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**THE CRAWFORD FUND**  
*For a Food Secure World*

# **WASTE NOT, WANT NOT**

**The circular economy to food security**

The Crawford Fund  
2016 Annual Conference  
Canberra ACT, Australia  
29-30 August 2016

*Editor: A. Milligan*





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## The Crawford Fund

The Australian Academy of Technological Sciences and Engineering established the Crawford Fund in June 1987. Named in honour of the late Sir John Crawford, the Fund commemorates his outstanding services to international agricultural research. The Crawford Fund is a non-profit, non-government organisation, dedicated to raising awareness of the benefits to developing countries and to Australia of international agricultural research. The Fund depends on grants and donations from governments, private companies, corporations, charitable trusts and individual Australians. It also welcomes partnerships with agencies and organisations in Australia and overseas.

The Fund promotes and supports international R&D activities in which Australian research organisations and companies are active participants. It supports the work of the Australian Government's aid program, particularly with the Australian Centre for International Agricultural Research (ACIAR), CGIAR and other international research centres.

The annual conference is a key part of the Fund's public awareness campaign, which increases understanding of the importance and potential of international agricultural research, its achievements and needs.

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

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## Acknowledgements

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Mr Andrew Campbell (Sessions 1 & 2)

*CEO, Australian Centre for International Agricultural Research*

Dr Helen Garnett PSM (Session 3)

*Member Grains Research & Development Corp. Board and Crawford Fund Board*

The Hon. Margaret Reid AO (Lunchtime discussion session)

*Chair, Crawford Fund ACT Committee*

Ms Jo Evans (Sessions 4 & 5)

*Deputy Secretary, Department of Agriculture and Water Resources*

Mr Daniel Walker (Session 6)

*Research Director Agriculture & Global Change, CSIRO Agriculture & Food*

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# Foreword

As the first Chair of its Board, Sir John Crawford asked the International Food Policy Research Institute (IFPRI) to translate complex scientific and economic findings into language comprehensible to policy makers and the broader community. He directed his request to an elite group of scientists and policy makers, and I am pleased to see that Dr Karen Brooks of IFPRI, Director of the CGIAR Research Program on Policies, Institutions and Markets, is delivering the first keynote of this year's conference.

Sir John was also aware that policy is formulated in a political context. He keenly tested the practicality of new approaches more broadly, including among illiterate farming communities in India whom he encountered in his landmark work as part of a World Bank Mission there in 1966. His contribution to the 1966 mission was pivotal to India's progress to the Green Revolution.

Informing policy makers and the broader community on the contributions that international agricultural research, training and development can make to a food secure world is the central aim of the Crawford Fund's public awareness program and the key purpose of its annual conference. Our topics are selected accordingly.

There is, of course, no single pathway to global food security, but instead an array of opportunities: new higher yielding and more resilient technologies and farming practices; enhanced trade through better biosecurity; reduction in food losses and waste; and more. For food loss and waste, our topic this year, we have again assembled a panel of world's best speakers, from Australia and internationally, addressing issues along the food supply chain. I take this opportunity to thank them all for their energy and interest in this important food security issue and for taking the time to be with us today.

Australia continues the tradition set by Sir John of taking a lead in pathways to global food security – through the Australian Centre for International Agricultural Research and the many Australians engaged in agricultural research and training for development. We have a number of them here at this conference, to highlight Australian innovation in food loss and waste.

A recent OECD meeting records that 'Australia was out in front on open market approaches along with the US [and that] the proposed Australian National Food Waste 2025 Strategy was also introduced, along with the concept of tying food waste to the Emissions Reduction Fund to encourage food waste recovery'. Other issues taken forward by the OECD, and at this year's conference, include the concept of a circular food economy; measuring loss and waste – recognised by the G20 technical platform on food loss and waste as the next goal to be achieved so that further progress can be made; and how costs might be offset by benefits to managing food loss and waste to farmers, retailers and consumers: another way of expressing 'doing well by doing good'.



## Foreword

All of this is a difficult task to harmonise globally. We invite you to join the effort.

We and our collaborators have supported 48 young Australians to attend this year's conference. They have shown their interest and passion around food loss and waste, or food security more generally, and hope to engage with delegates today. We need young people to take up the mantle to address food security through research, training, volunteering and advanced careers.

The Crawford Fund wishes to thank the sponsors and supporters of this year's conference. They are many, and are much appreciated for supporting the conference and our burgeoning young scholars program. All are listed in this proceedings.

A handwritten signature in black ink that reads "John Kerin". The signature is written in a cursive, slightly slanted style.

Hon. John Kerin AM  
Chairman, The Crawford Fund



# Letter from the Minister for Foreign Affairs



**THE HON JULIE BISHOP MP**

---

Minister for Foreign Affairs

The Hon Margaret Reid AO  
Crawford Fund Board of Directors  
Wetlands House  
1 Dairy Road  
FYSHWICK ACT 2609

Dear Margaret

The Crawford Conference is an important event on the international development calendar and this year's Conference focuses on one of the critical food challenges for the global community – food loss and waste.

The importance of this challenge is recognised in the new Sustainable Development Goals. These include broad goals on poverty and hunger and also a specific target to significantly reduce food loss and waste. Achieving this ambitious target would boost food security and improve livelihoods, as well as lead to more sustainable resource use and reduced greenhouse gas emissions.

The Food and Agriculture Organisation estimates that US\$750 billion worth of food is lost or wasted every year. This is more than five times the US\$132 billion worth of Official Development Assistance provided by OECD donor countries annually.

Development assistance is dwarfed by the size of this challenge, but well targeted aid programs in agriculture have a vital role to play in finding and enabling solutions. Seventy per cent of the world's extreme poor are engaged in the agriculture sector and it is a key source of jobs, incomes and exports for many developing countries. It is also a key driver of economic growth, poverty reduction and enhanced stability. This is why I included 'Agriculture, fisheries and water' as one of the six priority areas of Australia's development policy.

Australian aid investments in agriculture are designed to be innovative and to play a catalytic role, particularly through leveraging private sector partnerships, investment and know-how. Our aid helps to strengthen markets and reduce food loss and waste at various points along the value chain – including addressing constraints and inefficiencies related to harvesting techniques, storage, transportation, infrastructure, packaging and marketing. For example, Australia has been a key driver and funder behind the innovative AgResults program (which we currently chair). Later today, you will hear more about one of

the AgResults pilots, which is finding cost-effective private sector solutions to improve post-harvest grain storage for poor farmers in Kenya.

Australia's tough farming environment and long-standing tradition of research and innovation have forged world-class agricultural expertise, which is well-represented at this Crawford Fund conference. Australia has also built partnerships with experts across the globe and I trust many of them are also in attendance.

I would like to acknowledge the important role ACIAR plays in harnessing innovation through agricultural research partnerships. ACIAR is recognised as a global leader in developing and delivering effective agricultural research partnerships in developing countries. It extensively uses Australian research capability to target important development challenges, including food loss and waste. For example, ACIAR is working with a producers' cooperative in Pakistan to improve the quality and shelf-life of locally-grown mangoes through better post-harvest management. This reduces food losses and boosts incomes for poor farmers.

The Government also recognises the vital importance of attracting and nurturing future generations of agricultural development practitioners. I know there are many students in the audience today, including New Colombo Plan students. The New Colombo Plan (which I launched in late 2013) provides a great opportunity for them to benefit from in-country experience as part of their studies. I am delighted these scholars have recognised the value of focusing on the agriculture sector and are in attendance.

Finally, I express my appreciation to the Crawford Fund for your continuing role in raising awareness of research and policy challenges in agriculture and for creating platforms such as this annual conference to bring together experts and practitioners from around the globe to find solutions.

I wish you well with the conference and look forward to its ongoing impacts.

Yours sincerely



Julie Bishop  
30 AUG 2016