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4<sup>th</sup> November 2015

The Hon Dr Sharman Stone MP  
Chair of the Foreign Affairs and Aid Sub-Committee  
Joint Standing Committee on Foreign Affairs, Defense and Trade  
PO Box 6021, Parliament House  
Canberra ACT 2600

Dear Dr Stone

**Re: The role of development partnerships in agriculture and agribusiness in promoting prosperity, reducing poverty and enhancing stability in the Indo-Pacific region**

The Agricultural Research Council of South Africa has successfully partnered with several Australian research and industry organisations (the Beef Co-operative Research Centre, CSIRO, Meat and Livestock Australia, Queensland Department of Agriculture Forestry and Fisheries, the University of Adelaide and the University of New England) through three independent ACIAR-funded projects that have been ongoing since 1999. Each of the more recent projects has built on the outcomes of the earlier project(s) and has also been able to consecutively secure increased investment in the R&D from both the South African government and private sectors organisations over that time.

These ACIAR-funded projects have collectively achieved very significant and quantified impacts on the profitability and productivity of small-scale and emerging beef businesses. The most recent (current) project, which is scheduled for completion in 2018, is now aiming to directly link those small-scale farmers with beef value chains operated by three commercial retailers in South Africa (Massmart/Walmart, Pick 'n Pay and Woolworths South Africa) by developing the capacity of those farmers to meet the specifications of those retailers' high-value beef markets. Our stated intent is to provide proof of concept to the retailers and current project partners, with the aim of then working with them and possibly additional retailers to extend the results across South Africa and at least to the Southern African Development Community (SADC) countries beyond the life of the project, with new funding to be sourced primarily from the SADC countries.

It is therefore my very great pleasure to provide the attached submission for consideration of your committee during its inquiry on *'The role of development partnerships in agriculture and agribusiness in promoting prosperity, reducing poverty and enhancing stability in the Indo-Pacific region.'*

Yours sincerely,

Prof Azwihangwisi Maiwashe (PhD)  
Acting General Manager  
Agricultural Research Council: Animal Production Campus

## **‘The role of development partnerships in agriculture and agribusiness in promoting prosperity, reducing poverty and enhancing stability in the Indo-Pacific region’**

### **Submission on behalf of the Agricultural Research Council (ARC) of South Africa**

This submission provides responses to each of the terms of reference of the inquiry being conducted by the Foreign Affairs and Aid Sub-Committee of the Australian Parliament. Before addressing those specific terms of reference though, some background information is provided by way of demonstrating the significant changes that have occurred since 1999 in South Africa directly as a result of the ACIAR-funded projects.

#### **Background**

Beef cattle production makes up ~9% of the gross value of South Africa’s agricultural production. There are about 13 million head of cattle in South Africa with more than 5.5 million head located in the poor rural communities. Cattle from poor communities are therefore an important but non-productive asset for South Africa, as these herds comprise ~40% of the national herd but contribute only 5% to South Africa’s GDP from beef.

Following South Africa’s democratisation in 1994, the focus of the country’s agricultural development was directed to the previously disadvantaged communities, which were divided into two main groups. The first, referred to as small-scale farmers, run their cattle on communal grazing land. The second group, referred to as emerging farmers, own or lease land. Numbers of cattle in both groups range from 4 to 3000 cattle per community group. The majority of small-scale and emerging farmers are found in the former homelands.

Since the early 1990s, the South African beef market has changed radically. In the past, small-scale and emerging farmers could sell their cattle as bulls, steers or old cows for a reasonable price. But the advent of a large feedlot sector in South Africa has meant the commercial market now requires animals that are earlier maturing, efficient converters of high quality feed and possess superior carcass attributes. Markets generally available to small-scale and emerging farmers include local butchers or meat required for local festivities. Those markets are both unpredictable and unreliable. To improve profitability, small scale and emerging farmers need to enter the well-defined commercial markets, where attributes such as feed efficiency, growth and superior carcass attributes attract premium prices.

Very little was known about the cattle raised by emerging farmers. Hence, buyers from the commercial sector were reluctant to purchase these animals. Preliminary collaborative research (undertaken by the ARC and CSIRO from 1981) had shown that the indigenous Sanga breeds derived from southern Africa were comparable to those used by commercial farmers for traits such as reproduction and meat characteristics (tenderness and flavour for example), but this work was limited. Designed breeding programs had not been practiced in the small-scale sector. In the past, direct selection of indigenous breeds was for attributes of cultural significance such as coat colour. Indirect selection would have favoured adaptation to tropical environments and fertility (through the need for lactating females) but was unlikely to have changed carcass and beef quality attributes. It was hypothesised that if it could be demonstrated that animals bred by the small-scale and emerging farmers were able to compete on these traits, opportunities would be created for these farmers to tap into the premium beef markets and, therefore, to substantially increase their profitability. It would also ensure development of a seed-stock market for lines and breeds of cattle that are superior for carcass and meat quality attributes.

Australian beef producers were increasingly using crossbreeding as one of their management options to meet the demand for product quality and production efficiency. Breed options for Australian producers in tropical regions (who produce about 60% of the \$6.5 billion per annum beef exports from Australia) have been limited by the poor adaptation of the European breeds and the poor productive attributes (growth in the absence of environmental stressors, reproductive performance and beef quality) of the *Bos indicus* breeds most commonly used in crossbreeding programs. However additional results from CSIRO and the Beef CRC in Australia showed that Sanga breeds derived from Southern Africa have carcass and meat quality attributes that are of similar quality to those of British breeds but they are also much better adapted to the stressors of tropical environments than the European breeds and hence provide opportunities for beef producers in northern Australia to improve beef quality, whilst retaining adaptation to environmental stressors.

The initial ACIAR-funded project undertaken by the ARC and its Australian partners (*‘Developing profitable beef business systems for previously disadvantaged farmers in South Africa’* between 1999 and 2008) was therefore developed to specifically:

1. Develop the capacity of South Africa's resource-poor farmers and their networks;
2. Benchmark and develop the role of cattle from emerging farmer herds and improve their performance through the South African commercial beef system, with a specific focus on the feedlot sector;

3. Increase knowledge of relationships between components of herd profitability in (sub)-tropical environments, to provide the means for ongoing genetic and non-genetic improvement of tropically adapted beef cattle;
4. Preserve the gains in social infrastructure and training built up in the project and transfer the carriage of further expansion of the project to local, provincial and industry management and leadership; and
5. Publicise the key information emanating from the experimental work that the carcass attributes of indigenous cattle are the equal of or better than those of conventional, exotic breeds reared under conditions of high input agriculture.

Outcomes from the initial ACIAR-funded project are summarised in the specific points of inquiry below, with valuable outcomes being achieved at farm level. However little integration higher up the value chain was evident at the end of that project in 2008. Further, many of the cattle managed by small-scale and emerging farmers were not deemed suitable for feedlot finishing and many of those farmers preferred to keep older animals for social and cultural reasons rather than sell weaners into the feedlots. These older animals are discriminated against in the South African beef classification system and consistently receive lower prices/kg than younger grain-fed animals, even though there is no scientific evidence to support the basis for market prices being age-based, all else being equal.

Hence the two subsequent projects (a small research activity (SRA) *'Beef palatability in the Republic of South Africa: implications for niche-marketing strategies'* conducted in 2009 and 2010; and the current project *'High quality markets and value chains for small-scale and emerging beef farmers in South Africa'* which formally commenced in 2015, with informal activities underway since 2012 and scheduled for completion in 2018) focused specifically on development of new opportunities to link small-scale and emerging farmers selling older animals to the slaughter specifications of commercial retailers and the meat quality preferences of South African consumers.

The SRA project examined the sensory responses of rural and urban South African consumers tasting high and low connective tissue muscle prepared as a grill or slow cooked. Carcasses used to provide taste panel samples were sourced from suppliers in South Africa and in Australia. The Australian samples were sensory tested using Australian consumers and exported to South Africa to be tasted by consumer groups there, to provide links back into the Meat Standards Australia database.

The current project is addressing the following research question: *'Can high-quality beef products derived from small-scale and emerging farmer herds be developed to cost-effectively meet the preferences of South African beef consumers?'* This project is being undertaken in collaboration with the University of New England and the University of Adelaide in Australia, the South African National and Provincial Departments of Agriculture, the National Agricultural Marketing Council of South Africa, several South African universities, the National Emergent Red Meat Producers Organisation, the Food, Agriculture & Natural Resources Policy Analysis Network (FANRPAN, across the whole of Africa) and three commercial retailers in South Africa (Massmart/Walmart, Pick 'n Pay and Woolworths South Africa).

### **Responses to the Specific Terms of Reference**

#### ***1. An insight to what ACIAR has achieved to support sustainable economic growth, improving livelihoods and strengthening food and nutrition security***

The earlier ACIAR-funded projects in South Africa delivered several outputs and outcomes, all of which were directly aimed at supporting sustainable economic growth, improving livelihoods and strengthening food and nutrition security for South Africa's small-scale and emerging farmers. They include:

- Unequivocal proof that cattle from small-scale and emerging herds have the ability to meet the specifications of South Africa's commercial beef markets, indicating a genuine opportunity exists for import substitution, whereby the >5 million cattle in emerging and communal herds could be used to overcome the significant shortfall in South Africa's domestic beef market demand.
- Strong evidence that high quality meat can be derived from older indigenous-breed animals finished at pasture in small-scale and emerging farmer herds with the proviso that no growth promotants are used in the production process and that the carcasses are processed under optimal conditions. This is now enabling the current ACIAR-funded project to specifically target high-value commercial markets based on grass-fed cattle from those small-scale and emerging farmer herds.
- New knowledge and methods to enable South African (and Australian) beef producers (commercial, small-scale and emerging) to manage and improve their herds for a very wide range of economically important productive (growth, reproduction, carcass and beef quality) and adaptive (resistance to ecto- and endo-parasites and endemic diseases and tolerance of high temperatures and humidity and seasonally poor nutrition) traits and encouraging the most successful of the emerging farmers to establish seed-stock herds for their indigenous breeds of cattle and targeting both a national and international market for genetically elite animals.
- Export of several indigenous cattle breeds and derived breeds (Afrikaner, Bonsmara, Drakensberger, Nguni, Tuli) from South Africa for use in improving cattle herds in northern Australia.

- Introduction and training of researchers and their support staff in the use of new technologies including: a) ultrasound scanning of cattle to determine their suitability to meet beef market specifications as well as for use in genetic improvement; and b) DNA markers to identify cattle that carry desirable genes for economically important traits.
- New techniques and tools designed to specifically enable the project's farmers to achieve continuous improvement and innovation (CI&I) of their beef businesses over the life of the project and beyond. The first ACIAR-funded project was designed from the outset to ensure both the rate and scale of improvements and innovations was sustained beyond the end of the project, having the ambitious expectation that it would be rolled-out nationally, whilst maintaining growth in Limpopo and North-West provinces.
- 'Institutionalisation' of the project's CI&I processes resulted in significant increases in the social infrastructure and partnerships created, in particular expansion to other provinces and municipalities to ensure local leadership. At the end of the project, networks had been established in 7 South African provinces. A key feature of successful institutionalisation is when a methodology becomes '*the way we do things around here*'. In South Africa, there is now complete commitment to CI&I as a process for decision-making at almost every level of the cattle industry managed by small-scale and emerging farmers, who use the process to choose between new production or marketing opportunities or new technologies; the extension and technical staff use it to choose how and where to allocate their efforts for greatest impact; and the project leaders and managers use it to choose how and where to focus staff and financial resources for greatest impact. The National Department of Agriculture uses CI&I as a policy framework and has since funded a number of positions within the ARC to ensure more cattle farmers and more regions are included in the process.
- The initial ACIAR-funded project worked with farmer teams in two provinces – Limpopo and North West. Based on data recorded by the farmers themselves, the initial ACIAR-funded project increased revenue to the farmers by >1.95 million Rand (R) over the period 2001-2006, with the average increase being >R16,000 per farmer team per year. It is estimated the project increased profits to a subset of farmer teams who measured gross margins by >R236,000 over the same period. If the same average improvement was achieved across all farmer teams, the total improvement in gross margin would be ~R800,000 between 2002 and 2006. About 40% of the additional revenue was expected to have been retained as additional profit to the participating farmers. At the end of the project, the project's farmer networks had been expanded to also include Mpumalanga, Gauteng, Eastern Cape, Free State and Kwa-Zulu Natal Provinces.

In addition to the 'hard' measures of project success measured outputs against Key Performance Indicators, there were numerous 'soft' measures of success that clearly demonstrate the project impacted at the national level and in the wider agricultural industries in South Africa. As well, the project is able to clearly demonstrate a very significant improvement in the profitability of the project's emerging beef farmers and has had several unexpected 'spin-off' benefits, including:

- A noticeable reduction in grazing pressure, with significant improvements to the resource base as a spin-off benefit from the increased sales of cattle at younger ages of turn-off.
- Clear signs that the project farmers are more independent in their actions and activities.
- Indications that the project's farmers and their partners have become effective decision-makers, able to fully assess and quantify the impact of their decisions as a result of using the project's approaches.
- One of the greatest impacts is evident in the behaviour of the project's farmers themselves, as the CI&I approach is teaching them new ways of thinking. They are now becoming managers who can control their own lives.
- Invitations from provincial and national Members of Parliament to present details of the project at a number of different forums, to highlight the successes that the project is achieving.
- Requests for assistance from ARC by the Provincial Departments of Agriculture with implementation of the project's approaches in their provinces (with funding provided by them); this contrasts with the situation early in the project's life, when ARC was viewed as interfering in the Provinces' activities.
- Funding of significant numbers of new positions within the National Department of Agriculture to help support a national roll-out of the CI&I across South Africa, with expansion of the project's approaches to other provinces and other agricultural industries.

Another unexpected benefit of the project was the use of the CI&I approaches developed in South Africa across Australia and New Zealand within the Beef CRC's portfolio aimed at increasing and measuring the impact of uptake of new technologies by Australian and New Zealand beef businesses;

A very new opportunity that has resulted directly from the earlier ACIAR-funded projects is now being designed to develop cattle populations required to drive use of genomic selection (i.e. selection based only on DNA markers) relevant to South Africa's production and marketing systems as part of a wider international collaboration between South Africa, SADC countries and Australia, and potentially also involving collaborators from the USA and Canada.

**2. *Examples of agricultural innovation that have been delivered through the partnerships in supporting agricultural development and inclusive economic growth***

As described in the previous section, there are numerous examples of agricultural innovation that have been delivered through the partnerships developed for the ACIAR-funded projects in support of agricultural development and inclusive economic growth.

**3. *How have the partnerships promoted gender equity, women's economic empowerment and health***

Following the 1994 elections in South Africa, there has been a very strong promotion of equity for all previously-disadvantaged people, regardless of whether the previous disadvantage was based on race, gender or disability. This has occurred to the extent that some of our Australian (female) partners now openly suggest that gender equity and women's economic empowerment may actually be better in South Africa than in Australia.

**4. *How have the partnerships benefited from involving the private sector and how could this be enhanced***

Each of the ACIAR-funded projects has directly engaged with the private sector and has been able to increase the quantity and quality of engagement with each successive project. Initially the engagement was through organisations such as the South African Feedlotters' Association, the South African Meat Industry Council, the National Emergent Red Meat Producers' Organisation and the National African Farmers' Union. Most recently, three of the major retailer organisations in South Africa (Massmart/Walmart, Pick 'n Pay and Woolworths South Africa) have firmly committed to strongly supporting the current ACIAR-funded project. The documented intent beyond the life of the project is to attempt to secure new funding from a wide range of organisations (including additional retailers) to expand the current project's proof of concept across South Africa and other Southern African Development Community (SADC) countries. This intent could definitely be enhanced by ongoing Australian commitment to extending the proof of concept to other provinces in South Africa and other African countries.

**5. *What are some of the innovative modalities and practices to improve Australia's contribution to agricultural development, better nutrition and inclusive economic growth in South Africa***

These are described in the earlier responses in this submission.

**6. *Suggestions for development partnerships in agriculture and agribusiness in promoting prosperity, reducing poverty and enhancing stability in South Africa***

The ARC believes that wider use of the approaches that have been proven in earlier ACIAR-funded projects will enable strong development partnerships in agriculture and agribusiness to promote prosperity, reduce poverty and enhance stability across the SADC region and potentially also across other areas of Africa if appropriate new partnerships could be fostered.