Australian Government

Department of Innovation
Industry, Science and Research

Submission on the draft report of the Productivity Commission inquiry into Rural Research and Development Corporations

December 2010

The Department of Innovation, Industry, Science and Research welcomes the PC inquiry and draft report into the Rural Research and Development Corporations (RDCs) given the role that rural R&D plays in Australia's innovation system.

Our portfolio interest stems from

> (i) our responsibility for innovation policy and oversight of the national innovation system in the Australian Government; and
>
> (ii) our role as a major funder of rural research and development particularly through the CRC program and more broadly in the portfolio through the work of CSIRO.

Around 34% of CRCs funded since 1991 have had a rural focus to their agenda.

Our submission is in two sections.

Section 1 contains comment on the role of RDCs in Australia's innovation system and how it relates to the Australian Government's 10 year Innovation Agenda *Powering Ideas* (2010).

Section 2 includes specific comments on the draft report viz

1) Need to advise how the figure of $1.5b support for rural R&D is derived;
2) Whether there is a lack of 'additionality' of the government component of the RDC funding and the impact of reducing funding to RDCs on the functioning of the Australian innovation system;
3) Support the need for better coordination of social and environmentally focussed rural R&D but query whether the creation of a new RDC is the most effective mechanism to achieve such coordination;
4) Note current limitations with the assessment of social and environmental outcomes;
5) Note suggested changes to text regarding the role of Cooperative Research Centres (CRCs); and
6) Note that by referring to comments made by third parties, the draft report has introduced factual errors in the explanation of CRC Program administration.

Section1

General Comments on RDCs role in Australia's innovation system

Powering Ideas is the Australian Government's 10 year agenda for innovation. It was released in May 2010. It provided the Australian Government's response to a review of the national innovation system conducted in 2008.

The 10 year innovation agenda recognises the importance of innovation to transform existing industries to operate more efficiently, to enhance global competitiveness, to deliver improved products, and to win new markets.

The Australian Government's 5th National Innovation Priority identified in the innovation agenda focuses on creating a culture of collaboration within the research sector between researchers and industry.

The existing RDC model strategically places RDCs as the major investors in rural R&D and innovation across the entire value chain of Australian agriculture and promotes linkages along the supply chain, including between industry, universities and other public sector organisations. It is an important operational component of the Australian innovation system as it provides a mechanism to link R&D inputs to rural outcomes.

Rural Australia significantly contributes to our economic and social prosperity. Productivity improvements are driven by increases in innovation as well as through competition in both domestic and international markets. Innovation, including research and development and extension activities (RD&E) carried out through the RDC model, is a critical mechanism for maintaining ongoing growth, profitability and sustainability of Australia's rural industries.

Economic research has established that R&D is one of the key drivers of long run increases in productivity[1].

- R&D leads to the development of new knowledge that can increase the efficiency with which inputs to production such as capital and labour are translated into outputs in the form of goods and services.
- R&D also develops the capability for absorbing knowledge generated elsewhere as it assists in developing the necessary expertise to understand and assimilate new ideas.

Indeed, the OECD has stated that, 'developing the innovative effort, including formal research and development, is the *sine qua non*[2] of growth'.[3]

The 2008 Review of the National Innovation System identified the importance of national strategic leadership and coordination for rural innovation and R&D activities and, as part of its consultative deliberations, the review panel held a one day workshop on Rural R&D

[1] Venturous Australia, Report of the 2008 Review of the National Innovation System, Annex 4.
[2] Essential condition
[3] OECD, *Innovation and Growth: Rationale for Innovation Strategy*, (2007).

involving experts across rural Australia. Key themes emerging from the Expert Panel and stakeholder consultation regarding rural innovation included:

- importance of maintaining a national approach;
- the innovative nature of rural and regional Australia;
- rural Australia's role in addressing national challenges such as climate change and food security;
- need for government investment; and
- the importance of RDCs.

To support Australia's continued excellence[4] in rural innovation and R&D it is important that research and innovation efforts are targeted to maintain productivity gains and the sector's competitiveness in global markets. The RDCs have proved an effective model to strategically target Australian innovation efforts for the sector. Importantly, it works across state and territory jurisdictions an essential characteristic for effective intervention.

The OECD Innovation Strategy (2010) emphasises that public-private partnerships 'can effectively address shortcomings in innovation systems (eg the lack of interaction between industry and public research, and a lack of long-term, strategic cooperation), increase the efficiency of public policy in addressing certain market failures that affect innovation processes (eg the high costs and risks of pre-competitive research), and, address the new needs of society, especially when this requires long term multidisciplinary research.'[5]

An emerging trend in the OECD work on innovation is the concept of smart specialisation. Smart specialisation involves the use of knowledge and innovation networks to assist in knowledge and technology transfer and thereby increase value added for individual countries and regions. It encompasses issues such as sectoral innovation policies and priority setting for research, infrastructure and framework conditions that help gain competitive advantage. Smart specialisation aims to complement the country's productive assets and regional strengths to create future domestic capability and interregional comparative advantage. Many European countries are adopting this approach in response to the global financial crisis in order to ensure sustained long term growth.

The RDCs are an effective example of smart specialisation in Australia's innovation system – they target innovation expertise and strategic investment across the rural sector.

[4] For example the plant and animal science research field has a higher than world average citation rate. Australian Innovation System Report 2010, Pg 31.
[5] OECD Innovation Strategy: Getting a head start on tomorrow 2010. Pg 104.

Section 2

Specific comments in response to draft report

1) The draft report includes an estimate ($1.5b) of total funding (government and industry) available to fund rural R&D in 2008-09, including assistance provided through broadly targeted programs, but it does not include a specific breakdown of how these estimates were derived. Many of the programs mentioned in Box 2.3 on page 15 are broad-based competitive programs and, in a best case scenario, only a fraction of these will support rural R&D. For example, over the past 9 years, the registered R&D expenditure and number of firms for the R&D Tax Concession for agriculture average 1.9% and 4.4% respectively.

More explanation and evidence of how these estimates were determined will give transparency and rigour to the $1.5b figure.

Further, Box 2.3 titled 'Australian Government programs providing support for rural R&D' lists several programs under the Department of Innovation, Industry, Science and Research. Two of these programs should be removed as they do not support R&D activity – namely, Commercialisation Australia and Commercialising Emerging Technologies.

2) The draft report identifies that there is little evidence of 'additionality' from the Government component of the RDC funding.

The report claims that a significant proportion of the government funded contribution to the RDCs supports R&D that producers would have supported anyway. This assumption is made based on estimated high cost-benefit ratios of some of the projects funded via the RDCs.

It is noted that there is a large range of capacity and capability across the various RDCs and their producers, with some focused on single producer broad land grazing compared to others that involve larger producers that involve heavy land use practices (e.g. for cotton and wine growing). Thus, the view that there is little additionality is highly contestable given the broad scope, nature and structure of rural producers.

Government investment in R&D activities, including rural R&D, is to support innovative projects that have the capacity to be successful but that otherwise would not proceed as a result of the cost, and the associated high technical and innovative risk to individual (predominately very small) producers. This investment in RDCs is justified because most small producers cannot afford individual full investment in R&D. Thus, without investment by government, there would be limited economic return and innovative developments due to a reduced investment in rural R&D.

There are intra- and inter-industry spillovers, and regional and rural benefits accrued from publicly supported rural R&D. RDCs have the ability and should address important national development (social as well as economic and environmental) and sustainability objectives.

Any reduction in funding for rural RDCs will impact on the Australian innovation system and potentially increase pressure on other components of the system. A reduction in funding to rural research and innovation initiatives, for example, will:

- reduce the capacity of the RDCs to undertake foresighting activities focused at identifying opportunities to leverage off Australia's comparative advantage internationally and to maximise industry value add. Such foresighting cannot be undertaken by individual producers, due to required resources and skills, and this means a loss of future knowledge to assist in identifying R&D opportunity. Furthermore a coordinated, whole of sector approach, to foresighting activities across rural sectors reduces inefficiencies and assists in facilitating access to research findings;

- impact on rural community well being given the significance of agriculture and environmental challenges in the future sustainability of such communities, for example managing the biosecurity of Australia's food and primary industries;

- impact negatively on the speed of diffusion, adoption and take up of leading edge research and innovation and collaboration across the rural sector; and

- potentially place additional pressure on the CRC Program as an alternative funding source to specifically support rural R&D. The CRC Program aims to support the establishment of R&D collaboration that can continue following the CRC program. The RDC model complements the CRC Program as an effective and appropriate vehicle and funding source to continue such collaborative R&D in the rural sector.

A reduction in funds will also be expected to impact on the achievement of the 4th and 5th National Innovation Priorities in *Powering Ideas*. They relate to the dissemination of new technologies and collaboration to build Australia's global competitiveness.

The draft report's discussion of 'additionality' reflects a narrow view, restricting it to quantitative understanding of the economic activities to be stimulated, i.e. R&D expenditures, rather than a broad understanding of the effects on capacities in the innovation system, for example on the rural sector's propensity to collaborate. 'Additionality' parameters such as project scale, scope and time taken to implement innovations also need to be taken into account.

3) The draft report notes the need for better coordination of social and environmentally focussed rural R&D and proposes a new RDC to overcome this coordination issue, the Rural Research Australia.

The Department supports the need for better coordination of social and environmentally focussed rural R&D but questions whether the creation of the RDC is the most efficient and effective way to achieve this.

Setting up a new RDC has inherent overhead costs that could be saved by directing each RDC through its funding agreements with Government to expand their focus to include socially beneficial research and development and extension (R, D&E). Furthermore the

creation of a new RDC may fail to promote optimal whole-of-system responses to issues and good connections with end users of research.

There may be value in having each RDC identify a per cent of its funding for social and environmental research activity, and also having a one or two year coordination committee meeting where the range of proposals is considered and given priority. Such a process would enable possible leveraging, for example, impact and efficient use of funds where two or more RDCs are tackling a common environmental issue, informed by on-the-ground research activities from all RDCs.

Establishing a new board or body (with its attendant meetings, membership, travel, reports and associated resourcing demand) would introduce another vertical structure and may separate the expertise of the various RDCs from its work.

Improved networking and oversight mechanisms can achieve collaborative and forward-looking outcomes. For example, the Danish Mindlab[6] brings together different disciplines and leverages off public, private and research sector partnerships to address social and environmental issues.

4) The draft report acknowledges that assessing social and environmental outcomes of initiatives, particularly long-term benefits, is difficult and is a newer field of evaluation than that of economic impacts.

Assessment of social and environmental outcomes is constrained by factors such as lack of data and widely accepted metrics; long time lags between project outputs, outcomes and impacts; strong influence of external factors such as underlying GDP, complex feedback loops, and location or culture specific impacts.

One of the key findings of the PC's March 2007 report, Public Support for Science and Innovation, was that:

"… given a host of measurement and methodological issues, it is not possible to provide anything other than broad estimates of the overall return to government contributions (for R&D activity)."

Governments are searching for ways to measure the well-being aspects of interventions. This includes work on frameworks and best practice guides to better capture the social and environmental benefits of innovation activities, including for mechanisms such as the RDCs in a national innovation system.

The Australian Government has some work underway in this area, including

- highlighting the importance, and increasing awareness of, evaluation is part of the work currently underway on a cross –government project to increase the level of public sector innovation; and

[6] MindLab (established by the Danish Government in 2001) is a cross-ministry unit for citizen-centred innovation. Its mission is to involve citizens and businesses in developing new solutions for society.

- the Coordination Committee on Innovation (an across Australian Government coordination body for innovation policy) has a working group on the evaluation of science and innovation programs.

In reaching conclusions about the benefits and costs of Government initiatives in rural R&D it is important that these limitations are appropriately weighted and taken into account.

5) The description provided in the draft PC report of the CRC Program is inconsistent with the CRC Program Guidelines and could be confusing to industry and research providers.

The Department of Innovation suggests the following changes:

- that the first line of the first dot point at the top of page 13 be amended to "The Cooperative Research Centres (CRCs) are partnerships between end-users and researchers, formed to undertake R&D in specific areas, with a particular emphasis on applied R&D."

6) A number of references to CRC Program administration in the draft report as reported by third parties are factually incorrect. The last paragraph of page 100 creates two erroneous propositions,

(1) that the CRC Program has one or more specific areas of research focus; and

(2) that the Program has sector (or issue) specific funding allocations.

Both are incorrect.

Applications from all sectors and from all disciplines are encouraged. Since 2009, the Minister for Innovation, Industry, Science and Research has particularly encouraged applications from priority areas. For 2010, these are clean manufacturing, social innovation and sustainable regional communities, however, applications are not limited to these areas.

Funding for CRCs is allocated through a competitive, merit based selection process. The key consideration is the relative merit of the application against the selection criteria, regardless of whether the application is in a particular priority area.

Also, the same paragraph states that there is possible duplication in research focus between the CRC Program and RDCs. CRCs and RDCs have different, but at times complementary, roles within the innovation system - RDCs support rural focused R&D while CRCs support end-user driven research collaborations. There have been many occasions over the past 20 years where these roles have aligned and resulted in many successful rural focused CRCs.

Further the fourth dot point in Box 6.3 on page 145 refers to the "cessation of the CRC for Irrigation Futures", however, funding for the CRC was not ceased. The CRC Program is a merit-based, competitive grants program and there is no guarantee of recurrent funding. The CRC for Irrigation Futures was funded for seven years from 2003 and elected not to lodge an application to extend its funding as it neared the end of its grant period.