

The following response to the Productivity Commission's request for submissions to the review of the Rural Development Corporations addresses specific questions raised by the commission in its background paper. Where something constructive can be contributed, a response to the highlighted question has been made.

As an overview, I provide the following information in the belief that the current structure of R&D for the rural development industries in Australia does not need restructuring, but there needs to be significant change and coordination within the existing structure to greatly improve the outcomes for producers, rural communities, consumers, the government and the environment. Some of the changes required are significant.

The *conditions* under which R&D for rural industries was conducted 40 years ago (1970) are considerably different to today, but the *structure* on which R&D is identified, prioritised, implemented, evaluated and communicated is still trapped within an outdated model of scientific control. The vast majority of senior researchers controlling projects today undertook their scientific training at this time.

However, the area relating to the administration and management of projects is so poor that if rules applied by other government agencies undertaking similar management roles (of which I am very familiar) were applied to rural R&D across the whole framework of research organisations and institutions (including those outside of the RDC's), many of the projects would be terminated or the management changed.

3. RATIONALES FOR GOVERNMENT FUNDING SUPPORT

Is the case for government funding support for rural R&D stronger than in other parts of the economy and, if so, why?

I would submit that the answer is 'yes', but the rationale is wrong because it is based on a political argument that one could contend goes back as far as the establishment of the Land Grant Universities in the USA in the late 1800s. The great Land Grant Universities were established on the in the context of the Industrial Revolution and the realisation that there was a need to guarantee food security for the then urbanising workforce that had no means of securing its own food needs. With the historical trend of increasing urban population there has been a corresponding need to increase agricultural productivity, in terms of per unit of land and per unit of labour. The need to ensure food security and limit the cost to urban society has and will remain a political imperative to ensure social harmony. In terms of agricultural R&D this has meant a focus on productivity to maintain cost control to urban consumers. I would contend that this has led to two major issues that now loom as major constraints to sustained agricultural productivity:

First, the socialised RD&E model that has persisted since the early 1900s leads to the retention of inefficient producers in the industry and constrains productivity by slowing the rate at which the more efficient and/or innovative producers take over. The cost of information to the producer is free and not only is it free it is personally provided on-farm. This seriously disadvantages innovative, information seeking producers who seek to gain a comparative advantage over their fellow producers and be more efficient in their production. RD&E model operates on the philosophy that farmers are in a homogenised group in terms of information use and adoption. In fact, farmers are individuals competing against each other and trying to gain a comparative advantage in terms of the productivity or return per unit of production in relation to some quality aspect over their fellow producers. The current system greatly underestimates the competing nature between individual producers.

Secondly, the model in no way takes account of the cost of externalities of production and in particular the mining of soil resources. I cannot ascertain the actual research funds that have been spent over the years to address this issue, but the simple fact is that the impact of the research has been negligible and the expenditure not inconsiderable. The classic example is the continued depletion of our soils in the grazing areas of the high rainfall zone in eastern Australia. These soils continue to be degraded and examples are beginning to arise where the soils have reached a point where they have structurally collapsed. Over my 30+ years in agricultural development I have applied considerable effort and thought to how to solve this problem and spent many hours discussing with far more learned colleagues, and the simple fact that it comes down to is money. A free-market system does not and cannot be forced to pay for the cost of these externalities. While this remains the case, exploitation of the soil resource will continue.

Thus, if one accepts that the ultimate basis for conducting agricultural R&D is food security to maintain the social and economic fabric of the urbanised community, there is a significant political imperative for greater government support to agricultural R&D than other sectors, even with all its current cross subsidies and internal transfers. Furthermore, any significant reduction in government funding will not result in increased private sector funding because the social good as an external cost will not and cannot be costed. Thus, the inefficiencies brought about by a socialised RD&E system supports and maintains inefficient and freeloading producers. This incurs a social cost in maintaining food security. However, it is not a system I subscribe to as I believe that a more free-market approach with greater involvement of the private sector would lead to greater efficiencies in food production and resource management mainly because greater economy of scale can be achieved.

How important is it that government contributes to the cost of maintaining core rural research skills and infrastructure? Without that support, how specifically would the capacity to adapt overseas technologies to meet the particular requirements of Australia's rural sector be compromised? What role do RDCs play in maintaining core rural R&D capacities?

If the government reduced its contribution, the research priorities of the private sector and RDC's supported by producer levy contributions would change and overall funding would decrease unless major changes to the regulatory framework were made and investment incentives for R&D improved. The central issue that this raises is the capacity of the core research organisations to identify, maintain and undertake pure research that is relevant to all stakeholders.

The requirements of pure research are driven from the opposite ends of the stakeholder spectrum - producers at one end and the government at the other. Currently, these requirements can be contrary as the government seeks greater social and environmental incomes and producers continue to focus on productivity and economic outcomes. However, with effective consultation processes, particularly using locally or regionally based permanent consultative structures, the priorities of each can be met. I believe the processes used, for example, by the Birchip Cropping Group to identify and undertake research priorities effectively demonstrate how this issue can be addressed.

The role RDC's play in maintaining core rural R&D capacities is ensuring that there is an effective, community-based consultation process. I will expand upon this latter in the document.

What importance should be placed on outcomes-based rationales for government funding support for rural R&D, such as enabling Australia's rural industries to meet increased global competition; facilitating

adjustment to climate change; furthering food and bio-security objectives; and fostering regional development? Is there a risk that seeking to use government funding to drive specific outcomes such as these could distort the pattern of R&D investment and thereby reduce the overall returns to the community?

The importance placed on outcomes-based rationales identified by the government is a political decision based upon an interpretation of the wider social good. Such outcomes may be opposed to the priorities of the majority of producers in terms of productivity and economic return. However, if it is the will of the government to achieve such outcomes, there must be recognition that there are trade-offs and potentially reduced economic outcomes of unknown magnitude for producers. R&D investment would become less responsive to producers needs, possibly reducing prospects for innovation and improvements. The mechanisms for compensating producers for economic loss would further complicate and may corrupt market signals and processes.

Should the level of public funding have any regard to government support for rural industries in other countries?

Probably not, but whatever decision and funding level endpoint the government reaches will have market impacts because of the ease of transferability of technology and information in a global market. Knowledge created through joint funding of R&D by producer levies and taxpayers will invariably end up being used by producers in foreign competing countries and vice versa. In this sense, decisions regarding the level of public funding should take in to account the gains to be had from locally developed, patented and marketed technologies.

4. IS THE RDC MODEL FUNDAMENTALLY SOUND? — YES

How effective is the current rural R&D and extension framework, and is the role of the RDCs within that framework appropriate and clearly defined?

It is not effective. Extension material can be provided from the 60s and early 70s and placed alongside current extension material and the message is the same. There are examples relating to blowfly control, worms, genetics, pastures and liming. The lack of adoption by producers demonstrates that the perceived benefits are not sufficient to warrant investment. So why continue wasting money communicating messages which are not being heard or adopted? There are no processes within the current research and extension framework which look at the adoption rates and then question the expenditure in relation to the take-up by farmers.

There is extremely good documentation from the 70s undertaken by CYMMIT on productivity increases and adoption rates that argue that technologies with a benefit of less than 15% when using a partial budgeting method are unlikely to be adopted by farmers and will require extensive and expensive extension campaigns. Technologies with the benefit of greater than 35 to 40% are adopted "instantaneously" because the benefits are physically visible.

I have seen figures (I have misplaced the source document) showing that for every primary producer in Australia there are eight people in bureaucratic organisations supporting the research and extension framework. No other industry has this "over-bureaucratisation". Why is this phenomena of the rural sector not only seen in Australia but worldwide? I would revert to the argument of food security.

The question then begs - can the productivity of the rural industries be improved through a decreased bureaucratic burden?

It can also be argued that this over-bureaucratisation leads to the retention of inefficient producers in the industry because of the continual effort to promote improved productivity to inefficient, ineffective and/or non-motivated producers. One could contend that with the ageing of our producer population there is individually less of an imperative to be an efficient producer and more to maintain a comfortable lifestyle. As this situation will always exist there will always be an element of inefficient producers in the rural sector.

Is there sufficient oversight of, and coordination and collaboration between, the different components of the framework? Are there any particular difficulties created for the RDCs by the current arrangements?

There is not sufficient oversight.

There is a particular difficulty in that a number of Collaborative Research Centres (CRCs) have no board representation from their substantive funding RDC's. A normal company would not accept providing 10 to 20% of an organisation's budget without representation on the board. So why have RDCs and levy payers accepted this?

This is a serious issue in terms of governance and accountability from the levy payers' point of view. **One of the substantive recommendations of this review should be that RDCs, where they are not represented on their collaborating CRC's board, should be given board representation commensurate with the funding supplied by the RDC.**

Is there an appropriate mix between longer-term and broadly applicable R&D and shorter-term adaptive research, and where in this context should the RDCs be focussing their activities?

This is currently not well handled and is probably due to the poor and ineffective capacity of many RDC's and research organisations in the R&D framework to undertake extensive and meaningful community consultations to prioritise and address research needs. However, within the current framework there is a model which has practically demonstrated how the needs for short term adaptive research and longer term pure research can be addressed and that is the model of the Birchip Cropping Group. The substantive reason that this model works is because it has an effective consultative and prioritisation process with an extensive producer stakeholder body.

As a recommendation the commission should look further at how the Birchip Cropping Group model can be more widely adapted to rural communities across Australia to improve the R&D and extension framework.

However, one of the real issues with the successful community-based organisations like the Birchip Cropping Group is succession and sustainability because of the charismatic leadership. One of the real issues in dealing with successful community-based organisations is finding a process to hand over the leadership and maintain the Organisation long-term. Many successful CBOs last for less than two generations. Notable exceptions are the Grameen Bank and the Thrift and Credit Society in Sri Lanka where the leaders have realised this issue and worked from an early stage to put in place a succession plan.

Is the framework sufficiently flexible to accommodate future changes in circumstances and requirements?

No, because the agendas for research and development are driven by the research institutions themselves, whether they be state research stations, CRC's or the CSIRO. As previously alluded, none of these organisations have effective and meaningfully inclusive consultative processes and very poor stakeholder two-way reporting processes.

The inflexibility of the system is reinforced by entrenched, bureaucratic scientists promoting their own agendas and careers instead of responding to the research agenda and needs of the farming community. Members of producer advisory committees often feel they have no say at board level and the general feeling is that their suggestions are never adequately considered.

Most of the submissions from the RDC's, state research organisations, CSIRO and CRC's will say the system is not broken, but that they need greater control of it. However, to innovative, proactive farmers working outside the system, at times, the system looks like bureaucratic nightmare.

Are there any reasons to argue that the RDC model is no longer fundamentally sound? Or can deficiencies in the model be addressed through more minor modifications to the current requirements?

In the field of international development one of the most stark lessons learnt in the last 10 years has been the lessons associated with the invasion of Iraq. The West was so obsessed with conquering the Ba'ath regime that it completely dismantled structures of government and much of civil society. In the 10 years hence we have been unable to build an effective government or instrumentalities of government. There is now a developing field of expertise in development assistance specifically aimed at ensuring that the structures of government are maintained after conflict and natural disaster situations.

To dismantle the RDC model now would be to throw out 30 years of corporate experience on which research and development for the rural sector has been built. This doesn't mean that the system cannot be made more effective through improving civil, corporate and governance structures. The following recommendations are made to improve not only the RDC model but the whole R&D and extension framework.

- the **use of effective consultative processes** throughout the planning, implementation and evaluation of research projects and programmes. My experience with RDC's, as measured against my experience in international development assistance, leads me to the conclusion that the vast majority of RDC's and CRC's do not understand, and have no capacity to undertake, effective consultative processes.
- **substantial improvement in project management**. There would seem to be an inadequate project management capacity and capability within RDC's. Again comparing experience with RDC's against that of international development, the project management experience within RDC's (that I have experienced) is only marginally better than agricultural agencies in the Third World. Professionally, I have not come across a project manager in an RDC or R&D institutions generally that a private international development organisation would employ. There are serious deficiencies in project identification, prioritisation, initial cost-benefit analysis, stakeholder consultation at all projects stages, implementation monitoring, reporting, project closure, project evaluation and lessons learnt. I do not know of one accredited project manager working in rural research and development across the framework of institutions in Australia. This is not to say that there are none. The organisation I work for reports to one of the top five Australian government agencies and requires all staff involved with project management for this agency to be accredited to PM level 4 with the Australian Institute of Project Management. The resultant improvement in project management and quality of outcomes is substantial.

Do the current levy payment and governance arrangements for the RDCs lead to an excessive focus on R&D effort within the 'farm gate' and, if so, how might this be addressed? If there are prospective, high payoff,

research opportunities further down the value chain, why are these not being taken up by processors and other downstream stakeholders?

Two RDCs (AWI and MLA) are currently researching and providing support to processes and agribusinesses higher up the value chain and in the case of one of these RDCs (MLA), with great success.

Is overlap with the work of the CRCs largely complementary, or are changes warranted to either or both programs to reduce that overlap? Will the new guidelines for CRCs make it more difficult to get new rural CRCs approved and, if so, what are the implications for the future role and activities of the RDCs?

If State Governments continue to wind back their role in R&D and extension, should the RDCs be seeking to fill the gap, or are there private players that could effectively fill this role?

The relationship between particular RDCs and CRCs can be competitive and to the detriment of producers. Producer representation on the board of CRCs and effective consultative processes conducted by external agents on behalf of the CRCs and RDCs would substantially address this.

Do RDCs manage Intellectual Property issues effectively? In particular, do their current approaches give rise to any difficulties for bringing new technologies to market? Can any shortcomings in this area be readily addressed within the current model?

In my experience, RDC's can handle this area effectively, particularly when dealing with small businesses in helping to develop and bring to market their intellectual property. This is not the case with the CRCs as they compete with small businesses. CRCs can become IP competitors. Instead of using the knowledge and resources of the private sector and undertaking collaborative research, where a technology may be seen as competing, my experience is the CRC's shut the private sector out. One CRC is particularly bad in this respect. It would be good if there was an independent industry ombudsman with small business could raise these issues without the threat of a retaliative measures or exclusion.

I know of at least two technologies developed by the private sector that were cheaper and more producer-friendly and adaptive than the CRC/RDC technology and when the R&D institutions were approached to develop the technology collaboratively, the private sector companies were dismissed and in one case without even considering a meeting.

5. FUNDING LEVEL ISSUES

What principles and benchmarks should the Commission bring to bear in assessing appropriate funding for the totality of rural R&D, and the right balance between public and private funding? Is there any new empirical work which specifically focuses on how changes to current overall funding would affect community well-being? Is it possible to determine the right balance between public and private funding across the totality of rural R&D using broad indicators and principles? Or must such assessment have regard to the characteristics of individual programs that provide public funding for rural R&D and, in particular, to the type of R&D that is sponsored through each of these programs?

The issue of private sector involvement in rural R&D is currently a pressing issue especially in relation to food security and productivity in the Third World where numerous papers have examined the constraints and regulatory framework needed to increase the involvement of the private sector. Although this work is at an early stage, many of the lessons are already known. What work shows to date is that where the right incentives and regulatory frameworks are in place, the private sector can have a significant impact in introducing new technologies to improve productivity. One of the most quoted examples is the introduction of hybrid maize varieties in Thailand. But from my own experience, the current Australian system does little to facilitate the ability of small business to bring its technology to market.

If the focus of most of the RDCs is on industry-specific and adaptive R&D and related extension, does this suggest that the bulk of the benefits accrue to levy payers? If so, and given the recent evaluations suggesting that these benefits are large in overall terms, why is a significant public contribution justified?

I would suggest that the bulk of benefits accrue to the public through the provision of high-quality cheap food which vindicates the political imperative of social harmony for the urban communities. The negative impact of this is the continual exploitation of the physical resources because the cost of externalities of production are not recovered by the levy payers/producers. I would suggest that if there is a significant reduction in the public contribution to rural R&D, cost of food will increase and food security will decrease. The private sector will engage when returns on investment (ROIs) to research become sufficient because of higher commodity prices. The result could see social unrest in major urban societies.

Does the RDC model — and, in particular, the RIRDC industry umbrella arrangement — appropriately cater for the research needs of emerging primary industries? If not, what should be changed? In allocating government funding to the industry RDCs, should any account be taken of differences in the longer term competitive prospects of those industries, or their potential for productivity improvements? Alternatively, does basing the government contribution on the value of industry output provide an appropriate means to calibrate contributions given the inherent risks in trying to pick winners or losers?

With a far better regulatory framework now in existence, this can best be handled by the private sector. Previous governments have greatly assisted by putting in place the regulatory framework that removes constraints to emerging primary industries to import technology and genetics as the private sector demands. As science and technology advances, the regulatory framework will need to be revisited to ensure that it doesn't constrain private sector endeavour.

6. IMPROVING THE RDC MODEL

Are there likely to be greater challenges in securing industry uptake of some of the outcomes of R&D directed at meeting the Government's priorities than for R&D which reflects the priorities of levy payers? If so, can this problem be cost-effectively addressed?

There will be substantial challenges in securing industry uptake of the outcomes of R&D that are directed at meeting government priorities. As mentioned throughout the submission, the issues that will arise will be economic viability at a farm level and environmental and resource sustainability at government level. The imperative to continue to drive productivity to sustain a world population that will double by 2050 will inevitably have substantive impact on the physical resource. The processes and trade-offs to address these competing needs of the physical resource have not been effectively addressed in modern agricultural production brought about by the Industrial Revolution.

The issue can be addressed but it is at substantial cost to the taxpayer and involves a form of subsidy to maintain the environment. For example, the EU model which pays farmers for reduced production when they undertake certain environmental programs. If the urban community demands such outcomes, they must be aware that there will be either a substantive direct or indirect cost to them. However, I don't believe that the political environment in Australia is right for this to be undertaken, and with respect, I can hardly see it being a recommendation of the Productivity Commission, given the perception of its general economic philosophy.

Is there an appropriate balance on boards between industry expertise and more general skills? If not, is this a result of deficiencies in the processes for electing/appointing boards, or does it reflect other factors?

The issue of skill-based boards is one that creates considerable angst amongst levy payers. Often government appointees to boards are people on the 'corporate board gravy train'. It seems as though they are only there to meet the needs of their government appointment and to ensure they get their next board appointment, although they may be involved in the industry. There is a recent classic example of this and it has created substantial problems for one of the RDC's. The particular appointee now has a major conflict of interest between the RDC and collaborating organisations that they also represent and the issue will not be addressed by any organisation including the government.

External appointments were made to the RDC's because of a perceived lack of skills within the levy paying community. However, since the 1970s, through the provision of free university education by the Whitlam government, there has been an enormous increase in the skills base of rural communities, both in terms of business skills and qualifications. If there is to be a greater emphasis placed upon skills on RDC boards, the imperative should be placed upon the RDC's to develop processes that identify and bring the relevant skills from the community onto the boards. This process could be vetted by the government.

Are there any significant conflict of interest issues that need to be addressed in regard to the appointment and membership of boards, the relationships between RDCs and industry representative bodies etc?

Yes there are examples of significant conflicts of interests as alluded to above and the detail can be provided confidentially.

To what extent would governance be simplified if the Government's contribution was separately managed, leaving the RDCs to manage contributions from levy payers? Do the benefits for RDCs and levy payers that come with the government contribution outweigh the costs of the more complex governance regime and, in particular, the constraints on the way in which funds can be spent?

To suggest that the administration of the RDCs will be improved by separately managing the government's contribution is simply not realistic. Further splitting the way funds are provided and managed only adds another layer of bureaucracy and administration in an already complicated and multilayered system. It is a simplistic, unrealistic and impractical suggestion.

If the government is concerned that some of its broader objectives (in terms of meeting the communities perceived objectives of the rural landscape) is a greater priority, the government could proportion its funding according to how well a project meets the governments needs. Guidelines could be established for submissions that score against government objectives and if they meet these objectives and score accordingly the funding could be proportioned for example two for one, government v producer levies. Similarly, if they were more in line with the objectives of the levy payers the ratio could be reversed. However, all the issues previously raised in relation to reduced returns, cost of externalities etc. still need to be addressed.

How effective are current industry consultation protocols? Are all of the key stakeholders routinely consulted, or at least provided with adequate opportunity to make their views known? Should the legislative requirement for some RDCs to consult with particular peak industry groups be scrapped and replaced by a more generic requirement simply requiring consultation with an appropriate range of stakeholders?

The commission has probably realised by the time it has reached this point that one of the key issues raised by this submission is the adequacy of the current consultation processes in the RDCs and the R&D and extension framework in general. Suggestions as to how this can be improved have been previously made. However, I would add that appropriate skills in this

area do not currently exist in many of the R&D organisations and it is a serious issue that must be addressed. The lost opportunity is significant when you consider the improved education and understanding of stakeholders and the insights and contributions that could be captured through an appropriate consultative process.

What are the particular benefits and costs of combining R&D and industry representation responsibilities within a single entity?

The particular benefit is administrative cost. To split the two functions would only increase the administration cost to levy payers and add another layer of bureaucrats on the producer-funded gravy train.

What scope is there to reduce the costs of administering the RDC model without diminishing the outcomes it delivers?

I would suggest that one of the most successful ways of reducing the percentage of administrative costs is through effective marketing programs run by RDCs that increase returns to producers and as a result increase the levies paid to the RDCs. An example that clearly demonstrates the impact of this is the decisions made by the previous AWI boards where marketing was basically ignored, returns to producers plummeted and the income to AWI has followed suit.

Studies (particularly that by Alston & Pardy) show that the returns to marketing programs conducted by using producer and processor levies in the USA have provided returns (on average 11:1) equal to or greater than R&D. These returns can be substantially higher particularly if the marketing message creates significant increase in demand using an appropriate “pitch”.

Of particular relevance to producers here is that the time to achieve return on investment is significantly less for than the long lag times associated with successful R&D. Thus from levy payers perspective successful marketing programs have a greater incentive than successful R&D programs because the financial benefits are more immediate.

It would seem that the real dilemma for the RDC's is to get the balance right between marketing spend and research spend so that returns are maximised to levy payers. I'm sure that there is an “economic curve” that can determine the maximisation of spend for each component.

Are there too many RDCs and, if so, how might this number be reduced? How big are the potential downsides of amalgamations, such as loss of focus and the increased challenges of dealing with a more diverse, and possibly hostile, range of industry stakeholders? Would wider application of the RIRDC approach be a means to reduce total administrative overheads, while still allowing individual industries to retain their ‘research identity’?

No there are not too many RDCs! The great imperative of the far right of economics to gain greater efficiencies has been at the cost of the social, economic and environmental fabric of our rural communities. Economists cannot effectively or efficiently cost this in models and despite their great protestations that it can be effectively done, it is not reflected in the reality of rural communities. If individual industries want to maintain their individuality and they undertake efforts to manage and maintain administrative costs there is no reason to reduce or amalgamate RDCs.

*Should the next stage of the evaluation process provide for follow-up of initial project evaluations to see whether the expected outcomes have in fact been realised? **Yes***

Should there be more focus on the value added by RDC involvement in a project as distinct from the overall return to that project?

*What other evaluation initiatives might be helpful, including to facilitate more rigorous and consistent assessment of environmental and social benefits? **They exist but I am not familiar with them***

*Is sufficient data already collected to allow for these sorts of improvements and refinements to the evaluation process? If not, how might any gaps be addressed? For instance, when undertaking stakeholder surveys, should RDCs solicit more information on the farm-level impacts of specific R&D outputs to feed into the evaluation process? **Yes of course they should***

Are any changes required to the governance regime for RDCs to encourage improvements in evaluation protocols and methodologies? Should there be greater efforts to encourage consistency in the approaches adopted by the individual consultants employed by RDCs to undertake evaluations? What would be the most cost-effective way of providing for regular independent scrutiny of the evaluation process and its outcomes? Should evaluation outcomes be 'reality tested' with stakeholders?

In order that comparisons can be made between evaluations there must be a consistency of approach across evaluations and this should be implemented as soon as possible

How might the activities of the Rural R&D Council best add value to the overall effectiveness of the rural R&D effort?

The rural R&D council is currently an extremely top-down organisation. There needs to be an agreed process that incorporates an effective bottom-up consultative process relating to the setting of priorities for the overall R&D effort.

Should processors generally pay a levy for R&D? If they were required to do so, what is the likelihood that they would simply pass the cost back down the line to the primary producer? Does this happen in those industries where processors currently pay a levy?

Yes processors should pay a levy. The majority of producer-funded levies used in the United States include a levy on the processors. There is no fundamental economic reason why processors should not pay levies.

One question that I cannot see raised in the background paper is the issue relating to the grant models used by RDC's to undertake research activities. The way these grants are provided to organisations, particularly small start-up companies with innovative IP, need to be significantly reviewed and revised. Current models significantly constrain the capacity of small organisations to accept grants to undertake innovative research and commercialise IP.

An example of one of these models is where a non-RDC partner is required to pay monies into an RDC controlled bank account on a dollar for dollar basis for each milestone before the commencement of the milestone activity. Effectively, this means the non-RDC partner pays for the total cost of the milestone activity upfront. It then has to undertake and complete the milestone activity using 100% of its own funds. The result of this is that the non-RDC partner has to fund the cost of the milestone activity to 1.5 times its value and pay for the cost of the funds. This is a completely irrational funding process. which, as far as I'm aware, occurs in a number of RDCs. As a result, it reduces the diversity of research providers as small

organisations are excluded because their severe cash constraints make it impossible to meet the demands of the funding arrangement.

As a **recommendation** it is suggested that there be a substantive review of the grant funding models used by RDC's and in particular their appeal to small companies with innovative technology and limited available cash funding. In particular, it is recommended that small companies that have been involved with these grant funding models should be extensively surveyed to identify the constraints and limitations these models placed upon them and how they could be better structured.