

Food, climate change and national security

By [Frances Adamson](#)

This is a lightly-edited version of the Sir John Crawford Memorial Address delivered by the Secretary of the Department of Foreign Affairs and Trade, Frances Adamson, in Canberra on August 13, 2018.

Without question, Sir John Grenfell Crawford was a remarkable person. One of the Australian public servants who exercised a profound influence behind the scenes on national policy in this country through the 20th century, Sir John Crawford casts a long shadow on Australian agriculture and trade, over 30 years after his death.

Presenting him with the Australian of the Year award in 1981, Sir Zelman Cowen described him as an “architect of Australia’s post-war growth” – and I think that was no exaggeration. In the CV he built up and left behind, I count Sir John as my predecessor not once but twice. In the 1950s, he was Secretary of the Department of Trade, which amalgamated in 1987 with the Department of Foreign Affairs to become the Department of Foreign Affairs and Trade. And in the 1970s, he was a key figure in the formation of the Australian Development Assistance Agency, later AusAID, now – once again – integrated into the modern DFAT. In the 1980s, he was also a driving force behind the formation of the Australian Centre for International Agricultural Research, ACIAR – now an independent agency within the foreign affairs and trade portfolio, and incidentally, the key financial support behind the Crawford Fund.

1961 Roy Milne Memorial Address

In thinking about and preparing for the Sir John Crawford Memorial Lecture, I read a memorial lecture Sir John delivered himself in 1961.

This 1961 lecture – the 12th Roy Milne Memorial Lecture, a series named for a prominent businessman in the interwar period – was a fascinating read, one that clearly set out Sir John’s deep professional obsession – there is no other word for it – with food security and agriculture.

Entitled “International Aspects of Feeding Six Billion People” and delivered at the University of Melbourne, Sir John’s lecture focused on the key challenge he saw lying in wait for the world in the last four decades of the 20th century.

Apart from the spectre of nuclear war – a vivid and understandable fear only a decade and a half after the end of the Second World War – Sir John Crawford was most concerned by the challenge of feeding the booming world population, particularly in rapidly growing Asia; an Asia that was much poorer than today.

His projections of population growth, based on United Nations data, were strikingly accurate. Speaking in 1961, at a time when the global population was 3 billion, he projected the population in the year 2001 would be 6.28 billion.

According to the UN Population Division, we reached the 6 billion mark in 1999 – so from a distance of 40 years, he got it pretty much exactly right.¹

He was an optimist, in the end, about whether and how we would meet that challenge. Hunger, and I quote, “is a threat we can defeat, if we are so minded, for technology is not our principal problem,” he concluded.

Unsurprisingly, given his background and his work, he saw both aid and trade as necessary but not sufficient parts of a solution that would meet the vast nutritional and calorific needs of the growing human population.

He saw trade as playing only a fairly marginal role in food security, quoting data that showed only 7 per cent of global grain production was exported in 1961.

In 2017, 15 per cent of global grains were exported, many feeding into value chains around the world. Compare this with oil, where 9 per cent of production was exported in 1965 and 71 per cent in 2016.

But in 1961, Sir John also put a heavy emphasis on the importance of the Asian countries, about which he was most concerned, solving much of the problem themselves through economic and agricultural development.

As **we** know, and this is a complex story to cover in only a few words, he was by and large right in his analysis: the countries of what we now think of as the Indo Pacific **were** transformed over that 40- or 50-year period, through economic growth and through development.

International development assistance – including from Australia – played a role, and globalisation, investment and trade have been key parts of lifting economic performance and transforming those societies.

Thankfully, we've also managed to manage the threat of nuclear war that also weighed on Crawford's mind.

Today, as we consider the big questions of food and agriculture, we see a similar trajectory in front of us as the global population heads towards nine billion by mid-century – a tripling from the 1960s.

While populations in the Indo-Pacific and in most parts of the world are much wealthier than they were 60 years ago, what we now think of as food security is still a major issue.

People still go to bed hungry, and in many places nutritional requirements are still not met – hence the second of the 17 global Sustainable Development Goals: “Zero hunger.” In 2016, around 815 million people – close to 10 per cent of the global population – were considered undernourished.²

Sadly, the impacts of chronic hunger and malnourishment are always most severe on children.

Globally, of the 667 million children aged five or under, almost a quarter [22.9%] are considered to have had their growth stunted.³ The proportion is as high as 50 per cent in our immediate neighbourhood, according to the World Health Organization's estimate.

That tells us that the benefits of our global economy are still very unevenly spread.

Food and threats to national security

Apart from its devastating and often life-long physical impacts, food insecurity – along with water security – also plays a key role in national security.

All nations and all national governments are sensitive to the importance of their capacity to ensure reliability in food supply, but it is a particularly important issue for developing countries

– especially those whose geography, history or natural endowments do not lend themselves to reaching long-term food security goals.

It's a point that may be hard to imagine in a wealthy country like Australia, with a major agricultural industry that produces and exports much more food and fibre than our relatively small population can consume. As the Prime Minister said today in his statement to Parliament, "The National Farmers' Federation vision for a \$100 billion a year farm gate industry is undaunted by the drought".

In fact, our country exports around two thirds of its agricultural production.⁴ But consider a country like China, whose progress has been far more hard won.

It is an understatement of the highest order to say that in 1961, China was a vastly different country to the global economic superpower we know today; a largely agricultural society focused on internal challenges.

Even today however – after its integration into the global economy and its rise to be rivalled by only the United States in economic scale – food security remains a vital issue at the heart of Chinese national identity.

In 1996, the Central Government produced a White Paper on "The Grain Issue in China" which identified national food security, particularly in grains, as a high order priority.

Still today, in the many iterations of the Communist Party's No. 1 Central Policy Document, questions of agricultural and rural development remain front and centre.

"Ensuring long-term food supply [...] is a necessary and basic policy for governing the country," that document says, reflecting China's history, but also the vitally important issue of maintaining social and national stability.

China is a large country, but that task is gargantuan.

Today, China feeds one-fifth of the global population on one-fourteenth of the world's farmlands. In the last few decades, agricultural productivity growth in China has run at a rate three times higher than the global average, resulting in a major surge in output.

Chinese rice paddy yields are more than three times greater now than they were in 1961. Wheat yields have gone up nearly tenfold. Nutrition has improved as a result, and the negative impacts of undernourishment are slowly declining.

Now, more conscious of environmental issues, the Chinese Communist Party places heavy emphasis on addressing the environmental impacts that come hand in hand with decades of overuse of fertilisers and chemicals.

I know that ACIAR has been working for years alongside the Chinese Government on food security and agricultural sustainability issues, and have seen first-hand some examples of the hugely positive impact this has had, including in Tibet.

My colleague Andrew Campbell [CEO, ACIAR] has recently returned from there, reviewing grasslands management research critical not only to the local Tibetan population but to the management of 13 Asian river systems. Together, these rivers sustain billions of people.

Food security is of paramount importance to many countries, of course. Consider the immense strategic and political challenge for the various governments that rely on the water in the Mekong River Basin.

A complex and competing range of factors come together in the Mekong – power generation, water for irrigation, farming and human consumption, transport, food security, economic livelihoods, and geostrategic interests.

If a government builds a dam, it restricts or controls downstream water flows – with resulting impacts in neighbouring countries. That water may be needed for seasonal cropping, or for flushing silt, or for sustaining populations of local fish – a key source of protein for millions of people in the countries that stretch up and down the Mekong.

It's an acute example of the trade-offs that govern this complex tangle of issues – and new risks continue to emerge, as we saw in the collapse of the Xepian-Xe Nam Noy dam in Laos last month.

There are examples in other parts of the world.

In 2010, severe drought reduced grain production in both Australia and Russia.

Farmers in both countries suffered greatly – losing large-scale wheat crops intended for export, and contributing to a global hike in bread prices. In the new year, in an entirely different part of the world, protesters took to the streets. Masses protesting the inflation of food prices – the fact that they couldn't afford bread anymore.

Today, that drought – the same one we saw right here in this country – is widely acknowledged as the first in a set of dominoes that brought down the Egyptian Government.

Sitting at the centre, of course, a core universal need for food and water security.

We see a similar story today in Syria – a country that has seen dramatic changes to its rainfall patterns since the 1990s. With these critical water security issues came decline across rural farming communities – simply put, traditional income streams were not as reliable as they once were.

The domino effect again – we saw Syrians forced out of their livelihoods and moving to major urban centres. We saw more urban poverty as a result, greatly compounding the impact of other political and social issues that sparked protests and escalating violent responses.

Today, we see those changing rainfall patterns for what they really represented to the people of Syria – fuel to the disintegration of internal social and political cohesion. The conflict has in turn devastated already declining agricultural productivity, and has all but destroyed the food security landscape for the local population.

We in Australia – and especially, at the moment, rural New South Wales, know all too well the impact of sustained drought, even in a politically and socially stable situation. In tough times and an unforgiving climate, we have developed expertise in water management and dryland farming, in developing drought-resistant strains of crops and stock. This Australian knowledge can help to shore up food security, and so mitigate the suffering and the instability that food shortages can cause.

Climate change as a threat multiplier

The urgency of this work has an added intensity because of an issue that Sir John did not have on his radar at all: climate change.

In 1961, climate change was not part of Sir John's vocabulary – but in Australia's Foreign Policy White Paper, released in November, "climate" or "climate change" is mentioned over 40 times.

Climate change and food security are two inextricable issues for the modern international community.

The threats that Sir John worried about in 1961 are compounded by temperature change, unpredictable rainfall patterns, ocean acidification, sea-level rise, and increases in the frequency and intensity of extreme weather events.

They multiply the risk of threats to both national and international security. At their extreme, they increase the risk of conflict.

In an era of increasing strategic competition in some parts of the world, there is a need to anticipate some large-scale possibilities.

- What happens as some areas become uninhabitable?
- What happens as systems of food and water start to fail?
- What happens as farmers increasingly struggle to produce their crops and people can no longer feed themselves?
- What happens as societies can no longer count on the agricultural productivity of a territory they have relied on for generations?
- What are the consequences to changing patterns of climate, environment and of migration, to systems of governance and social cohesion?

These were the kind of questions we asked ourselves last year in developing our Foreign Policy White Paper.

We concluded that "climate change, environmental degradation and the demand for sustainable sources of food [and water] would be political, economic and security disrupters."

One part of the world which has a particular focus on climate change is, of course, the Pacific – our neighbourhood and one of the White Paper's five central foreign policy priorities.

The political and strategic stability of the Pacific, interlinked with its economic viability, is without question an immediate issue for Australia's own national security.

Climate change is particularly concerning for Pacific island countries who have said it is the greatest threat to the livelihoods, security and wellbeing of their people. It will impact on food and water security, ocean health and fish stocks. Health risks, such as vector-borne diseases, will increase. In the long-term, it poses an existential threat to some countries and low lying islands.

Today, there is no denying the rising frequency of extreme weather events – economically and emotionally devastating at both a personal and national level.

Large-scale migration looms as a growing risk in the years ahead. Whether in the Pacific or beyond, the White Paper clearly concludes that these challenges will undermine stability, and could well contribute to conflict and irregular migration.

Whether or not conflict is the result, though, is only half the point. What we know for sure is that a changing climate will increase the risk of natural disasters, economic shocks and disagreement between and within countries – including right here in the Indo-Pacific.

These are the interwoven, inextricable threats – inherently issues that require a committed, coordinated effort, based on good science, by governments the world over. It cannot be done by anyone alone.

The big question though is whether we have the wherewithal to do it together. The complex nexus between food, climate change and national security adds urgency to the need for global cooperation.

Yet here, in the halls of multilateral diplomacy, we encounter another set of difficulties.

A more recent predecessor of mine as Secretary of DFAT, Peter Varghese, set out some of the factors that have made multilateral diplomacy challenging in recent times, and continue to challenge us today.

First, the UN had 51 members in 1945; it has 193 today.

I don't know whether anyone here has ever tried to reach agreement between 193 parties on complex issues with vital interests at stake, but I can assure you it's not easy.

Secondly, many of our multilateral institutions were designed for that post-war world, a world we just don't live in any more.

In some respects, international institutions have not kept pace with the changes in the distribution of power across the globe, and are under strain.

A third challenge we face in multilateral diplomacy is that in recent years a range of countries has shown a willingness to challenge the rules that help to preserve and progress international order. This distracts attention from common challenges, and undermines trust. At the same time, traditional powers like the United States and Europe, which have played a prominent role in making international institutions work, are going through major challenges of their own.

The United States is reassessing the way it exercises global leadership. In recent times it has preferred unilateral approaches to international problems. The United States has said it will withdraw from the Paris Agreement. It has shown a troubling willingness to engage in trade disputes as a first resort to achieve its economic priorities.

Already, agriculture and the food sector are being affected by new US subsidies to American farmers impacted by China's retaliatory tariffs. This unilateralism runs counter to the spirit of cooperation that is vital in reaching international agreement. In an interconnected and interdependent world, many major challenges can only be solved by collective action.

Nations, including Australia, understandably will have an eye to their own national interests. We should not expect it to be otherwise. But managing the challenges of globalisation also requires a bit of give and take. We can't meet these challenges by applying only the narrowest conceptions of national interest.

The cooperative approach – though never easy – has allowed us to deal with big global issues, like our collective efforts in the 1970s and 80s to agree UNCLOS, the United Nations Convention on the Law of the Sea.

If we lose that spirit of cooperation in this increasingly contested global environment, climate change could continue unabated, and food security challenges could very well intensify. It's a problem with no easy solution; a subject touched upon in the recent Senate Inquiry into the implications of climate change for Australia's national security [final report released May 2018].

Reading the written submissions from across Australia, it's clear that many people understand that climate change affects the availability of food and water, and that that in turn has national security implications.

Australia's contribution to the global effort

As a nation, we are relatively well placed to handle those threats. However the issue of food and water security – burdened with population growth and with increasing climate pressures – will without question weigh on us as well.

In 1961, Sir John spoke bluntly when he said: "I personally doubt whether we are yet pulling our full weight and doubt whether we yet realise the magnitude of the task ahead." Those words continue to have a ring of truth. However, we are nonetheless making headway through our trade agenda and our development program.

We have counted some remarkable agricultural achievements since 1961, helping to feed millions and to raise productivity and agricultural yields around the world.

As Australians, we add value through world-class research and innovation.

Sir John recognised this 57 years ago, calling it our "imaginative invention!" It's clear that in today's competitive agricultural world, Australia's "imaginative invention" is delivering – whether through the transfer of new technologies or through the sharing of agricultural expertise.

From a DFAT point of view, our partnerships with the private sector are indispensable. Many of our large agricultural development initiatives work directly with businesses to transform local agri-food market systems, and protect otherwise vulnerable smallholder farmers who play a vital role in food production across our region. It is about making a practical contribution to achieve more productive, sustainable and climate-resilient agriculture in developing countries.

We support, for example, CePaCT [Centre for Pacific Crops and Trees], an organisation that provides Pacific farmers with seed varieties tolerant to drought, salinity, cyclones, floods and frost.

We are also broadening the trade story to distinguish necessary conversations around food security from protectionist rhetoric tied to food self-sufficiency. We are attracting foreign investment to grow the Australian agricultural market and taking some of that experience back overseas; leveraging our natural strengths in agribusiness and in food.

German company Bosch is investing, for example, in The Yield – a Tasmanian agritech start-up that measures and predicts weather data in real time, and pairs it with intelligence specific to the crop. It's valuable technology with benefits to both productivity and to the environment.

Domestically, this kind of innovative research is reflected in the wonderful work of ACIAR, another Crawford legacy.

ACIAR has supported hundreds of projects in 35 countries in our region –smart phone apps, drone technology, agribusiness education and early warning for crop viruses. Facilitating collaboration that transcends international borders and engages the most remote communities in the world – work that stems from our domestic experience; an understanding of our own food and water security.

To take one example from right here at home, our National Water Initiative is in so many ways a best-practice blueprint for managing water resources across jurisdictional boundaries – analogous in some respects to the transnational management issues we see in the Mekong and in so many other parts of the world.

We have great insights into the practical challenges of cooperation where the stresses on shared resources are extreme and prolonged. This is, after all, not a theoretical exercise – and having built our expertise at home, we commit to sharing it internationally under the umbrella of the Australian Water Partnership.

So too does our work stem from our domestic understanding of gender bias – a factor that the Crawford Fund recognises as “a major inhibitor” in improving agricultural outcomes. As far as DFAT is concerned, gender equality and women’s empowerment are a core part of our diplomatic, trade and development work.

We focus on improving education for women and girls, on opening up community participation, on allowing for engagement in decision-making. For instance, DFAT trains Pacific women to participate at the table as negotiators in major international climate change talks.

The evidence is clear – these kind of efforts improve outcomes in community nutrition, they slow down population growth, and they strengthen resilience in the face of climate change.

It’s an issue that requires broad engagement between people, just as much as it does between states – and on both counts, we must do what we can to ensure that happens. Universal human needs

Times have certainly changed since 1961 – and yet, Sir John’s words then are a salient reminder of how universal they are, these basic human needs.

Sir John was concerned with how the world would feed a population increase of 3 billion people that the demographers of his day were projecting, out to 2001.

Today, we too should be concerned with how the world will feed the population increase of a further 3 billion people that demographers of our day are projecting for 2050.⁵

Climate change is an exacerbating factor that Sir John did not have to contend with, but that we can no longer ignore. It will not change the extra 3 billion people that we have to feed, but it will exacerbate the challenge of feeding them. It will exacerbate the risk that territories in some parts of the world will no longer be able to support the people who live on them.

It will exacerbate the risks of resource competition, of health challenges, of economic prosperity, of humanitarian disaster. It will exacerbate the risks of state fragility, of mass migration, of internal and of international conflict.

A different Sir John – Sir John Beddington, former Chief Scientist of the United Kingdom – once called it “a perfect storm.”

Australia is doing a great deal to combat this perfect storm, this great knot of interlinked issues – it is a complex problem, but not an impossible one.

Yet in 2018, in the very pragmatic and introspective shadow of Sir John Crawford, it is time to ask ourselves again, whether we, too, need to be doing much more.

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