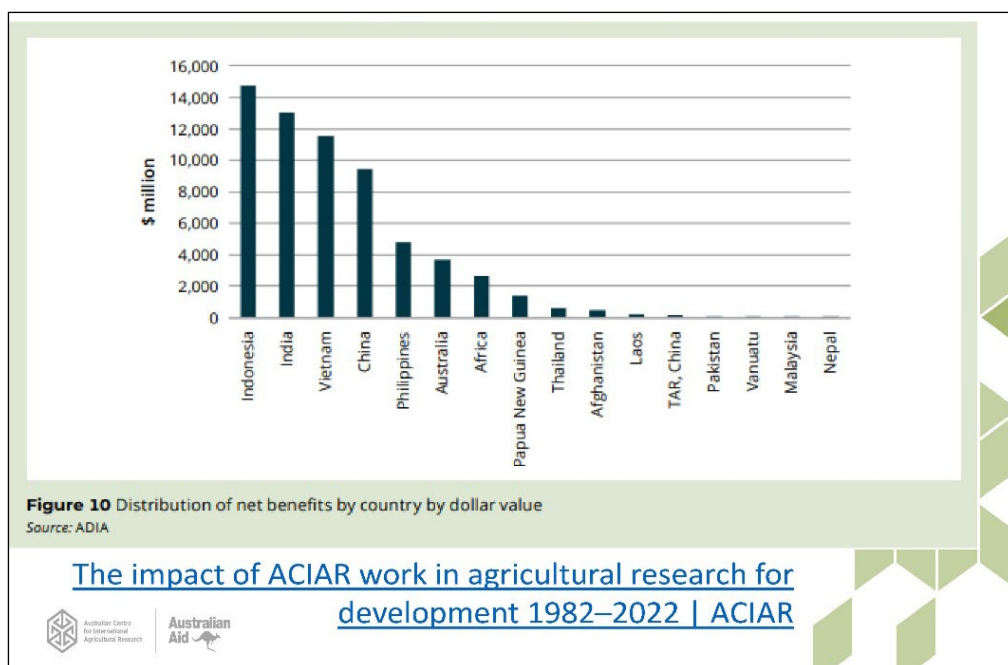


Figure 7. https://www.aciar.gov.au/publication/technical-publications/impact-assessment-100_1982-2022

Based on that 10% sample, Figure 7 shows the distribution of some of those benefits to date. The biggest benefits measured so far were in Indonesia, India, Vietnam, China, the Philippines. I would expect the shape of that chart to change as some of the programs in places like Lao and Cambodia mature. Obviously the population size is so small in the Pacific that when you plot these sorts of numbers, you need a different scale on the graph.

The current food security crisis

The world is now in another food security crisis, reflecting the three Cs: climate, COVID-19 and conflict (Figure 8). We are seeing people hungry and starving – not just in low-income countries but also in medium and high-income countries. After very promising trends of recent decades, there's certainly been a sharp uptick in severe food insecurity.

The International Food Policy Research Institute (IFPRI) in Washington is one of the CGIAR centres, and one of the top food security think-tanks in the world. Incidentally, it has long and deep connections to Australia: Sir John Crawford, Prof Ross Garnaut and Prof Kym Anderson have all chaired IFPRI over long periods, and Dr Derek Byerlee is on the board at the moment.

There is some excellent information on the IFPRI website about the current crises and solutions. Figure 9 is a slide from Dr Johan Swinnen, the Director General of IFPRI, and the link will take you to a slide deck from an extremely interesting IFPRI policy seminar. The green line is food, the blue line is fuel and the orange line is fertiliser, and the bars are GDP growth in low-income countries.

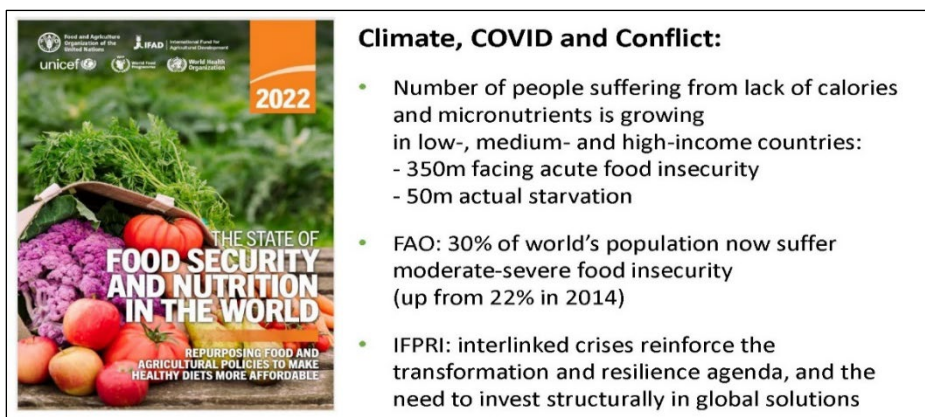


Figure 8. The current food security crisis.

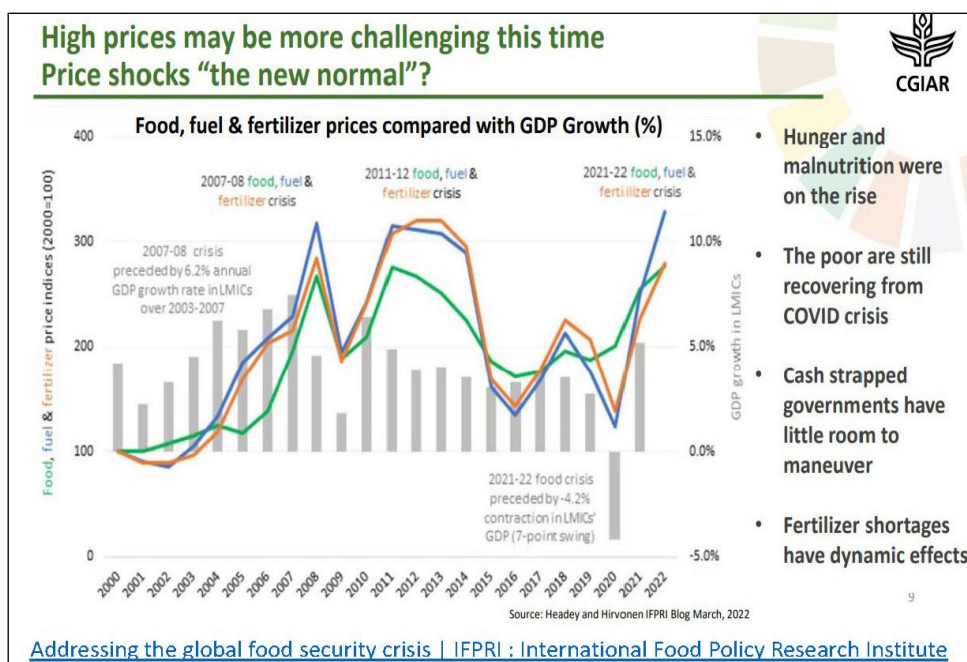


Figure 9. <https://www.ifpri.org/event/addressing-food-security-crisis-caused-war-ukraine-research-and-policy-responses>

A difference between the current situation and the 2007–08 food price spike is that previous food price spike came at a time when GDP had been growing by an average of 6% per year in those countries; now the spike is coming off the back of negative GDP growth. Cash-strapped governments have little or no room to manoeuvre in this current situation, compared to the 2007–08 situation, and those fertiliser shortages are having dramatic effect. In other words, this is not the same as previous crises. Yes, we were doing very well in reducing the proportion of undernourished people, but suddenly those curves have turned around (Figure 10). The links to the broader security issues are very clear, with people on the move.

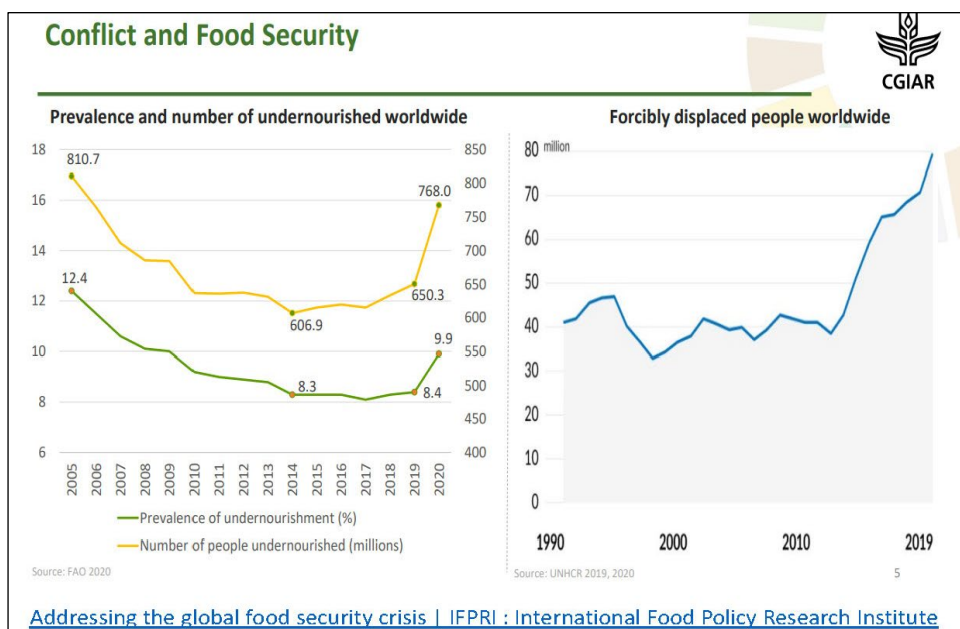


Figure 10. (Link as in Figure 9.)

Agri-food systems are connected to almost everything else. They drive a huge proportion of the Sustainable Development Goals. It is very hard to separate food security from water security, energy security, biosecurity and health security. All these feed into national, regional and global security – conflict and migration.

Noting that COVID-19 is the sixth zoonotic pandemic since 1980, the next one is likely to happen within a decade. It may be worse than COVID-19. It's about habitat fragmentation, the intersection between bush foods and wet markets, and things that spill over from animals to humans. These interactions demand a One Health approach. The world is not set up for that.

All those issues are connected with and amplified by climate change: not just the direct effects of climate change, but the decarbonisation agenda and the adaptation agenda.

The implication of that is that ACIAR cannot just keep doing what we were doing in the past. Yes, successful crop-specific agronomic research like the wheat blast disease example is still essential, but it is not sufficient to tackle these intersecting issues.

Figure 11 outlines the policy agenda, based on work by IFPRI, FAO, UNEP and UNDP, and ACIAR's own work here in the Pacific, in particular on COVID-19 impacts and responses. We need to avoid food export bans, and in particular we must stop using valuable land and water for biofuels and subsidising that.

In the medium term there is a lot of scope to reorient social protection measures, so they bolster local food production and food security. A 'no-brainer' is to target food loss and waste. Eastern Australia is struggling to complete the Murray-Darling Basin Plan, with the river system needing to reduce extraction by an extra 650 GL of water. Well, the food that is

Short-term:

- Avoid food export bans
- Suspend biofuel mandates and subsidies

Medium-term:

- Social protection measures targeted to help local food production systems
- Reduce food loss and waste (viz ABC TV *Landline* last Sunday)

Long-term:

- Repurposing poorly targeted/perverse subsidies (IFPRI, WB)
 - 87% of current USD\$540B/yr in subsidies is inefficient, inequitable, price-distorting, unhealthy or degrading
 - only 35 cents in each dollar of subsidies reaches farmers

Figure 11. Imperatives – policy agenda.

wasted in Australia represents about 2500 GL of water, which gives you an idea of the potential gains here. In the long-term policy agenda (Figure 11), the world is currently spending about US\$540 billion on agricultural subsidies and generally doing it very badly. There is huge scope for redirection there, into much more productive forms of support. IFPRI estimates that 87% of those current subsidies are inefficient, inequitable, price distorting or adversely affecting human health or the environment, and that only 35 cents in the dollar actually reaches farmers.

Our agricultural innovation system needs updating. As I said earlier, all the big challenges for agriculture – climate, water, food, nutrition, energy, gender, resource competition, biosecurity, One Health, social licence – are cross-sectoral, and they have very significant public-policy and public-good dimensions. But the way we are organised – such as in R&D corporations in Australia or as CGIAR centres, as well as much of Australia’s research and government agencies and policies – is commodity-focused, production-focused, farm-based, agri-centric. The connections across to the health system, and across to the energy system and so on, that need to be there, are missing.

When we think about an innovation architecture for the 21st century, it should look very different from the 20th century. This current food crisis will not be our last. We can’t just keep responding to each event as an isolated instance. We have to think about how we bring together food, water, energy, health and climate, in our heads and in our institutions, along whole value chains and across whole regions (Figure 12). As IFPRI has done in its prognosis, we need to think not only about solving problems in the short term, but also to make sure we are aware of the long and medium terms as well, and ensure we look at those structural issues.



- Beyond incremental, reactive responses
- Integration
 - Food, water, energy, health, climate
 - Systems approach, value chains & regions
 - Short-, medium- and longer-term solutions
 - Structural/transformational as well as adaptive
- Governance (how society shares power, benefit & risk)
 - Multilateral: integrative, systemic, transformational – complementing national systems – viz OneCGIAR
 - Bilateral: more why? and how?, less what?, partnering, rather than partnership
- New kinds of professionals?

Figure 12. Ways forward.

Innovation system architecture for the 21st century needs better integration of research, technology development, private sector value chains, finance, extension, education and governance.

In relation to governance, at a water workshop I attended in Chiang Mai, discussing water sharing in the Mekong between the six countries involved, one of the facilitators asked delegates to define ‘governance’. A provincial water utility officer spoke up and said: *‘Well, in my mind, it’s how society shares power, benefit and risk’*. What an elegant definition!

How does society share power, benefit and risk? We need to think about that in the way we organise our research and our policy, and those things need to come together. The CGIAR is tackling this, through the One CGIAR reform to try and develop a cohesive, coherent policy agenda across a whole group of independent and essentially commodity-based centres – an heroic reform, that still has a long way to go, but we are thoroughly engaged in it.

In our bilateral work at ACIAR we are trying to think about ‘partnerships’ – not as a noun but as ‘partnering’, as a verb: to change the nature of our partnerships from static agreements to active processes. ACIAR will be managing partnerships in a genuine ‘how and why’ way. The ‘what’ can be in a schedule to the agreement, but the agreement itself is about how we are going to work together.

To do all that, we’ll need a new cadre of professionals. I hope that I am looking at a large number of them in this room! We are going to need 21st century professionals who can think in joined-up ways across these issues without losing disciplinary depth.

In responding to our mid-term review, we are looking at reallocating around 30% of our bilateral portfolio into more transformational research initiatives; trying to halve our



- **Strategic Actions viz Mid-Term Review**
 - Transformational research initiatives
 - Faster commissioning & contracting
 - Next generation country partnerships
 - Stronger Australian partnerships
 - Maximise synergies multilateral/bilateral
- **New partnerships**
 - icipe/AgriFutures: insect feeds
 - IDRC: OneHealth & Food Loss
 - DFAT: OneHealth & FishTech
 - SunRice: Lower Mekong integrated agronomy
- **CGIAR System Council, TropAg, dialogue event**
 - Brisbane, 31 October – 4 November

Figure 13. ACIAR strategic directions.

commissioning and contracting time; and as I've mentioned, work on the evolution of country partnerships (Figure 13).

We want to work more strategically with our good friends in DFAT, CSIRO, the Australian innovation sector, DAFF (Dept of Agriculture, Fisheries and Forestry) and the Department of Climate Change, Energy, the Environment and Water. We are trying to see how we can get synergies across our bilateral investments and our multilateral investments, in the CGIAR and more broadly. Some of these partnerships are already in place and with a lot of scope to build on, including very exciting private sector work, notably in Vietnam with SunRice, and also on pepper and coffee, with the McCormick company.

In early November, for the first time in 50 years, Australia is hosting a meeting of the CGIAR System Council, in Brisbane, back-to-back with the TropAg conference. There will be a meeting of our Commission and our Policy Advisory Council, and a food systems dialogue event running through that. It will be one of the largest face-to-face gatherings of food security research and policy experts in the world this year.

In summary, I think there is no more noble pursuit to be involved in than this work. It is a sacred trust to be investing public funds strategically to feed the world. If the younger people in the audience want to choose a career that that will give you very proud things to reflect on when you are old and grey, then I can think of few better areas to be going into.

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Andrew Campbell is the Chief Executive of the Australian Centre for International Agricultural Research (ACIAR), appointed by the Minister for Foreign Affairs in 2016, and re-appointed in 2021. At ACIAR he has overseen the development of a 10-Year Strategy 2018–27 that has consolidated the research portfolio around six high-level development objectives, overhauled capacity building with substantial investments in new programs and alumni, improved capabilities across the country office network, and transformed outreach, particularly online. Among influential roles in sustainable agriculture and research management in Australia for over thirty years, Andrew Campbell was Australia's first National Landcare Facilitator, and was CEO of Land & Water Australia for seven years from 2000. He is Patron of Landcare in Victoria, succeeding the late Joan Kirner in 2015. Professor Campbell represents Australia on the System Council of the CGIAR, and in 2021 was Chair of the Global Research Alliance on Agricultural Greenhouse Gases. He is an elected Fellow of the Australian Academy for Technology and Engineering, a Professorial Fellow at the ANU Fenner School, and a Fellow of the Australian Institute for Company Directors. He is a Councillor, ACT Division in the Institute for Public Administration Australia and a Director of the Peter Cullen Water and Environment Trust. Andrew Campbell has written widely on landcare, sustainability and the science–policy interface. He trained in forestry at the University of Melbourne, and then in agricultural knowledge systems at Wageningen University in The Netherlands. Andrew Campbell is still involved in landcare work on his farm in south-eastern Australia, where his family has been farming since the 1860s.

Science for nourishing the world, sustainably – Q&A

Chair: Dr Cate Rogers

Q: Peter Wynn, Charles Sturt University

Thanks, Andrew, for that excellent talk. You mentioned the supply of fish for protein for developing countries, but given the carbon footprint of the ruminant species – of goats, sheep, cattle, etc. – do you think the supply of meat from these species still has a place in the food basket for these developing countries too?

A: Andrew Campbell

The livestock debate and the methane debate is very frustrating, really, because often people lump all livestock farming together, though there is a very big difference between a Kansas feedlot and a smallholder with a handful of livestock that for them are as much capital as they are income. The grass-fed smallholder livestock operations in developing countries are very different from an industrialised feedlot for McDonald's somewhere in the midwest of the US, but people often conflate the two.

That said, methane is an incredibly important story and the focus on methane is not going to go away. So I think it is very good that MLA (Meat and Livestock Australia) and others have got out in front and set themselves ambitious targets.

There is some very exciting science – asparagopsis and so on: methane-reducing feeds and potential genomic tools – that can be used in the gut microbiome. There is a very important research agenda there. There is also a very important research agenda around the full life cycle in more intensive operations – a circular economy approach, where you are actually producing energy rather than consuming it, and where you are catching methane and so on.

But to 'badmouth' livestock and ruminants in smallholder agriculture in developing countries, in my view, is just completely misguided and misinformed.

Q: Faruq Isu, Pinion Advisory, a conference scholar

I am originally from Bangladesh, and my question relates to that. How difficult is it to set up a research program, particularly in developing nations, given certain policies around that? They can be quite difficult. And do we reach out or do they reach out, when there's the need or scope?

A: Andrew Campbell

For setting up new research, challenging research programs, in a developing country context, I think it is a matter of being creative in finding the right alliances within that particular context. If you know you are up against a policy barrier or an institutional barrier, it is often not very smart to try and tackle that head-on before you have established some evidence base and credibility elsewhere by working around those blockages and strategically developing alliances with relevant interest groups, industry groups and so on.

Unless your research program is completely misconceived, you should be able to envisage some beneficiaries. Try and get them around the table, and involve champions other than the scientists. To have scientists barracking for science is important, but to be super-influential politically you do better by finding those other stakeholders and forming alliances with them. And then hasten slowly. Make sure you have a story to tell before you start trying to knock on doors. Happy to talk further about that over coffee later today.

Q: Alison Bentley, CYMMIT

Andrew, you talk about the importance of resources and timescales to get the job done. How do you reconcile that with funding cycles that are becoming more fragmented and more short-term oriented?

A: Andrew Campbell

It's a very good point, Alison. One of the drivers behind the One CGIAR reform process, was a recognition among the donors that there needed to be longer-term funding cycles and more and longer-term security. But a lot of organisations that are investing aid monies or development aid monies still only have an annual budget from our own governments. It is really hard as a public servant to enter into a funding agreement that is multi-year and long-term when you are making assumptions about and beyond the forward estimates about how much money you might have.

Committing the taxpayer, our taxpayers, to things that go beyond those forward estimates is very difficult. Nevertheless, we try and give as much assurance as we can that we are not stopping funding in the near future. I know my colleagues in Germany and in Norway and in Sweden and in Canada and in the US, and elsewhere, are in the same boat.

But we are trying to come up with an architecture that gives us the confidence and gives the system the confidence to know that there will be resources available in the longer term. There will also be short-term injections. The head of USAID was in East Africa recently, and I expect that will lead to a big chunk of American investment within weeks, and maybe some of that will come into the CG system, obviously not for long-term research but to pay for things that help starving people right now. Yes, you have certainly identified a very important issue, that we need to figure out ways of giving as much funding surety as we can within the constraints of the way in which our budget works. That might be different for other donors like the Gates Foundation that is literally spending their own money, but it is very hard when you are investing public funds.

Q: Joel Fitzgibbon, The Crawford Fund

Despite spending I think nine years in the portfolio, my appreciation and understanding of the processes within ACIAR are not as advanced as most in the room, so I apologise if my question is founded in a little bit of ignorance. First and foremost, ACIAR's mission is food security, but you mentioned climate change on the way through. My question is about mitigation and, in particular, about natural resource carbon capture. I saw you had a fairly large forestry plantation project in Vietnam. To what extent do you or your advisory board factor in mitigation opportunities when you are making decisions about projects? And to what extent,

if any, are you able to leverage projects like that plantation where there must be significant carbon credit opportunities? And how do you capture those opportunities, and do you leverage that into other projects? Or indeed, does that bring down the investment hurdle in some way when you're thinking about a project?

A: Andrew Campbell

Joel, ACIAR has a climate change program. One of the big issues with the climate change program is helping our partner countries to figure out where they sit in relation to what their leaders committed to in Paris, and what that means for the LULUCF (Land Use, Land-Use Change and Forestry) and agriculture sectors.

The carbon market was aptly described by our Climate Change Research Program Manager [Dr Veronica Doerr] yesterday as the 'Wild West'. I get asked by farmers in Australia, 'Should I sell my carbon?'. And I say, 'No way! You'd be mad in the current situation. I'm certainly not selling mine. You've got "subprime carbon" all over the shop; you've got carbon grifters everywhere, Until we get the governance right to manage this emerging opportunity, then you're far better off just understanding your own footprint, understanding your emissions, understanding your sequestration opportunities, and implementing those that give you co-benefits – i.e. that make sense by themselves without selling carbon.'

If you are doing anything just for a carbon play, in my view you are likely to get your fingers burnt. But that said, we have projects from Fiji to Vietnam to Indonesia to help governments, firms and communities figure out where the opportunities are and where they might be able to put up a credible bid for the green climate funds, for example, that are available, in ways that deliver the co-benefits that justify the project.

I agree with Veronica. It is definitely the 'Wild West' at the moment, and we haven't got the governance right, either in Australia or overseas.

Chair

We need to stop this session now. Thank you, Andrew, for the wonderful presentation. And thank you everybody for the excellent Q&A session.