

## **Submission to the Inquiry into the United Nations Sustainable Development Goals (SDG)**

### **The Crawford Fund**

The Crawford Fund is a not-for-profit organisation seeking to increase Australia's engagement in international agricultural research and development (R&D). We work to raise awareness of the benefits – for both Australia and developing countries – of investment in the sector. We also support training programs for developing country scientists, drawing on Australian experience, and encourage young Australians to become involved in international agricultural research.

We are a registered charity and depend on grants and donations from governments, private companies, corporations, charitable trusts and individuals. We work in partnership with the Australian Centre for International Agricultural Research (ACIAR), the Consultative Group on International Agricultural Research (CGIAR) research centres, and other international research organisations, as well as experienced Australian scientists and their employing organisations.

Whilst the Crawford Fund is not qualified to comment on the entire suite of SDGs, we would like to bring to the attention of the enquiry the importance of the SDGs relating to food and water and the key role Australia plays internationally in helping countries achieve these. With respect to the ToR, we contend that it is impossible to single out any one SDG, because of the interrelated nature of the SDGs referred to in this submission. Consequently our submission examines the water-food-energy nexus and indicates the role Australia can play in delivering outcomes in this area regionally and globally.

Our underlying remarks relate most strongly to the enquiry's ToR:

- e) what SDGs are currently being addressed by Australia's Official Development Assistance (ODA) program
- f) which of the SDGs is Australia best suited to achieving through our ODA program, and should Australia's ODA be consolidated to focus on achieving core SDG;

### **The context of the challenge**

In 2014, 815,000 million people lacked food and nutritional security. Additionally, over eating had seen the emergence of approximately 2 billion overweight people subject to associated diseases including diabetes (WorldBank, 2017; Calouste Gulbenkian Foundation 2014). Similarly, in 2014, access to safe water was still a dream for about 900 million people and more than 2.5 billion lacked safe sanitation.

In our view, food and nutritional security is and will remain a critical issue in the foreseeable future given that globally we have to feed a projected 9.7 billion people by 2050. The WorldBank reported in 2017 that agricultural development is one of the most powerful tools to end extreme poverty, boost shared prosperity and feed the growing global population. Growth in the agriculture sector is two to four times more effective in raising incomes among the poorest compared to other sectors.

## **The Water-Food-Energy Nexus**

Many of the SDGs are linked together in a complex manner. For example, SDG 1 No poverty, SDG 2 Zero Hunger, SDG 3 Good health and well-being for people, SDG 6 Clean Water and Sanitation and to a lesser extent SDG 5 Gender Equality and SDG 7 Affordable and Clean Energy all relate to agricultural production. All these SDGs have key relationships with the environment as does SDG 12 Responsible Consumption and Production.

Increasing the productivity of agricultural production has been demonstrated to lift individuals out of poverty and increase gross domestic product at national levels. Furthermore, increasing the range of crops and animals produced can play a big role in improving nutrition, which in turn has positive implications for human health. The latter is also vitally influenced by access to clean water and sanitation. Agriculture is frequently dependent on irrigation, so water access is also an important issue in terms of both SDG 6 and SDG 2. Similarly, clean energy production (e.g. hydropower) also demands access to water, so the interactions of the above factors mean that this group of SDGs needs to be considered together in terms of the water-food-energy nexus explained above. Climate change (SDG 13 Climate Action), whilst possibly benefiting some climatic zones in terms of agricultural suitability, will have profound effects on agricultural production via temperature increases and more variable rainfall patterns in many highly populated regions. Finally, empowerment of women (SDG 5 Gender Equality) must also be considered in relation to the water-food-energy nexus as women usually play leading roles in agriculture, food provision and household water access and sanitation issues, especially in developing countries, especially in poorer regions like sub-Saharan Africa and South Asia, where more than 50% of the population is still engaged in agriculture.

## **Dealing with the Food and Water SDGs is critical to economic development, poverty reduction and health**

The evidence of the importance of investing in agriculture to help lift people out of poverty and improve nutrition and health outcomes is clear. The World Development Report – Agriculture and Development (World Bank 2008) indicates that agriculture can be viewed as an economic activity, as a livelihood, and as a provider of environmental services. The report states that, “Agricultural production is important for food and nutritional security because it is a source of income for the majority of the rural poor. It is particularly critical in a dozen countries of Sub-Saharan Africa, with a combined population of about 200 million and with highly variable domestic production, limited tradability of food staples, and foreign exchange constraints in meeting their food needs through imports. These countries are exposed to recurrent food emergencies and the uncertainties of food aid, and for them, increasing and stabilizing domestic production, is essential for food and nutritional security.”

The report also indicates that agriculture can be a source of growth for the national economy, a provider of investment opportunities for the private sector, and a prime driver of agriculture-related industries and the rural nonfarm economy. Two thirds of the world’s agricultural value added is created in developing countries. In agriculture-based countries, it generates on average 29 percent of the gross domestic product (GDP) and employs 65 percent of the labour force. The industries and services linked to agriculture in value chains often account for more than 30 percent of GDP in transforming and urbanized countries. These figures had not changed significantly by 2014.

In 2008, agriculture was a source of livelihoods for an estimated 86 percent of rural people. It provided jobs for 1.3 billion smallholders and landless workers, “farm-financed social welfare” when there are urban shocks, and a foundation for viable rural communities. Of the developing world’s 5.5

billion people, 3 billion live in rural areas, nearly half of humanity. Of these rural inhabitants an estimated 2.5 billion are in households involved in agriculture, and 1.5 billion are in smallholder households. By 2016 the World Bank reported that 65% of poor working adults still made a living through agriculture.

### **Meeting the SDGs cannot be done in a business as usual manner**

We have to realise that if we are to achieve the SDGs relating to food and nutritional security, and water and sanitation there has to be investment in doing this sustainably as opposed to just increasing production in a business-as-usual manner. Currently, about 70% of fresh water is used in agriculture. Projected water demands vary depending on potential global and national economic growth scenarios, but all are on a rising trajectory as population continues to grow and competition for water intensifies between agriculture, industry and domestic uses. Furthermore, forecast climate change scenarios will have negative impacts on water availability. Agriculture also accounts for significant global greenhouse gas production. GHG emissions from agriculture are totally unsustainable running at around 25-30% globally and if the 'doubling of food production' is achieved with 'business as usual', they are forecast to rise to 70% of global emissions by 2060. Furthermore, losses and/or degradation of agricultural land, depending on sources quoted, are in the range of 1 to 7m ha/ year. Soil fertility has also been run down in many countries due to a lack of or limited availability of manure and artificial fertilisers. We have to get much better at limiting erosion and recycling and reusing nutrients if this problem is to be overcome. Going organic could have benefits and clearly adds to sustainability, but yields for many staple cereals are 25% less than conventional agricultural practices (Scientific American 2012) and will not help meet SDGs 1,2 and 3.

### **Australian support of the SDGs in the Indo-Pacific region**

In the Indo-Pacific region, there is a mix of countries ranging from countries dependent on agricultural production (e.g. Laos, Cambodia) through transforming economies (India and China) which are industrialising, yet still have major agricultural bases, to developed economies (e.g. Singapore, Australia) in which industry and services dominate GDP. In terms of the SDGs these countries have differing concerns. Food and nutritional security are critical to meeting the relevant SDGs in the poorer countries, whereas the production of surplus food for export in some of the more developed economies contributes to global food and nutritional security. The need for improved technologies, policies and reforms to sustain and diversify production is great in most of the lesser developed economies, and also important in countries like India where water scarcity and malnutrition are critical factors. Access to clean drinking water is also a key issue in many countries and pollution of water bodies a major problem.

Australia is in a strong position to help our Indo-Pacific neighbours and those further afield meet the SDGs related to food and nutritional security. Our unique strength in international agricultural research comes from having crops and agroclimatology closely related to those in many developing countries, our training systems in agricultural science which has fostered close links between researchers and farmers, and from a long track record of achievement in agricultural science in Australia and overseas. Here for example the growth in total factor productivity has exceeded that in most other Australian industries.

### The role of the Crawford Fund

The Crawford Fund has a philosophy of “*doing well by doing good*” and contributes to Australia’s ODA efforts in meeting the SDGs via training including Master Classes, mentoring and raising public awareness of the mutual benefits (to Australia and recipients countries). Over the last 30 years we have provided training to over 10,000 scientists. Specific current and recent activities include:

- 2016 and 2017 Annual Master Classes in Research Leadership and Management for mid-career overseas scientists and research managers from Asia, Africa and the Pacific and a January 2018 Master Class in Biosecurity for Indonesian officials. Other recent Master Classes have included those on Fisheries Management (Indonesia), Crop Gene Bank data Management and Practices (India and Malaysia), Science Communication (Kenya and Fiji).
- Placement of mentors to work with government agencies in Laos (current) and in Vietnam and Cambodia (2018-2019 financial year). These mentors are experienced Australian academics/government scientists and topics they work on include identification and management of vegetable crop diseases (Laos), forestry management (Vietnam) and food value chains to enhance smallholder returns (Cambodia). Where possible we endeavour to have Australian volunteers work with these mentors.
- An annual Parliamentary Conference on emerging issues (for example the August 2018 Conference will focus on *Reshaping Agriculture for Better Nutrition: the agriculture-food-nutrition-health nexus*).
- Supporting the emerging generation of researchers known as our RAID network (researchers in Agriculture for International Development) and young Australian scholars doing university degrees.
- The Fund’s State and Territory based committees run training courses overseas and in Australia, as well as supporting young Australian scholars. These courses often engage state government agencies and can cover topics of concern to these agencies and overseas counterparts including biosecurity and trade issues as well as building relationships. The training courses focus on both improving technical capacity and, in some cases, building understanding of policy and regulatory frameworks. Some recent examples include:
  - A workshop on “Developing aquaculture as a livelihood in Timor-Leste” held in Dili, Timor-Leste, in late August 2016 (*supported by Crawford NT Committee*).
  - A training workshop on evaluating agricultural innovations, held in Cambodia and Lao PDR, aimed at providing researchers and rural extension staff with the concepts and tools they need to understand the economics of farming systems and the factors influencing the of innovations such as novel forage crops (*supported by the Crawford WA Committee*).
  - An in-country workshop that furthered the work of a large-scale ACIAR project on Papua New Guinea’s shark fisheries, which aims to improve capacity in ecological, socioeconomic and stock assessment aspects of fisheries management (*supported by Crawford Tasmanian Committee*).
  - An international conference on Regional perspectives on population, development and the environment was held at the University of Yangon, Myanmar in February 2017 (*supported by Crawford ACT Committee*).
  - LandCare training in southern Africa (*supported by CF Victorian Committee*)
  - Tropical fruit production training in the Philippines (*supported by CF Qld Committee*)
  - A train-the-trainer course in sustainable intensification and diversification in the lowland rice system of northwest Cambodia was held at Mean Chey University, Cambodia in October 2016 (*supported by Crawford NSW Committee*).

- “Converting Waste into Resource: Beneficial and safe reuse of waste and wastewater in peri-urban agriculture in India”, in Udaipur (Rajasthan) in 2015 (*supported by Crawford SA Committee*).

The Crawford Fund is supported by a small grant from the Federal Government (via ACIAR), most, but not all state and territory governments and private donations. It provides a highly effective, cost efficient means of funding ODA objectives, given that most experienced staff working with us do so on a *pro bono* basis and similarly we are able to leverage in-kind support from a number of national and state based agencies. We could achieve considerably more if this funding were to be increased.

#### Crawford Fund relationships with other key ODA providers

The Crawford Fund complements Australia’s highly effective agricultural aid program administered through the Australian Centre for International Agricultural Research (ACIAR). ACIAR’s 10 year Strategy 2018-2027 indicated that *all countries in the Indo-Pacific are grappling with the complex, intersecting challenge of how to grow more food and reduce poverty – moreover how to feed more people healthier food - using less land water, energy and fewer nutrients per unit of output, while substantially reducing carbon emissions*. ACIAR’s strategy focuses around high level objectives that directly contribute to 12 of the SDGs. Previous studies have demonstrated on a very conservative basis that for every dollar invested in these areas by ACIAR, the return on investment is approximately six fold (ACIAR, 2015). When a suite of 130 projects was reviewed, the total investment (expressed as a ‘present value’ in common 2010 dollars) was \$379 million — \$189 million of this funded by ACIAR. The total benefit from this investment (again expressed on a common basis) was estimated to be \$31.9 billion — \$15.9 billion of this directly attributed to ACIAR funding. This implies a benefit-cost ratio of around 84:1. That is, every dollar spent on this research has delivered \$84 in return.

The Crawford Fund supports the current distribution of ACIAR activities across the Indo-Pacific region including a small proportion of ODA investment in Eastern Africa. The Crawford Fund, with its focus on mentoring by senior Australian agricultural scientists, and inspiring young Australians to engage in projects that address the SDGs, also brings tremendous leverage and return on investment for the modest funds (\$1.6m per annum) invested.

The recent ACIAR Strategy has reinforced the importance of dealing with gender issues, water and climate and agribusiness value chains to tackle areas where progress is needed to improve agricultural productivity, profitability and natural resources management. Simultaneously the Crawford Fund has been focusing some of its training activities on the development of leadership and management skills to help current and future leaders of agriculture deal with complex policy and organisational issues. This training is focused not only on overseas individuals, but also on Australians working in, or planning to work in international agriculture. Both ACIAR and the Crawford Fund concentrate effort based on demand from partner organisations and overseas agencies/governments.

In the water realm, the relatively recent formation of the Australian Water Partnership (AWP) which is funded by the Department of Foreign Affairs and Trade, has seen the mobilisation of Australian institutions and the private sector to work with overseas agencies and water utilities. This initiative is aimed at using Australian experience of water policy, regulation and management to be adapted and adopted for application elsewhere to tackle the growing global issue of managing water under increasingly scarce conditions. Major areas of focus have, to date, included Myanmar, India, and Vietnam. Water management *per se*, invariably involves understanding the impact of extraction for energy, urban and agricultural uses on the environment and how competing demand affects the overall resource. A key aspect of Australian investment by the AWP is that it is demand driven, with needs identified by national government agencies in collaborating countries and the international

development banks. The Crawford Fund has worked with AWP in providing training in India on irrigation management practices.

We argue that the application of Australian aid into the water-food-energy nexus is not only helping to deal with the critical issue of food and nutritional security, but is also helping with a range of trade (agribusiness), biosecurity and soft diplomacy issues. The return on investment from these investments is demonstrably high and contributes significantly to reaching the relevant SDG targets.

## Conclusions

Meeting the SDGs is a truly global challenge that is vital to sustaining and improving quality of life and environmental conditions for all on earth. Australia already has and can, in the future, make a very significant contribution to helping meet the global challenge around the WSDGs. In particular, Australian ODA in agriculture and associated natural resources management is widely recognised to be based on sound experience of these issues in Australia and thus the development of management practices, policy and regulatory responses that can be tested and adapted for overseas use. Given Australia's significant know-how in agriculture and associated natural resources management, it is fitting that we share expertise to assist other poorer countries in the region achieve real outcomes in terms of the SDGs. There are clearly mutual benefits with respect to improved production and profitability, trade and soft diplomacy stemming from ODA in this area. Australia's ODA focused on the SDGs relating to food and nutritional security, water and energy is well focussed and demand driven. Returns on investment from ODA focused on agriculture in the past have been high. As well as fundamental scientific and engineering support, there has been recognition and attention given to gender issues and softer skills including leadership and management. We strongly urge that investment in this type of ODA is maintained or increased.

## References

ACIAR 2009. <http://aciar.gov.au/publication/ias063>

ACIAR 2018. 10 Year Strategy. <http://aciar.gov.au/ten-year-strategy>

Calouste Gulbenkian Foundation 2014. Gulbenkian Think Tank on Water and the Future of Humanity. Gulbenkian Foundation, Lisbon, Portugal.

Crawford Fund Annual Report 2018. <https://www.crawfordfund.org/news/news-building-awareness-skills-smarter-agriculture-annual-report-2016-17-march-2018/>

Scientific American 2012. Will Organic Food Fail to Feed the World?

A new meta-analysis suggests farmers should take a hybrid approach to producing enough food for humans while preserving the environment. <https://www.scientificamerican.com/article/organic-farming-yields-and-feeding-the-world-under-climate-change/>

WorldBank 2017. <http://www.worldbank.org/en/topic/agriculture/overview>

