



National Primary Industries Research,
Development & Extension (RD&E)
Framework

Animal Welfare RD&E Strategy,
Submission Version, September 2010

1. ACKNOWLEDGEMENTS

This Strategy has been prepared by a national Steering Committee, chaired by DAFF and comprised of all the major investors and providers of animal welfare RD&E.

A working group of representatives from DPI Victoria and the Animal Welfare Science Centre formed the secretariat for the Strategy development process, and provided project support including investigation, analysis, administration, communication and drafting input to this Strategy.

The working group acknowledges the guidance, direction and strategic oversight provided by the Steering Committee. In addition, the working group would like to thank and acknowledge the contribution of the RDCs, State and Commonwealth government research institutes, universities and RD&E providers for their input, including data, information and advice, all of which was vital in developing this Strategy. Furthermore, the working group wishes to thank the representatives from Massey University, AgResearch and the Ministry of Agriculture, Forestry and Fisheries New Zealand for their contribution to this Strategy.

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FURTHER INFORMATION

Further information on the national RD&E framework and underpinning sector and cross-sector strategies can be found at www.daff.gov.au/agriculture-food/innovation/national-primary-industries.

The “*Animal Welfare RD&E Strategy Sector Overview Report*” and the “*Animal Welfare RD&E Strategy Capability and Investment Audit Report*” are available from Michelle Edge (michelle.edge@dpi.vic.gov.au) or Geoff Kroker (geoff.kroker@dpi.vic.gov.au, DPI Victoria).

2. ABBREVIATIONS AND ACRONYMS

In this Strategy, the following acronyms are detailed;

AAWS	Australian Animal Welfare Strategy
ARC	Australian Research Council
AWSC	Animal Welfare Science Centre
CAWE	Centre for Animal Welfare and Ethics (University of Queensland)
CRC	Cooperative Research Centre
CSIRO	Commonwealth Scientific and Industrial Research Organisation.
DAFF	Australian Government Department of Agriculture, Forestry and Fisheries
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DEEDI	Department of Employment, Economic Development and Innovation Queensland
DPI	Department of Primary Industries
FTE	Full Time Equivalent(s)
OIE	Office International des épizooties: World Organisation for Animal Health
PIMC	Primary Industries Ministerial Council
PISC	Primary Industries Standing Committee
R&D	Research and Development
RD&E	Research, Development and Education/Extension
RDCs	Rural Research and Development Corporations
SARDI	South Australian Research, Development Institute
MoU	Memorandum of Understanding
Committee	Animal Welfare RD&E Committee
Forum	Animal Welfare RD&E Forum
Centres	AWSC, CSIRO and CAWE
AWI	Australian Wool Innovation
DA	Dairy Australia
MLA	Meat and Livestock Australia
APL	Australian Pork Limited
UoM	University of Melbourne
RIRDC	Rural Research and Development Corporation
AECL	Australian Egg Corporation Limited
AMPC	Australian Meat Processors Corporation
UQld	University of Queensland

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3. EXECUTIVE SUMMARY

The Animal Welfare RD&E Strategy (the Strategy) is a component of the National Primary Industries RD&E Framework, an initiative of the Primary Industries Ministerial Council (PIMC).

The purpose of the Strategy is to develop national arrangements to deliver strong collaboration amongst existing RD&E provider groups, and effective partnerships between investors and providers.

At this stage, the Strategy is confined to farm and production animals. However, it provides a flexible framework to enable RD&E interests and objectives of other animal groups to be incorporated in the future.

An Audit of current animal welfare RD&E capability, infrastructure and investment was conducted during 2009/10. The Audit identified that there are approximately 42.5 Full Time Equivalents (FTEs)¹ dedicated to animal welfare RD&E in Australia, representing an investment of approximately \$14,279 million per annum by governments, industry and universities. The Audit also identified priorities for animal welfare RD&E and from these the Steering Committee identified seven strategic RD&E themes. Each theme is underpinned by more detailed focus areas to accommodate the needs of, and describe the priorities for, each of the livestock industries. The seven strategic themes are:

- Animal welfare assessment
- Pain assessment and management
- Management, housing and husbandry
- Transport, euthanasia and slaughter
- Public attitudes, social science and community
- Education, training and extension
- Policy and market access

Capability required to deliver on the agreed seven RD&E themes was compared with the Audit data collected on current capability, to identify gaps and issues that will need to be addressed for effective delivery of the Strategy. For example, over 40% of people currently involved in animal welfare RD&E are in the older than 51 year age group, highlighting the need for succession planning to maintain required RD&E capability.

Focussed succession planning will also be required to expand current capability across the main disciplines of physiology, ethology, veterinary science, psychology and animal production. Further analysis of capability against the seven themes indicated that there will also be a need to address capability gaps in relation to industry experience, particularly for pork, poultry and dairy, and possibly slaughter and livestock transport (all species). Better linkages are required to ensure capability can be accessed in other disciplines including social science, economics, pain physiology, genetics, animal health and epidemiology and other veterinary science specialities including immunology, endocrinology, reproduction and physiology.

To bring animal welfare RD&E investors and providers together to deliver on the Strategy, the Steering Committee has agreed on a simple 'Facilitation Model' that will enhance collaboration by creating an environment for medium to long term planning and improved funding certainty for RD&E providers. At the same time, the model enables RD&E investors to retain flexibility and control of their resources and have confidence that their priorities will be effectively addressed.

The facilitation model is comprised of two distinct components. In component one, collaboration amongst RD&E investors and providers will be achieved through the establishment of the Animal Welfare RD&E Committee (the Committee). This Committee, comprising all livestock industry RDC's, major RD&E

¹ Data collected for 2009. It is noted that some institutions have since increased or decreased their capability slightly since the audit was conducted. The FTEs will be reviewed annually as part of the Strategy workplan.

providers and State and Commonwealth government investors, will be responsible for oversight, coordination and implementation of the Strategy. The Committee will establish strategic direction by reviewing national animal welfare RD&E priorities on an annual basis, and will foster and maintain alliances and partnerships to ensure that resources are used efficiently and that strategies are in place to ensure capability is available to deliver agreed priorities. A key function of the Committee will be to identify and promote opportunities for partnership agreements and co-investment arrangements between investors and providers to address agreed priorities

Component two involves the formation of both formal and informal collaborative arrangements amongst RD&E providers. In terms of informal arrangements, a key function of the Animal Welfare RD&E Committee will be to convene an annual Animal Welfare RD&E Forum involving all the providers of animal welfare RD&E. The purpose of this forum will be to consider RD&E priorities, share scientific knowledge and to identify and recommend solutions to capability, resource and other issues relevant to the implementation of the Strategy.

In relation to more formal collaborative arrangements, under this Strategy, the three major 'Centres' for animal welfare R&D (Animal Welfare Science Centre, CSIRO Livestock Industries and the Centre for Animal Welfare and Ethics), together with other core RD&E provider organisations (defined as RD&E providers with at least 2 FTE of dedicated animal welfare science capability) will consider opportunities for enhanced collaboration. This may include expansion of the existing Memorandum of Understanding and relationship agreement already established across the three major Centres to include other core providers, thereby promoting consolidation and growth of capability as well as cooperation towards a national animal welfare RD&E agenda. In addition, options to include the two New Zealand RD&E Centres (Animal Welfare Science and Bioethics Centre, Massey University and Agresearch Animal Behaviour and Welfare Research Centre, Hamilton), that are already linked with the three Australian RD&E Centres via the OIE Collaborating Centre arrangement will be explored.

4. INTRODUCTION

Commonwealth and State Agriculture Ministers recognise that RD&E has a crucial role in underpinning the productivity and competitiveness of Australia's primary industries and ensuring market access². RD&E organisations across Australia together form a complex web of independent providers and investors with strong interconnections. The 16 rural R&D corporations and industry-owned companies (RDCs) are an integral component of this web, as well as the state and territory governments, the CSIRO, universities and private research providers.

Australia's RD&E investment in primary industries, which exceeds \$1.7 billion annually, needs to be better focussed as the current competitive RD&E model duplicates effort and resources. Combined with the recent decline in Australia's RD&E capacity and capability, a strong case was made for a national approach to Australia's investment in RD&E to provide a focussed, efficient, effective and collaborative RD&E future.

In 2005, the Primary Industries Ministerial Council (PIMC) endorsed the development of a National Primary Industries Research, Development and Extension (RD&E) Framework. The framework promulgates the concept of 'national R with regional D&E' recognising that basic, strategic and some applied research (R) can be provided from a distance, and that regional adaptive development (D) and local extension (E) is required to improve the uptake of innovation by industry.

² Extract from the National RD&E Framework Statement of Intent: http://www.daff.gov.au/agriculture-food/innovation/national-primary-industries/statement_of_intent

The framework will contain fourteen RD&E Strategies, for 7 industry sectors (beef; cotton; dairy; fisheries and aquaculture; forests; grains; horticulture; pork; poultry; sheepmeat; sugar; wine; wool and new and emerging industries), and seven cross-industry sectors (animal biosecurity; animal welfare; biofuels and bioenergy; climate change; food and nutrition; plant biosecurity and water use in agriculture).

At the request of the Primary Industries R&D Sub-committee, the Victorian Department of Primary Industries (DPIV) has facilitated the development of a national Strategy for animal welfare RD&E (the Strategy). This Strategy was developed in close consultation with major investors and providers of animal welfare RD&E services, with industry providing a leadership role. This Strategy builds on the work already undertaken by the Australian Animal Welfare Strategy (AAWS) towards defining RD&E priorities and enhancing national collaboration and communication.

The Australian Government reviewed the National Research Priorities in 2007 in consultation with state and territory governments, industry, and RD&E investors and providers. The R&D priorities focus R&D investment in areas of greatest need and are particularly important in guiding the RDCs and thus impact significantly on the work of research providers and other research investors in related fields. A shared approach to priority setting among the players is recognised to focus R&D efforts on issues of major importance and enable issues of common concern to be explored in a coordinated and cost effective way. This Strategy underpins the National Research Priorities (Priority 2, Supply Chain and Markets). It is anticipated that this Strategy, in conjunction with the other cross sector and sector specific strategies, will further inform and contribute to the process for future re-freshment of the National Research Priorities.

By ensuring the substantial resources invested by government and industry in research are managed cooperatively, a more efficient, effective and comprehensive capability will be possible. Success will be achieved by the demonstration of a more coordinated and collaborative approach to rural RD&E, more focussed national research capability and more efficient RD&E uptake by primary industries to achieve the identified goals of this Strategy and subsequently the National RD&E Framework.

5. PURPOSE

Develop a national animal welfare RD&E strategy that will deliver strong collaboration amongst existing RD&E provider groups and effective partnership between investors and research providers.

More specifically, the Strategy will:

- Provide a situation analysis of animal welfare RD&E in Australia, including expenditure, infrastructure and science capability and gaps.
- Develop an agreed national RD&E Strategy including priorities for animal welfare RD&E.
- Develop a model that will facilitate collaboration and partnerships between investors and providers.
- Develop an implementation plan for the RD&E Strategy.

6. RESEARCH, DEVELOPMENT AND EXTENSION VISION

“A national animal welfare RD&E Strategy that contributes sound, science based options for improved animal welfare, community confidence and market access.”

7. SCOPE

The national RD&E Strategy for animal welfare (the Strategy) will include the development, implementation and delivery of RD&E nationally for livestock (farm animals³) from the point of rearing at the farm (birth) to the point of processing (slaughter).

The Strategy will take effect following consideration and endorsement from the Primary Industries Ministerial Council. The Animal Welfare RD&E Committee will evaluate the outcomes delivered by the Strategy on a three year basis to ensure that the approach remains contemporary and responsive to the needs of industry and continues to build RD&E capability in future years.

In designing the Strategy, a flexible approach was adopted so that the scope can be readily expanded sometime in the future to include other categories of animals that are also the responsibility of State and Territory Agriculture Ministers. These may include companion animals, farmed fish/aquaculture and possibly zoo and recreational animals, all of which are included in the current scope of the Australian Animal Welfare Strategy. As the Strategy will provide a 'soft infrastructure' for the development and delivery of RD&E and investment in future capability, the inclusion of additional categories of animals can be catered for, on the basis that similar capability is required and appropriate funding arrangements are developed.

8. SITUATION ANALYSIS

State and federal government, universities and industry funding bodies provide resources for animal welfare RD&E for a number of reasons. Some of these reasons include; reacting to increased community interest in animal welfare and responding to market access pressures both nationally and internationally.

To determine current gaps and future needs in animal welfare RD&E in relation to capability, infrastructure, investment and collaborative opportunities, two major tasks were undertaken in accordance with the process established by PISC. Further tasks and activities undertaken for the development of this Strategy are presented in more detail in Appendix 1.

The first task involved the development of a detailed *Animal Welfare RD&E Strategy Sector Overview Report* which provided the Steering Committee with a 'snapshot' of the current arrangements for animal welfare RD&E in Australia. The 'snapshot' included an analysis of existing levels of collaboration, identified RD&E priorities, investment and the drivers and trends influencing this relatively new area of science.

The second task was to deliver a comprehensive *Animal Welfare RD&E Strategy Capability and Investment Audit*, undertaken to collect data on current capability, investment and infrastructure. This document provided a basis for identifying capability gaps and future RD&E needs to inform the development of this Strategy.

These documents were provided separately to this Strategy, and are available from DPI Victoria. Details are provided on page 2, under 'further information'.

9. THE SECTOR OVERVIEW: ANIMAL WELFARE RD&E IN AUSTRALIA

Livestock industries need to be confident, when investing in RD&E, that the arrangements consider productivity and animal welfare, as well as changes in community values and consumer preferences over time. Science plays a key role in generating sound knowledge and promoting a well-informed debate on the

³ Discussions are continuing with the aquaculture and wild-catch sectors through the National Aquaculture Council, wild-catch fishing peak bodies, and the Fisheries Research and Development Corporation, towards integrating these sectors within the scope of the Strategy during 2011.

appropriate treatment of animals. The assessment of animal welfare requires a multifaceted approach and continual identification the risks associated with new or alternative technology, management systems and practices as part of daily business. Animal welfare standards are improved through an enhanced scientific understanding of animal welfare and factual information about animal treatment. The development of credible animal welfare policy needs to be soundly based in science, otherwise the growth and market access of Australian animal industries and the current freedoms of animal ownership may be jeopardised.

As detailed in the *Animal Welfare RD&E Strategy Sector Overview Report*, Australia has an impressive record in animal welfare RD&E, demonstrated by the number of peer reviewed publications, presentations at international conferences and positions on international committees and advisory groups. There is already a reasonably strong focus on collaboration, demonstrated through interactions between individuals in science, industry, government and animal welfare organisations⁴, particularly in terms of joint determination of RD&E priorities.

A significant number of collaborations have been established in animal welfare science between RD&E investors and providers, ranging from collaboration at the project level or through grant programs, to more formal collaboration between organisations. The most formal of these are the three dedicated Centres that focus specifically on animal welfare RD&E in Australia – the Animal Welfare Science Centre (AWSC) in Melbourne, Victoria, the CSIRO Livestock Industries in Armadale, New South Wales and the Centre for Animal Welfare and Ethics (CAWE), based in Brisbane, Queensland. The AWSC is an unincorporated joint Centre partnered by the University of Melbourne, the Department of Primary Industries Victoria and Monash University. These three Centres have established further partnerships with each other through a relationship agreement (Memorandum of Understanding). The agreement formalises the close national collaboration which already existed between them and provides a framework for joint activities including the identification of RD&E priorities and associated project delivery. Further collaborations exist between stakeholders as part of the various industry Co-operative Research Centres (e.g. pork, beef, sheep and poultry CRCs) and for projects underpinned by other joint funding initiatives and R&D grant programs, including Australian Research Council (ARC).

Collaboration in animal welfare RD&E at the national level is also clearly demonstrated through the Australian Animal Welfare Strategy (AAWS) 2005, now revised for 2010. The AAWS initiative is supported by the State, Territory and Commonwealth governments and organisations within all the animal industries. The AAWS aims to support joint partnership, focus towards a national agenda and regular communication between industry, government, universities and animal welfare organisations. The AAWS objectives are broader than RD&E however, extending to the wellbeing of all animals in Australia.

Finally, it is recognised that collaboration exists between Australian and New Zealand RD&E providers. In 2009, the Animal Welfare Science and Bioethics Centre, Massey University, New Zealand, led the establishment of the Collaborating Centre approved by the World Organisation for Animal Health (OIE)⁵. This joint New Zealand and Australian OIE Collaborating Centre is a recognised centre of expertise in animal welfare. The new Collaborating Centre will provide expert scientific, bioethical and educational advice to the OIE, scientific and technical training and will coordinate scientific and technical studies in Australia, New Zealand and for the Asia and Oceania Region. Given the collaboration that exists between RD&E providers in Australia and New Zealand, this Strategy may consider at a later stage, exploring opportunities for further collaboration between the two countries where mutual benefit is identified.

⁴ Also reported in the analysis of the AAWS R&D Working Group: Animal Welfare RD&E in Australia – the path forward. Report by the AAWS R&D Advisory Group, 2007.

⁵ The new OIE collaborating Centre consists of the Animal Welfare Science and Bioethics Centre, Massey University, New Zealand, the AgResearch Animal Behaviour and Welfare Research Centre, Hamilton, New Zealand, the Animal Welfare Science Centre, University of Melbourne, Australia, the Centre for Animal Welfare and Ethics, University of Queensland, Australia and the Division of Livestock Industries, CSIRO, Australia.

Despite these strengths, several limitations remain. The lack of continuity and security in funding presents a considerable challenge for organisations in maintaining the required capability for future animal welfare RD&E. This will be compounded over the next 10 years by the likely retirement of several leading scientists. Whilst considerable effort is placed on developing capability through medium and long term projects, animal welfare research is somewhat reactive in nature. Animal welfare RD&E often addresses issues that are of immediate concern to industry market access and those issues that attracted the attention of governments through community and customer pressure.

Issues of capacity are also presenting themselves. Scientists with specific industry expertise based at universities are restricted on the level of input into RD&E due to teaching responsibilities. This highlights a need for a more collaborative approach by investors and providers to ensure that future capability is structured with the required expertise to service industry RD&E priorities.

To address these limitations, effort to date has been directed at improving the communication and collaboration between the relevant RD&E investors and providers. Driven by the RDCs, RD&E Centres and the AAWS, joint RD&E priority planning exercises have increased to address state, national and international RD&E priorities.

In practice, there are also significant scientific challenges associated with establishing a universal, agreed definition for animal welfare and tools by which animal welfare can be practically assessed. A coordinated, national (and international) approach to setting strategic direction for animal welfare RD&E will provide a partial solution towards addressing these issues that currently affect multiple industries and governments.

10. THE AUDIT: CAPABILITY, INFRASTRUCTURE AND INVESTMENT IN ANIMAL WELFARE RD&E

A total of 35 organisations were contacted to participate in the Audit. Of these, 25 organisations across Victoria, New South Wales, Queensland, South Australia, Western Australia and New Zealand provided information, a response rate of 70%. It was recognised that RD&E focussed on increasing productivity of farm animals can also deliver animal welfare benefits, particularly where it involves improved animal health or nutrition. For the purpose of the audit, only the RD&E directed primarily at improving the welfare of animals was considered, to avoid 'double counting' and identify specific animal welfare RD&E resources.

On the basis of existing collaboration between RD&E provider organisations in Australia and New Zealand, it was determined that data from New Zealand would be sought as part of the audit.

INVESTMENT

The potential value in assessing the current investment in animal welfare RD&E is the ability to benchmark and monitor changes in investment over time as the Strategy progresses. The 2008/09 spend on animal welfare RD&E by these organisations was approximately \$14,279 million. Total investment included fund sources such as DAFF & CRC's (beef, poultry, sheep & pork). Organisational investment was categorised as; industry, government, or universities. A similar proportion of spending occurs by the three groups, with industry spending approximately \$5,195,000, government spending \$4,707,000, and universities spending \$4,377,000⁶. Analysis of investment (spending) by state shows that New South Wales, South Australia, Victoria and Queensland are the major contributors to animal welfare RD&E. Analysis of investment (spending) by industry shows the wool, cattle, live export and pork industries make up the majority of the industry investment. Table 1, below, provides indicative investment data for state governments and RDCs:

⁶ Data reflects 08/09 spend. Refer to Animal Welfare RD&E Capability and Investment Audit Report for further information.

Table 1: Investment (08/09) in animal welfare science

Organisation	Investment (\$000's)
AECL	\$225
Chicken	\$60
Dairy Aust	\$200
AWI	\$2133
MLA-Live export	\$1040
MLA-Production	\$677
Pork	\$860
Total Industry	\$5195
NSW DPI	\$439
VIC DPI	\$738
SARDI	\$391
CSIRO	\$2473
DEEDI	\$379
MAF	\$252
NT	\$35
Total Government⁷	\$4707
UNE	\$380
Monash	\$288
Latrobe	\$850
Murdoch	\$744
UOM	\$558
UQ	\$1557
Massey ⁸	\$100
Total University	\$4377
Total Investment	\$14279

INFRASTRUCTURE

The potential value in assessing infrastructure for this Strategy was the ability to correlate facilities with available human capability. This comparison indicates that the major capability has access to sufficient infrastructure within the participating organisations. In the majority of cases, the sites with appropriate infrastructure for future animal welfare RD&E are also those with the largest scientific capability in animal welfare. The key sites are the University of Queensland/DEEDI; the University of New England; the Animal Welfare Science Centre (University of Melbourne/DPI Victoria/Monash University); South Australian Research and Development Institute; the Department of Agriculture and Food Western Australia, and CSIRO.

Participating organisations indicated that while they had appropriate infrastructure, there were some challenges in ensuring its availability for intended animal welfare RD&E because of ongoing pressure for infrastructure for all facets of RD&E. Data on the type of infrastructure available within each organisation, and its use for each industry, is provided separately in the Animal Welfare RD&E Strategy Capability and Investment Audit. For future planning, enhancements to infrastructure through collaboration might be considered to deliver specific projects, such as examining animal welfare within free-range environments and/or intensive housing systems for pork, poultry, sheep and cattle.

⁷ Note: Data sought from WA Agriculture as part of ongoing discussions. Refer to Animal Welfare RD&E Capability and Investment Audit Report for further information.

⁸ Massey not included in current total (above), but during the first year of implementation, the capability and investment for the New Zealand RD&E partners will be further assessed.

CAPABILITY

Capability was determined by;

- analysing staffing arrangements and data on Full Time Equivalents (FTEs) employed by each organisation involved in RD&E activities (including technical/laboratory support); and
- assessing expertise in each industry, sector and/or discipline.

Disciplines included animal science, ethology, veterinary science, physiology, psychology, immunology, zoology, endocrinology, genetics and ‘other’ defined by the participant (organisation). The breakdown of FTE by discipline, sector, location and research focus is provided separately in the *Animal Welfare RD&E Strategy Capability and Investment Audit*. The Audit determined there is a total of 40 Full Time Equivalents (FTEs) available for animal welfare RD&E as shown in table 2, below:

Table 2: Total Full Time Equivalents (FTEs) available in animal welfare RD&E

Main focus	Scientist	Extension	Education	Technical	Total
FTE	29	4	2.3	7.2	42.5 ⁹

Analysis by sector (production, transport, saleyard or processing) shows that the majority (94%) of FTE’s focus on the farm production sector, with the remaining 6% focussing on the transport and processing sectors. Available FTEs for each industry were determined to be approximately: beef (3.2 FTEs), sheep (9.2 FTEs), dairy (2.2 FTEs), goats (0.8 FTEs), poultry (eggs) (3.6 FTEs), poultry (meat) (1.8 FTEs), and pigs (1.9 FTEs). Data collected on the age profile of people engaged in animal welfare RD&E shows that over 40% are older than 51 years, highlighting the importance of future succession planning. There are approximately 23 postgraduate students undertaking study in animal welfare science, predominately in physiology, behaviour, genetics, veterinary science and pain assessment disciplines¹⁰.

11. IDENTIFYING CAPABILITY FOR THE FUTURE

The relatively high proportion of staff in older age categories highlights the urgent need for succession planning and capability building. Undergraduate students in study fields - including agriculture and rural sciences, zoology, animal science and veterinary science - currently have a limited exposure to animal welfare science. Anecdotal reports indicate that there are difficulties in attracting students for post graduate study and additional limitations in retaining post graduates in RD&E organisations in Australia, either in post-doctoral or full time positions. In the absence of objective information to explain the above mentioned trend, it is widely believed that the lack of certainty in funding for RD&E organisations leaves many organisations unable to commit to hiring new graduates within their field of study.

The available data indicates that there are currently 23 post graduate students. This suggests that there could be, on average, between 15 and 25 new postgraduate-trained scientists in the market every three years, potentially providing 7-8 scientists available for recruitment each year. These data also demonstrates that these students are undergoing training in the major disciplines required for future capability, such as ethology and animal behaviour, stress physiology and immunology and pain measurement.

There are, however, still gaps in other disciplines including genetics, animal production, psychology and social science, as well as in industry-specific expertise. The limited FTEs currently available for some industries (e.g. pork, poultry) are already a consideration for these industries and several of the current

⁹ Data collected for 2009. It is noted that some institutions have since increased or decreased their capability slightly since the audit was conducted. The FTEs will be reviewed annually as part of the Strategy workplan.

¹⁰ It is noted that there are more students involved in animal welfare in other animal sectors currently not included in the scope of the Strategy, but that may be considered in future analysis of capability.

post-graduate positions are likely to address these gaps in the short and medium future. The implementation of this Strategy will identify capability needs against the RD&E themes, and strategies to address gaps in capability.

IDENTIFYING RD&E PROVIDERS

RD&E providers were asked to identify whether they would take a *major*, *participate* or *link* role in relation to the seven identified RD&E themes for animal welfare. These data provided information on which organisations would be considered *core* RD&E providers, as well as which *RD&E themes* each organisation would largely focus on in the future.

The RD&E providers that indicated they would take a *major* or *participating* role in animal welfare RD&E were also those with 2.0 or more FTEs specifically focussed on animal welfare RD&E (refer to table 3 below). These RD&E providers are defined in this Strategy as the *core* providers.

The core providers represent a critical mass of **38.8 FTEs** across science, extension, education and technical disciplines, with some 27 scientist FTEs. The core providers also contribute the highest investment towards animal welfare RD&E and contain the required infrastructure for experimental work.

The core providers will contribute directly towards building capability and expertise as part of this Strategy. Within the group of identified core providers, there are three dedicated Centres for animal welfare science (*marked with an asterisk, below*). The dedicated Centres that already have a Memorandum of Understanding partnership in place for collaboration, will represent the group of core providers on the Animal Welfare RD&E Committee for the Strategy. This is described in component 1 of the proposed facilitation model presented in section 16, below.

Table 3: Animal Welfare RD&E as a priority across RD&E provider organisations

Organisation	Intended role in AW RD&E	FTEs (total)
AWSC*	Major	9.7
University of Sydney	Major	4
CSIRO*	Major	3.9
Murdoch University	Major	3.9
University WA	Major	3.5
SARDI	Major	4
CAWE*	Major	4.2
DEEDI, Qld	Participate	2.8
WA Agriculture	Participate	2.8
DPI New South Wales	Link	0.5
University Adelaide	Link	1
University of New England	Link	1.2
Tas DPI	Link	0.1
La Trobe University	Link	0.5
NT Department of Research	Link	0.4
*indicates an established animal welfare RD&E Centre	TOTAL FTE	42.5

The core providers will be invited, through a designated RD&E forum, to support the implementation processes for this Strategy. This is described in later sections of this document (commencing section 16).

Under this Strategy, core providers will assist in coordinating one or more of the strategic RD&E themes. This will include the identification of specific RD&E priorities for each theme and data collection for future capability mapping and evaluation processes. The RD&E themes upon which each individual provider organisation may largely focus was identified in the audit, (refer to the *Capability and Investment*

Audit Report for further details). Similar data were sought from RD&E investors (to nominate which of the RD&E themes they would focus), providing a clear indication of the future opportunities for collaboration between specific RD&E provider and investor organisations.

The remaining RD&E provider organisations indicated they will *link* with relevant projects or activities, as determined by their organisational capability and needs. On this basis, all remaining RD&E providers identified through this Strategy will be invited to contribute to the future planning and identification of RD&E priorities for animal welfare through a designated RD&E forum.

12. IDENTIFYING NATIONAL RD&E PRIORITIES

Animal Welfare RD&E priorities are broad ranging. Some impact multiple industries while others are specific to individual industries, species and sectors. In recent years, considerable effort has been directed towards identifying RD&E priorities for animal welfare both within and across RD&E organisations and industries. The Strategy details seven RD&E themes gathered from existing government and industry strategic plans to provide a broad direction for future RD&E activities. The themes reflect both industry specific and cross industry current RD&E activities and anticipated future direction at national, regional or local levels. The themes are as follows:

1. Animal Welfare Assessment;
2. Pain Assessment and Management;
3. Management, Housing and Husbandry;
4. Transport, Humane Destruction and Slaughter;
5. Public Attitudes, Social Science and Community;
6. Education, Training and Extension;
7. Policy and Market Access.

Each theme is underpinned by several 'focus areas' which describe in further detail, the project categories that underpin the outcome described for each theme (Figure 1). The implementation model outlined in this Strategy allows for investors and R&D providers to reach agreement on research priorities and activities for individual industries and multiple industries (cross sectoral projects) within each focus area in accordance with the participating organisations' strategic goals and priorities.

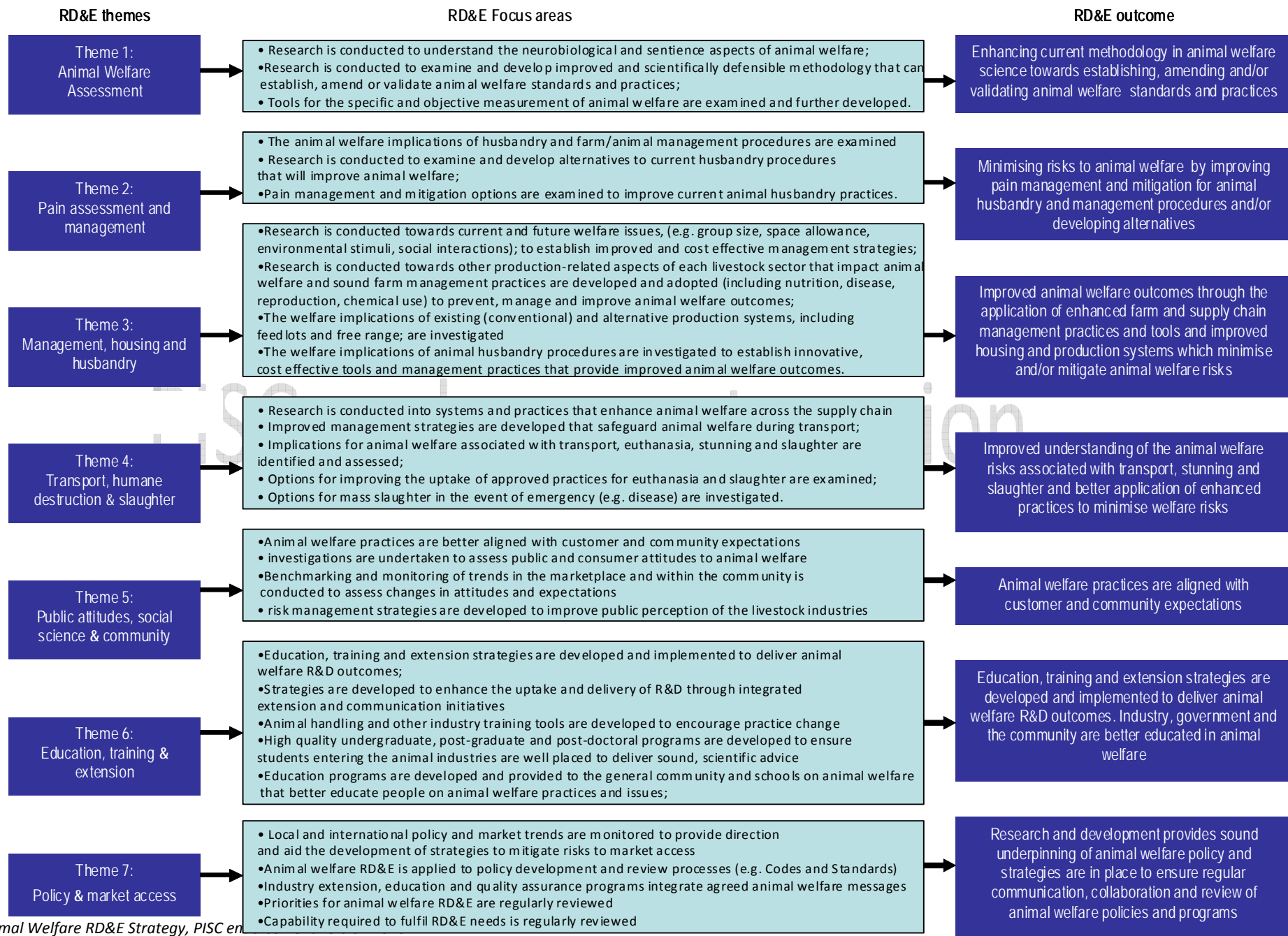
The broad nature of the themes and focus areas enables flexibility for participating organisations. It is expected that RD&E investors and providers will continue their individual priority planning processes to identify specific priorities based on the needs of their constituents or end-users. These identified priorities will inform this Strategy and provide a basis for identifying priorities of national, industry specific and/or cross sectoral significance and on this basis, potential collaboration and co-investment.

It is acknowledged that animal welfare RD&E priorities will change over time as a result of change in public and community attitudes, customer and market expectations and as a result of other influences including practice change, technology and innovation in the livestock industries. The process for review of the RD&E themes is outlined in section 17, which describes the implementation arrangements for this Strategy.

The themes were utilised to map current capability and identify gaps. This analysis is presented in section 14, below.

A summary of the seven strategic RD&E themes and focus areas is provided below in Figure 1. Further details on the rationale and arrangements for each theme is presented in Appendix 4.

Figure 1: RD&E Themes, focus areas and outcomes for the Strategy



13. MAPPING THE CAPABILITY WITHIN CORE PROVIDERS AGAINST THE STRATEGIC RD&E THEMES

Disciplines required to address strategic animal welfare RD&E themes include animal science, ethology, veterinary science, physiology, psychology, immunology, zoology, endocrinology, genetics, education and extension. Where current capability or resources are insufficient appropriate linkages with the sector specific strategies could provide additional capability.

In the future; other disciplines will be relevant to animal welfare RD&E, including economics, social science and neurophysiology, to name a few. Access to capability in these areas may also be achieved through appropriate linkages with the sector specific strategies.

The FTEs forming the critical mass of capability (36.6) within the core provider group were mapped against each of the strategic RD&E themes (refer to table 4, below).

Table 4: Mapping FTEs within the core provider group against strategic RD&E themes

Strategic RD&E Theme	Focus of current FTE
<i>Animal Welfare Assessment</i>	11.1
<i>Pain Assessment and Management</i>	4
<i>Management, Housing and Husbandry</i>	14
<i>Transport, Humane Destruction and Slaughter</i>	1.3
<i>Public Attitudes, Social Science and Community</i>	2
<i>Education, Training and Extension</i>	5.4
<i>Policy and Market Access</i>	1

There is reasonable capability available across each of the strategic RD&E themes (and disciplines) in the short term, although as the above data indicates, there is certainly room for improvement. However, one obvious challenge is having sufficient human resource available to address both immediate (reactive) and strategic/longer term RD&E activities at any one point in time. Challenges already faced by RD&E providers include time constraints for researchers with teaching responsibilities, as well as access to sufficient technical support (human resources) and competition for access to suitable infrastructure.

When considering medium to long term RD&E delivery, it is obvious that a significant challenge will be to maintain at least existing levels of capability for each of the strategic themes and related disciplines. Succession planning to retain necessary capability will be essential to the success of this Strategy.

Succession planning will also need to generate capability that not only supports the required disciplines, but that provides specific industry expertise. There appears to be a decline in available scientists with specific industry expertise which is only partly being addressed through the support of post-graduate positions by some of the livestock industries. This presents challenges for applied RD&E that can be directly integrated into industry practice. Applied RD&E is a priority area for the industries, who must continue to seek commercial application or outcomes to address animal welfare issues.

This highlights the need for a more collaborative approach between the RD&E providers and the RDCs in future – not only to identify and establish strategies to address capability gaps, but to

ensure that future capability is structured with the required expertise to service the industry RD&E priorities in future.

14. ADDRESSING CAPABILITY NEEDS – NOW AND FOR THE FUTURE

The capability analysis indicates that an important part of implementation will involve developing strategies which address both current and future capability.

For the short term, there appears to be reasonable capability available. There is a need for more strategic and long term approaches to RD&E, as well as for capability to be available to industries to address immediate policy issues (e.g. that have the potential to, or are, impacting market access). Joint identification of RD&E priorities between investors and providers will help to enable organisations to have certainty and therefore commit appropriate resources. Establishing effective linkages across the other sector specific strategies to provide more RD&E capacity will also be important.

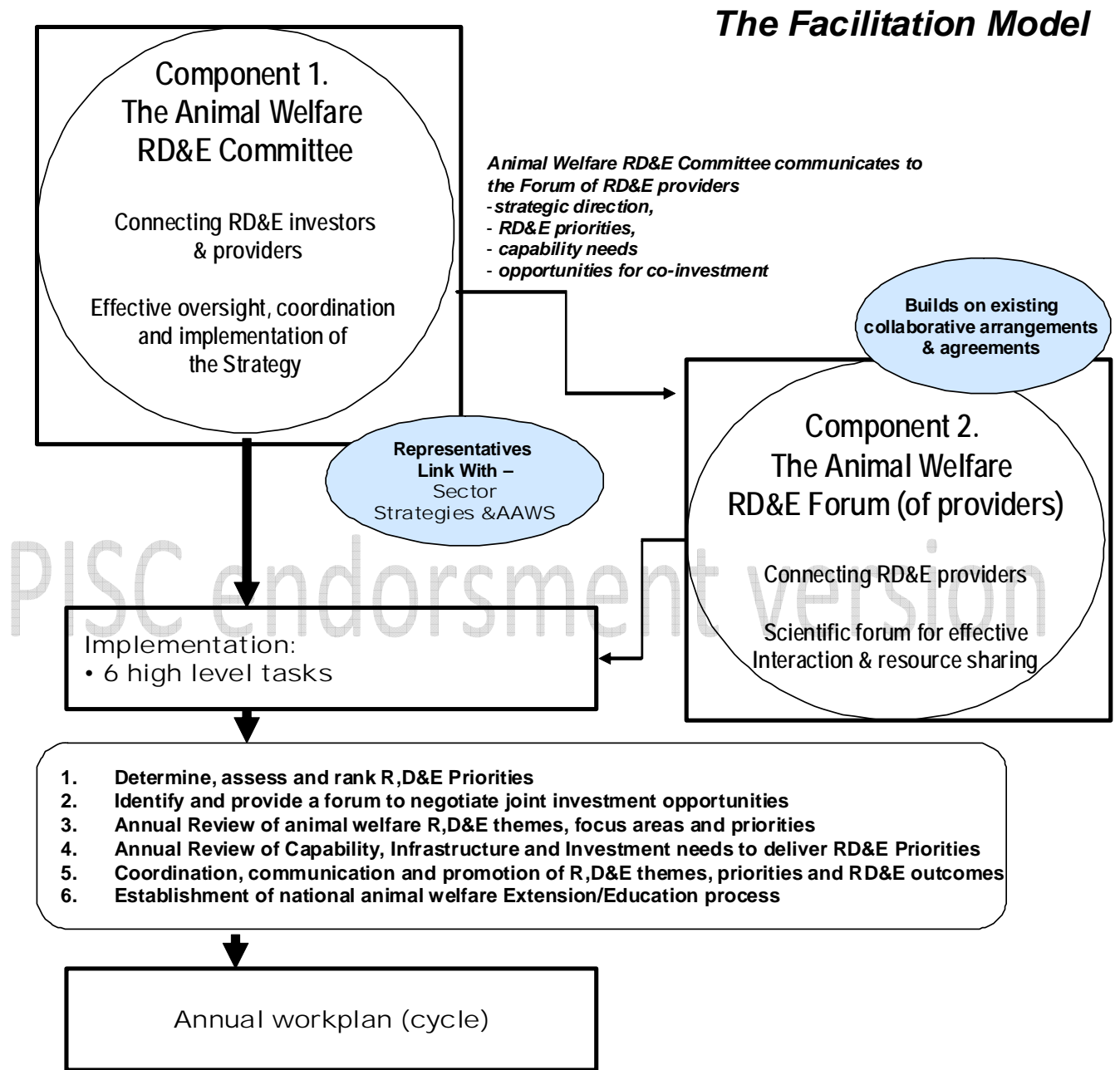
For the medium to long term, it will be important to replenish the loss of scientists expected in the next 10 years across disciplines such as animal behaviour, physiology, immunology, endocrinology, pain measurement, veterinary science, animal production and psychology. Disciplines relevant to animal welfare that are also identified in sector specific strategies include genetics, reproduction and reproductive technologies, animal health, economics and social science.

Further considerations for effective implementation of this Strategy in addition to addressing capability are presented in section 17, below.

15. THE FACILITATION MODEL

Success in future animal welfare RD&E will be most achievable with security in funding, flexibility and direct linkages between animal welfare RD&E investors, providers and the sector specific strategies. This Strategy involves the implementation of a new facilitation model for enhanced collaboration and co-investment, comprised of **two distinct components** as shown in Figure 2, over the page.

Figure 2: The Facilitation Model



COMPONENT 1: EFFECTIVE OVERSIGHT, COORDINATION AND IMPLEMENTATION OF THE STRATEGY

An Animal Welfare RD&E Committee comprising all livestock industry RDCs, the major RD&E providers and the major government investors will oversee, coordinate and implement the Strategy. The committee will undertake 6 high level tasks towards improving collaboration and partnerships for animal welfare RD&E:

1. Determine and rank RD&E priorities for future investment and collaboration;
2. Annual review of RD&E themes, focus areas and priorities;
3. Negotiate collaboration and/or co-investment opportunities (forum for decision making);
4. Annual review of capability, infrastructure and investment needs to deliver RD&E priorities;
5. Coordination, communication and promotion of RD&E themes, priorities and RD&E outcomes;
6. Establishment of national animal welfare extension/education process in line with PISC principles and sector RD&E strategies.

Key activities within each of the tasks above are presented in Figure 3 (page 20) and are provided in further detail in the terms of reference for the committee, Appendix 2. It is anticipated that the committee will meet at least twice annually, with further meetings planned on a needs basis. One of the annual meetings will be held in conjunction with the annual RD&E planning meeting which includes the RD&E provider *Forum*, described in detail below.

COMPONENT 2: EFFECTIVE USE OF RD&E RESOURCES

There is also a need for the Animal Welfare RD&E Committee to interact with and receive input from the broader RD&E provider community. This will be done through an informal, interactive Animal Welfare RD&E *Forum*. All RD&E providers will be invited to come together as a Forum at least annually, with two principal purposes.

- 1) To regularly interact and communicate on current RD&E activities, emerging capability and resource needs and opportunities for collaboration among the provider community.
- 2) To attend an annual RD&E planning meeting where all the RD&E providers, in conjunction with the Animal Welfare RD&E Committee, can determine and refresh RD&E priorities, identify capability issues and develop strategies to address any gaps in capability.

The annual RD&E planning meeting will facilitate a shared approach between the Committee and all other RD&E providers in identifying priorities, opportunities for collaboration and resource needs. Options to deliver the first activity (1), above, may include establishing an ‘electronic meeting place.’ This mechanism is currently used by the PISC Animal Welfare Committee and AAWS working groups. Alternatively, the Animal Welfare RD&E Committee may provide the RD&E Forum with regular or quarterly updates by email, thereby encouraging providers to jointly participate in regular scientific discussion and information sharing. These updates might include information on RD&E priorities, strategic direction, capability needs, project outcomes and review processes relating to this Strategy.

The activities of the forum are presented in Figure 4 (page 21) and are provided in further detail in the terms of reference for the Forum, Appendix 3.

Figure 3: The Animal Welfare RD&E Committee

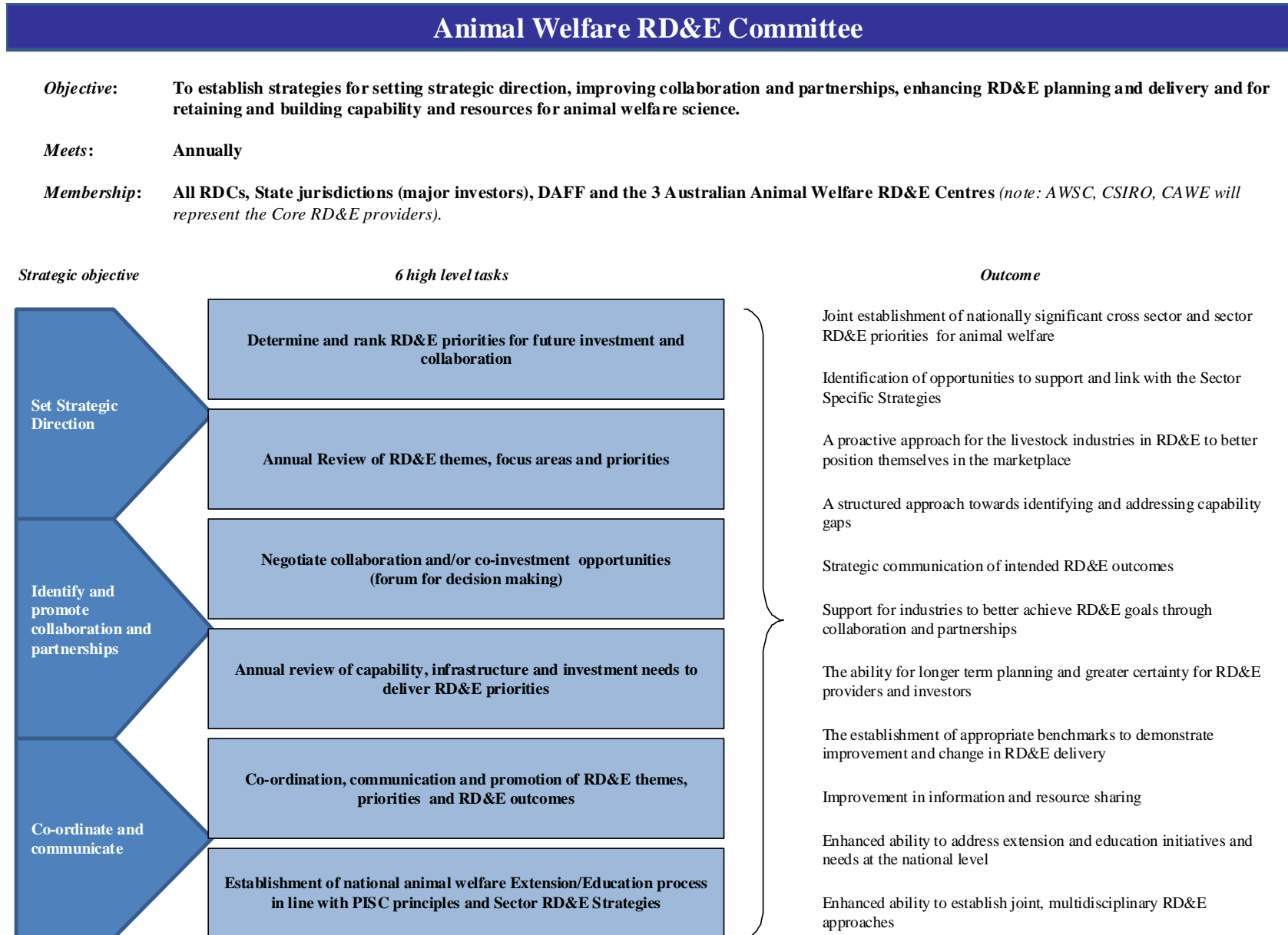


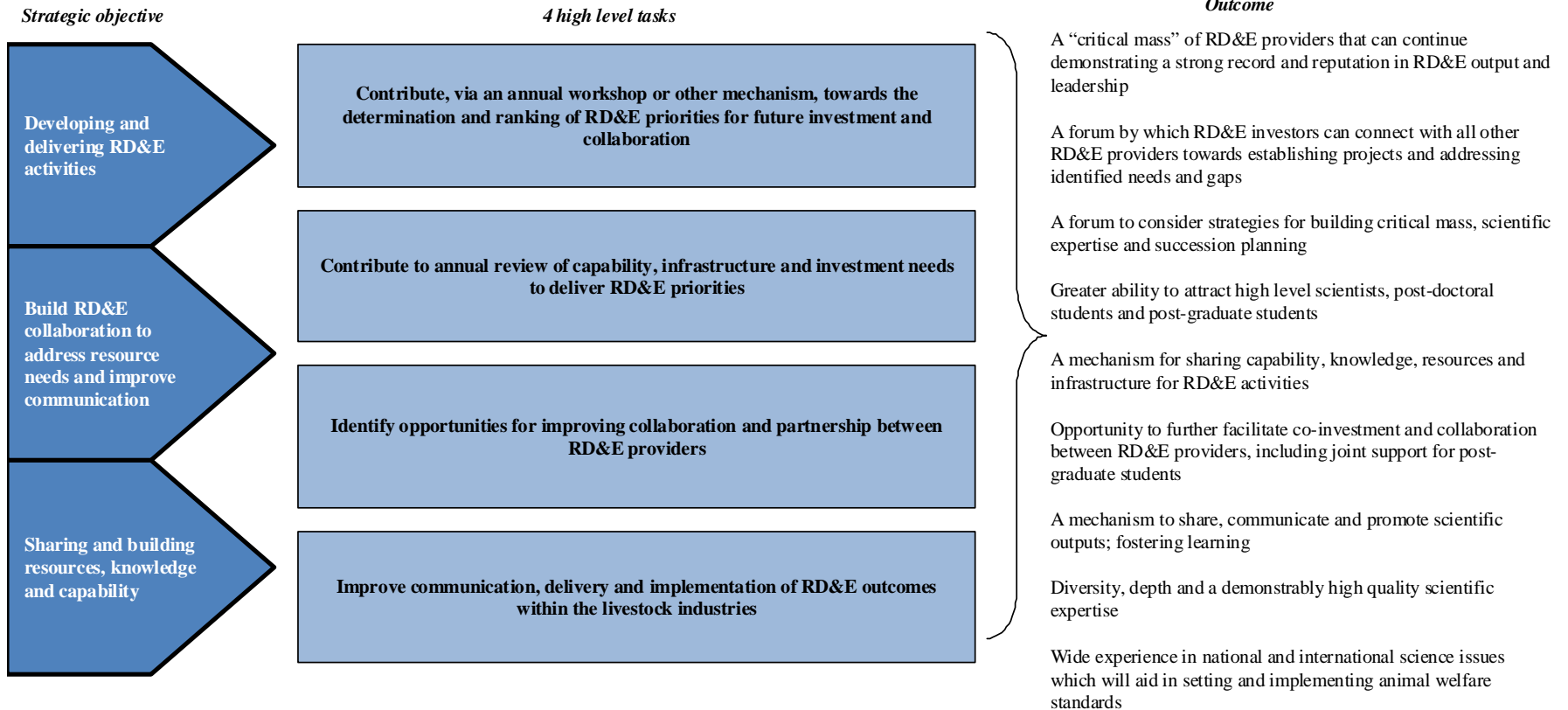
Figure 4: The Animal Welfare RD&E Forum

Animal Welfare RD&E Forum

Objective: To consider strategies for furthering collaboration between RD&E providers and enhancing scientific capability, expertise and resource sharing. To support the Animal Welfare RD&E Committee in terms of identifying RD&E priorities, identifying opportunities for collaboration and assessing resources needs, including capability gaps.

Meets: Via annual planning RD&E workshops convened by the Animal Welfare RD&E Committee and regular interaction through an electronic meeting place.

Membership: All RD&E providers.



16. IMPLEMENTATION: THE ANIMAL WELFARE RD&E COMMITTEE

The Animal Welfare RD&E Committee will focus primarily on the following 6 high level tasks:

1. DETERMINING AND RANKING RD&E PRIORITIES FOR FUTURE INVESTMENT AND COLLABORATION

The Strategy provides a co-ordinated, national approach to setting strategic priorities for animal welfare RD&E which will address the issues currently impacting industry and government. To determine RD&E priorities within the defined RD&E themes and focus areas for this Strategy, committee members will report on their organisations' current RD&E activities, priorities and the sector specific strategy priorities to identify potential areas for collaboration.

The committee will focus on those animal welfare RD&E priorities that are cross sectoral in nature, are of national significance and that warrant co-investment or collaboration. This cross sector Strategy will therefore complement the sector specific strategies that are focussed on production-related livestock sector RD&E. This Strategy will provide the over-arching framework to summarise what is happening across the sectors in relation to each animal welfare theme and focus area. To facilitate linkages across strategies, industry members of the Animal Welfare RD&E Committee will provide direct communication with other Strategy forums and will allow the committee to:

- Identify cross sector priorities
- Identify individual sector priorities that might relate to other industries
- Identify capability required to deliver on these priorities

Projects might include those issues that impact on either an individual industry or multiple industries or issues that would benefit from a national focus and/or collaboration and that would otherwise not be effectively addressed. The process will facilitate information exchange and encourage collaboration across the broad RD&E themes for this Strategy.

2. CONDUCTING ANNUAL REVIEW OF ANIMAL WELFARE RD&E THEMES, FOCUS AREAS AND PRIORITIES

The committee will review the animal welfare RD&E priorities, themes and focus areas and agree on priorities for the coming year. Representatives will provide input and communicate outcomes from their sector strategy and/or organisational planning processes as appropriate.

The first steps involved in reviewing the RD&E priorities, themes and focus areas will include:

- Establishing selection criteria for the evaluation of each RD&E theme and its outputs;
- Defining the specific RD&E activities to be conducted within each focus area and the specific deliverables for each activity or project;
- Revising the themes and focus areas in accordance with the revised RD&E priorities; and
- Reflecting and communicating the themes for the Strategy to other sector strategies and to all agencies in accordance with the National Research Priorities.

3. NEGOTIATING COLLABORATION AND/OR CO-INVESTMENT OPPORTUNITIES

The Animal Welfare RD&E Committee will develop strategies to give RD&E providers the greater funding certainty for which they are looking for, while retaining flexibility for the RD&E investors to address emerging animal welfare issues and retain control of how their resources are used.

There is a range of collaboration and funding models that investors and providers can use. Several of these models were assessed and it was determined that a range of models would be utilised to deliver the intended aims of this Strategy. This Strategy therefore, does not favour one model over another but establishes the RD&E Committee as a vehicle for the parties to come together to review priorities and, as appropriate, reach agreement on the funding and conduct of specific research activities. In this way, the parties will use the Strategy to deliver direct partnerships and long term commitments, thus ensuring that the key capability required by government and industry is retained and developed for the future.

In addition, government and industry investors will work together within the Animal Welfare RD&E Committee to identify further opportunities for collaboration and co-investment. Arrangements may vary from single RD&E investor and provider partnerships to co-investment agreements between multiple investors and the core providers for large, cross sectoral programs. For example:

- Individual RD&E investor organisations will be encouraged to establish partnership agreements with RD&E provider organisations, either for individual projects or longer term programs against their required deliverables.
- RD&E investors will be encouraged to establish joint MOUs or joint project arrangements with single or multiple RD&E providers which specify the deliverables they require for cross-industry initiatives. This option could also be formalised by way of appointments (capability) for specified areas for defined periods. For instance, nearly all of the RDCs already collaborate with RD&E providers via individual project arrangements, some of which extend to three years (e.g. post-graduate stipends). These could be reflected in the desired MOU, which would provide certainty and enable capability needs to be further addressed in the medium term future.

These examples, together with the continuation of individual, contract R&D arrangements, will assist in providing certainty for RD&E providers – which will subsequently result in improved ability to address capability gaps, by retaining staff, attracting new staff and/or establishing joint post doctoral, post-graduate or extension/education positions within the RD&E provider organisations.

These collaborations may be at the national or international level and include local (state) and regional projects. A model for more formal collaboration in the future was considered as part of the development of this Strategy and is presented in Appendix 5.

[4. REVIEWING CAPABILITY, INFRASTRUCTURE AND INVESTMENT NEEDS TO DELIVER THE RD&E PRIORITIES](#)

The Committee, upon identifying RD&E priorities, will examine available capability to deliver these priorities. Gaps in capability and resources will be identified and strategies established towards improving collaboration, resource sharing and investment so that the identified RD&E priorities can be delivered.

To support this process, the committee will collectively review the available capability, infrastructure and investment against the initial audit findings on an annual basis. This review will provide a benchmark against the initial audit findings and enable the committee to identify any gaps and/or changes in capability and resources over time. It was previously identified that there is further capability identified within the sector specific strategies that can and will, be utilised for animal welfare RD&E activities. Therefore establishing regular communication and linkage with the sector specific strategies for the review process will be necessary.

Evaluation

In addition to the above annual review of capability and resources against identified RD&E priorities, the Committee will evaluate this Strategy on a three year basis. The purpose of this more formal evaluation will be to assess the effectiveness of the Strategy in delivering its stated aims. Evaluation criteria will examine RD&E outcomes from this Strategy to determine that they:

- Address the needs of RD&E provider and investor organisations, in terms of performance and return on investment;
- Are congruent with industry’s changing needs over time and participating organisations goals;
- Result in achievement of the stated goals;
- Are effectively delivered, implemented and result in quality publications.

Measures of success for this Strategy, both within the contributing organisations and collectively at the national level, may include:

- Assessing the number of collaborative arrangements established for the provision of RD&E;
- Assessing the number of shared, cross industry investments in animal welfare RD&E;
- Examining the annual benchmark of capability, infrastructure and investment to determine whether utilisation and application of resources has improved and whether current gaps in capability have been addressed, and;
- Examining the impact of the RD&E outputs in terms of meeting industry and government needs, including underpinning policy.

5. CO-ORDINATING, COMMUNICATING AND PROMOTING RD&E THEMES, PRIORITIES AND OUTCOMES

The committee will have a considerable role in co-ordinating, communication and promoting this Strategy and its outputs. Specifically, coordination and communicating will be required with the sector specific strategies. This will be achieved by the representation of the RDCs, state governments and RD&E providers on the committee and additionally, through specific communication activities including the provision of regular updates on the progress of the Strategy to these other RD&E strategy forums. Furthermore, to address the needs of industry in applying RD&E to resolve issues impacting productivity or sustainability, communication with policy makers will be a key focus. This will be achieved through regular communication with State agencies and additionally, by maintaining close collaboration with the Australian Animal Welfare Strategy initiative. Details on these processes are provided below.

Linkage with the sector specific strategies

Many animal welfare RD&E activities will contribute to outcomes in other production-related areas, for instance, improvements in productivity, nutrition, production technology and efficiency and market access. As aforementioned, this Strategy will identify and deliver those animal welfare RD&E priorities that are cross sectoral in nature, are of national significance and that warrant co-investment or collaboration, thereby complementing the sector specific strategies that are focussed on the production-related livestock sector RD&E. As the sector strategies will also identify RD&E projects and outcomes with animal welfare benefits, relevant investments through those strategies will help to maintain the critical mass of capability needed for animal welfare RD&E. This Strategy

proposes linkages with each of the sector specific strategies in relation to ‘Development’ (D) and ‘Extension/Education’ (E), on the basis that it will be important to ensure that any animal welfare outcomes for each livestock sector can be delivered and/or consolidated with their existing extension arrangements and/or objectives. Collaboration with the other RD&E sector specific strategies will be promoted initially for key purposes:

- 1) identifying RD&E priorities;
- 2) evaluating RD&E outcomes;
- 3) reviewing capability;
- 4) aligning animal welfare RD&E outputs with the delivery and extension arrangements for each sector, and
- 5) establishing opportunities for cross industry collaboration and co-investment.

Effective integration of animal welfare RD&E outcomes with outcomes from each of the sector specific strategies will be important to achieve effective implementation, uptake and practice change within the livestock industries. Collaboration between this Strategy and sector specific strategies might address some of the identified capability gaps in disciplines such as genetics, nutrition, reproductive technologies, veterinary science, economics, marketing, social science, production and extension and training. It is anticipated that there will be opportunities for some of the animal welfare RD&E outcomes required in this Strategy to be delivered under other sector specific strategies accordingly.

Linkage with policy development processes and the Australian Animal Welfare Strategy

RD&E can make a significant contribution to animal welfare policy. The need for RD&E investors and providers to ensure that RD&E is directed towards the resolution of pressing issues is recognised across government policy groups. Through this Strategy, the committee will establish and implement effective linkages between policy makers and RD&E investors. Additionally, the Strategy will link with the Australian Animal Welfare Strategy (AAWS) via joint representation on the committee and shared representation across RD&E planning forums and working groups.

The Animal Welfare RD&E Committee will seek to improve collaboration with policy makers to ensure RD&E outcomes are considered as part of policy development processes. Through the committee, updates will be provided to policy advisers, PISC forums (e.g. the Animal Welfare Committee and the R&D Committee) and the AAWS working groups.

The determination of RD&E priorities within the AAWS Livestock Production Working Group will be considered as part of the development of RD&E priorities for this Strategy. Further engagement with the AAWS Education and Training Working Group will occur towards addressing the recommendations of the Education and Training ‘StockTake’¹¹, ensuring a nationally coordinated approach to extension and education.

¹¹ Australian Animal Welfare Strategy Report: Education and Training Stocktake, 2008, available at http://www.daff.gov.au/animal-plant-health/welfare/aaws/stocktake/stocktake_of_animal_welfare_education_and_training

6. ESTABLISHING NATIONALLY COORDINATED APPROACHES TO ANIMAL WELFARE EXTENSION AND EDUCATION.

Regional, adaptive development is a critical step for the effective application of animal welfare science, including commercial application of any livestock management, housing or husbandry practices and alternatives, before any change or improvement can be fully realised by the industry.

Education and extension, two of the major activities for regional development, are important in delivering research outcomes and contributing to a balanced and well informed debate. The industries and governments will need to continue providing sound, science-based educational information on animal welfare to customers and the community in order to ensure a balanced discussion, in particular as welfare issues may be either real or perceived. PIMC has indicated a clear focus on regional development and local extension, and the need for effective strategies which ensure the outcomes of RD&E are implemented in the industries. PISC is developing agreed principles by which extension may be managed within each of the various RD&E strategies. For this Strategy, the PISC agencies and industry will seek to consolidate and share resources and better coordinate messages relating to animal welfare through collaborative extension and education initiatives. The approach to animal welfare extension will need to be integrated with the approaches of the sector specific strategies. The committee will assess the extension arrangements proposed for each of the sector specific strategies to determine opportunities for integrating animal welfare, identify opportunities for co-investment and/or collaboration and develop, in accordance with the PISC principles for extension, an agreed and national approach to delivering animal welfare extension and education.

Furthermore, this Strategy will take into account the recommendations developed from the AAWS process to date. The AAWS completed a 'StockTake' on available education and training materials for animal welfare, including an assessment of the current mechanisms for delivery within identified industries. The final StockTake report indicated that a current challenge for animal welfare RD&E is ensuring effective extension and the communication of consistent messages. Other recommendations of the StockTake included the need to integrate animal welfare within the primary and secondary school curricula and establishing a more positive and targeted public education campaign for the livestock industries. The Animal Welfare RD&E Committee will consider these recommendations as part of the process to establish a more nationally coordinated approach to extension and education in animal welfare.

Draft principles for extension have been developed for discussion by the Committee towards establishing a more coordinated extension and education approach. These are presented in the *Animal Welfare RD&E Strategy, Capability and Investment Audit Report* and will be considered during the implementation process.

IMPLEMENTATION: THE ANIMAL WELFARE RD&E FORUM

The **Animal Welfare RD&E Forum** will focus primarily on the following 4 high level tasks:

1. CONTRIBUTE, VIA AN ANNUAL WORKSHOP OR OTHER MECHANISM, TOWARDS THE DETERMINATION AND RANKING OF RD&E PRIORITIES FOR FUTURE INVESTMENT AND COLLABORATION

Through a joint annual workshop the RD&E providers the Committee will contribute to the establishment of RD&E priorities for this Strategy. This will enhance the opportunity for dialogue between investors and providers and additionally, improve the coordination and linkage with the RD&E provider organisations involved in this, and other RD&E strategies.

2. CONTRIBUTE TO ANNUAL REVIEW OF CAPABILITY, INFRASTRUCTURE AND INVESTMENT NEEDS TO DELIVER RD&E PRIORITIES

As part of the annual review of capability and resources, the committee will seek information from the forum. The forum will contribute to benchmarking capability and resources, as well as identifying capability gaps and needs to deliver on the identified RD&E priorities. This process will enhance the ability of the RD&E provider organisations to forward plan and be more dynamic in the manner by which they consider their available capability, investment in post-graduate programs and future succession planning arrangements.

3. IDENTIFY OPPORTUNITIES FOR IMPROVING COLLABORATION AND PARTNERSHIP BETWEEN RD&E PROVIDERS

Existing collaboration between RD&E providers range from those at an individual project level to formal agreements and for short, medium and long term activities or outcomes. The relationship agreement between the three Australian Centres is a clear example of a more recent, formal partnership.

In this Strategy, a more strategic approach to enhancing collaboration will build on existing collaborations by further engaging the remaining identified core RD&E providers. This will assist the core RD&E providers to enhance critical mass, improve information and resource sharing and develop capability across the required specialist disciplines and with specific industry experience. Although formal collaborative arrangements already exist amongst some animal welfare RD&E providers, there is ample scope for increased resource use efficiency through further collaboration. Under this Strategy, the three major Centres for animal welfare R&D (AWSC, CSIRO and CAWE), together with the other core provider organisations (defined as RD&E providers with at least 2 FTE of dedicated animal welfare science capability) will be invited to explore options for enhanced collaboration. This could include expansion of the existing MOU and relationship agreement already established across the three Centres, to include other core providers, with the objective of promoting consolidation and the growth of capability as well as cooperation towards a national animal welfare RD&E agenda. This option is presented as an example in Appendix 5. Enhancing existing collaboration between the Forum and other overseas RD&E providers may also be considered, particularly with New Zealand, through the existing OIE collaborating Centre.

4. IMPROVE COMMUNICATION, DELIVERY AND IMPLEMENTATION OF RD&E OUTCOMES WITHIN THE LIVESTOCK INDUSTRIES

The Forum will work cooperatively with the committee to improve on current delivery mechanisms for RD&E. Specifically, the Forum and the committee will consider strategies towards gaining greater ownership and implementation of RD&E outcomes within the livestock industries. This interaction will improve the understanding across RD&E providers of the commercial and practical challenges facing the livestock industries in RD&E, as well as improve the ability to communicate and promote the outcomes of RD&E to the industries. The Animal Welfare RD&E Forum will also have a joint role in promotion and communication of RD&E activities and outputs – specifically in promoting ‘critical mass’ and science capability nationally and internationally. This is expected to be carried out in conjunction with the AAWS and the OIE Collaborating Centre as required.

17. CONSULTATION AND APPROVALS

Consultation with all livestock RDCs, the State, Territory and Commonwealth governments and the RD&E providers was managed through the national Steering Committee and via separate working groups, face-to face meetings and teleconferences during the Strategy development process.

Consultation with other stakeholders, including industry organisations, councils and associations, other RD&E providers and investors, consultants, technical experts and animal welfare organisations was managed through the “Corresponding member group” via email as well as through existing communication channels including individual RDC consultation planning processes and the AAWS. Consultation was extended to the members of the Animal Welfare Committee, Animal Welfare and Product Integrity Taskforce and the Committee of Chairs (RDCs).

The RD&E Steering Committee members, together with the RD&E working group for this Strategy who engaged the remaining RD&E providers and investors, were responsible for securing endorsement for the Strategy from the respective organisations and members.

Further endorsement was sought from the PISC R&D Sub-Committee, prior to submission to PIMC and PISC.

18. COMMENCEMENT

It is agreed that the implementation phase of this Strategy will commence, following its endorsement, during October 2010. The first meeting of the Committee will be held in October 2010, for purposes of reviewing the Strategy and developing and finalising the workplan, terms of reference and implementation processes described in this document.

It has been determined that for continuity, the current chair and secretariat will remain in place to facilitate the first 6 months (including first meeting) of the Strategy. DPI Victoria will contribute the costs and secretariat until the end of 2010. A longer term arrangement for cost-sharing to support the administration and operational costs of the Animal Welfare RD&E Committee and Forum meetings for the Strategy is currently being considered within the Steering Committee. Each member of the R&D Committee will meet their own costs relating to participation in the Strategy.

19. WORKPLAN

The Strategy will continue to evolve over time, with regular updates on these activities provided to PIMC and PISC accordingly.

The annual cycle of activities is presented on page 29, Figure 5. The annual cycle is designed to link with organisational RD&E program planning and financial timelines.

Figure 5: The Annual Cycle (Workplan)



20. APPENDIX 1. THE STRATEGY DEVELOPMENT PROCESS

BACKGROUND

Following a review of research, development and extension (RD&E) in Australia, Commonwealth and State Agriculture Ministers recognised that;

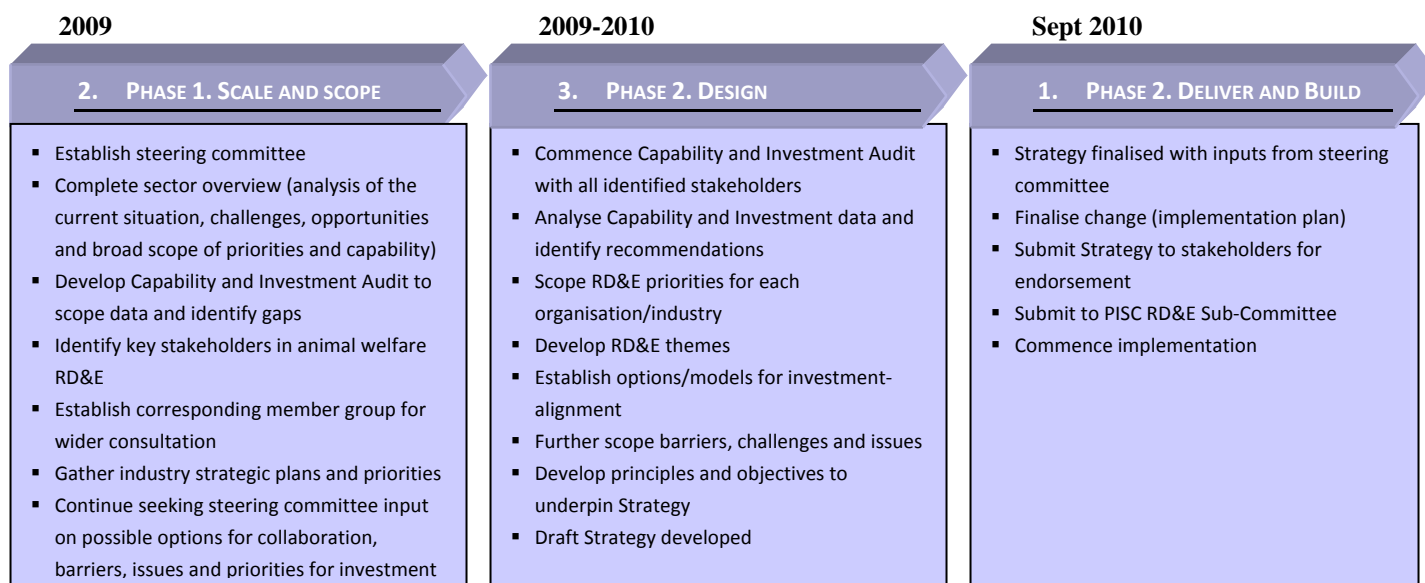
- RD&E has a crucial role in underpinning productivity, growth, competitiveness and sustainability of Australia’s primary industries and market access and trade;
- RD&E capacity and capability in Australia has been declining in recent years;
- There is a need to maintain expenditure on RD&E;
- There is a need to move away from the current competitive RD&E model, with duplication of effort and resources.

To address the above, the Primary Industries Ministerial Council (PIMC) endorsed the development of the National Primary Industries Research, Development and Extension Framework which is aimed at developing and adopting a nationally coordinated and more collaborative model focused on national priorities and that will deliver greater RD&E outputs.

SCOPE & OBJECTIVES

- To develop a national animal welfare RD&E Strategy (the Strategy) that will deliver strong collaboration and effective partnership between investors and providers.
- The Strategy will describe how RD&E investors and providers involved in animal welfare science will contribute capability, infrastructure and funding towards a national agenda and that long term, will address gaps and needs in current capability and capacity.

APPROACH



21. APPENDIX 2. TERMS OF REFERENCE - THE ANIMAL WELFARE RD&E COMMITTEE

OBJECTIVE	To set strategic direction and develop strategies that improve RD&E collaboration and co-investment for national (R) and address identified gaps in capability
MEMBERSHIP	All RDCs, major RD&E investors (DPI Vic, DEEDI, NSW Ag, WA Ag, DAFF) the Centres (AWSC, CAWE, CSIRO – representing the core RD&E provider group)
MEETS	Annually
6 high level tasks	Key activities to achieve each task
Determine and rank RD&E priorities for future investment and collaboration	Investors and providers present RD&E priorities identified in both sector specific strategies and determined as part of their organisational strategic plans or equivalent Joint assessment of RD&E priorities to determine areas for collaboration – which may include a) assisting individual sectors in achieving their RD&E needs or b) addressing shared RD&E priorities that are shared across multiple sectors/industries
Annual review of RD&E themes, focus areas and priorities	Collate current and proposed RD&E activities against themes and revise the themes and focus areas for this Strategy accordingly.
Negotiate collaboration and/or co-investment opportunities (forum for decision making)	Identify areas that warrant collaboration and/or co-investment. Establish strategies to deliver collaboration between interested parties as required, including joint project planning, sharing of resources and/or funding arrangements or agreements.
Annual review of capability, infrastructure and investment needs to deliver RD&E priorities	Utilising a streamlined approach, conduct further audits to review capability and assess changes against the benchmarks established at the commencement of the Strategy. Annually identify gaps in capability and resources required to deliver identified RD&E priorities. To be considered in conjunction with the above review of RD&E themes, focus areas and priorities
Co-ordination, communication and promotion of RD&E themes, priorities and RD&E outcomes	The Committee will jointly communicate and promote RD&E outcomes and capability both within and across sectors. Communication with sector specific strategies will form a key task in ensuring alignment, collaboration and coordination of future RD&E initiatives. Communication between this Strategy and AAWS will also aid in the delivery of joint outcomes identified for both PISC initiatives. Effective linkages with policy makers will be a focus.
Establishment of national animal welfare extension and education process in line with the PISC principles and sector specific strategies/industry /RDC initiatives	The effective integration of animal welfare related extension and education initiatives with similar activities underway within the sector specific strategies and across RD&E providers and investors will be a focus. Where possible linkages and economies of scale towards efficient and effective delivery of RD&E outcomes will be sought. Linkages with policy are integral to this task also.

Statement of Committee intent:

The members of the Animal Welfare RD&E Committee agree to work collaboratively and cooperatively to develop and implement the Animal Welfare RD&E Strategy by:

- Freely sharing the knowledge generated by the publicly funded RD&E effort and minimising barriers to RD&E effort created by intellectual property protection;
- Providing timely and ready access to knowledge and information to facilitate extension and adoption of research to all potential end-users;
- Working collaboratively to facilitate access to national research capability (people and infrastructure) by industry and R&D partners across Australia;
- Working cooperatively to improve the administrative processes and effectiveness of information sharing and management;
- Encouraging, and wherever possible supporting, engagement by all stakeholder groups in the implementation of the Strategy;
- Working collaboratively with stakeholders and other RD&E providers and jurisdictions to address stakeholder RD&E priorities, and retain and build national capability to address future needs;
- Building on existing RD&E evaluation frameworks to develop monitoring and evaluation criteria to review the performance of the Strategy;
- Encouraging and fostering regional RD&E coordination and collaboration;
- Preparing an annual report on progress toward achieving the outcomes sought from the Strategy
- Identifying and contributing to solutions to overcoming any blockages, delays or resource issues that might impact achieving the required outcomes.

23. APPENDIX 3. TERMS OF REFERENCE - THE ANIMAL WELFARE RD&E FORUM (PROVIDERS)

OBJECTIVE	Fostering collaboration between RD&E Providers Providing advice for the committee in relation to RD&E priorities, capability and resource needs, and scientific methodologies to address issues
MEMBERSHIP	All RD&E providers (note: including the New Zealand RD&E providers that form the Australian and New Zealand animal welfare OIE collaborating Centre)
MEETS	On a needs basis or when facilitated by the Animal Welfare RD&E Committee. Interactions to be informal via electronic website mechanism. Consideration: meetings held in conjunction with the OIE Centre Management Meetings and/or AAWS meetings.
4 high level tasks	Key activities to achieve each task
Contribute, via an annual workshop or other mechanism, towards the determination and ranking of RD&E priorities for future investment and collaboration	Assist the committee to identify and collate RD&E priorities identified in both sector specific strategies and determined as part of organisational strategic plans or equivalent. May be carried out as part of a joint RD&E priorities planning workshop convened by the committee which involves the forum of all RD&E providers.
Contribute to annual review of capability, infrastructure and investment needs to deliver RD&E priorities	Assist the Committee to: <ul style="list-style-type: none"> • annually identify gaps in capability and resources required to deliver identified RD&E priorities; • collate current and proposed RD&E activities against themes and; • revise the themes and focus areas for this Strategy accordingly.
Identify opportunities for improving collaboration and partnership between RD&E providers	Identify areas that warrant collaboration and/or co-investment between RD&E providers to build science capability, expertise and knowledge. Establish strategies to deliver collaboration between interested parties as required, including: <ul style="list-style-type: none"> ▪ the extension of the current MOU between providers; ▪ joint supervision/funding of post-graduate positions/projects; ▪ joint project planning; ▪ identification of multi-disciplinary approaches; ▪ sharing of resources and/or; ▪ establishing joint funding arrangements or agreements.
Improve communication, delivery and implementation of RD&E outcomes within the livestock industries	The forum will assist the Committee towards jointly communicating and promoting RD&E outcomes and capability both within and across sectors. Communication with sector specific strategies will form a key task in ensuring alignment, collaboration and coordination of future RD&E initiatives. Communication between this Strategy and AAWS will also aid in the delivery of joint outcomes identified for both PISC initiatives. Effective linkages with policy makers will be a focus.

24. APPENDIX 4. SUMMARY OF THE RD&E THEMES AND FOCUS AREAS

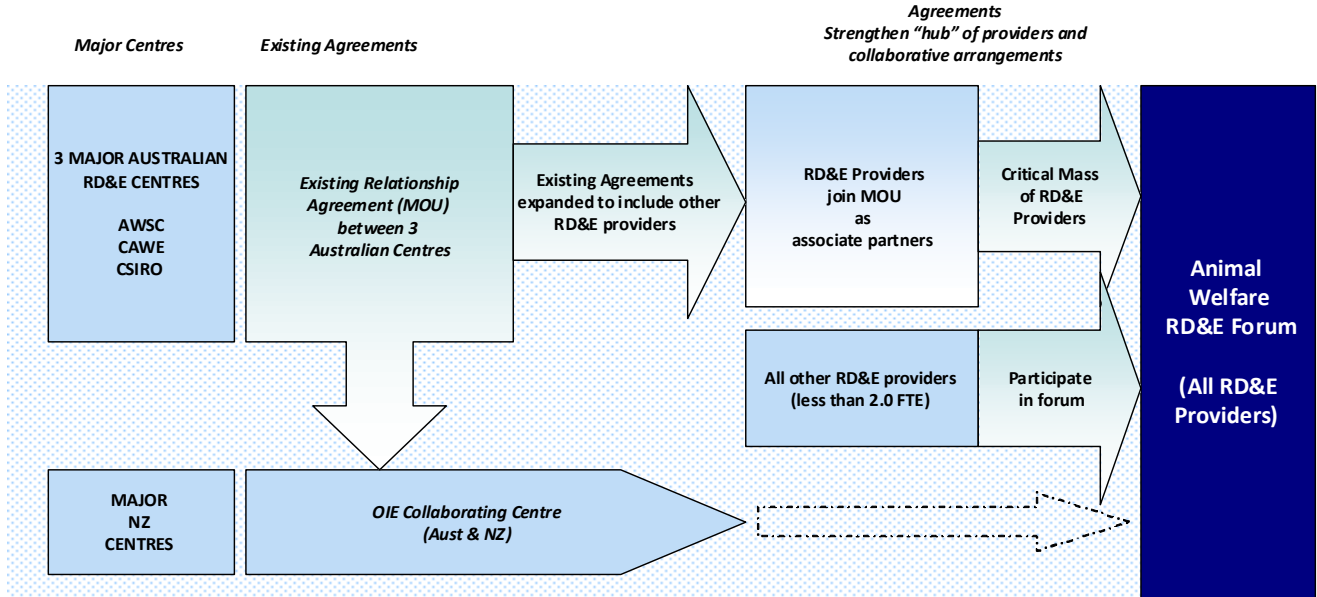
Primary Outcome	Animal welfare RD&E contributes sound, scientific solutions that lead to enhanced animal welfare, continual improvement and the effective implementation of animal welfare standards in the livestock sector and supply chain.		
Role of the strategic RD&E themes	The broad nature of the themes and focus areas enables flexibility for participating organisations. It is expected that RD&E organisations will continue their individual priority planning processes to identify specific priorities based on the needs of their constituents or end-users. These identified priorities will inform this Strategy and provide a basis for identifying priorities of national, industry specific and/or cross sectoral significance and on this basis, potential collaboration and co-investment.		
RD&E themes	RD&E outcome	RD&E Focus Areas	Background and rationale
1. Animal Welfare Assessment	Enhancing current methodology in animal welfare science towards establishing, amending and/or validating animal welfare standards and practices	<ul style="list-style-type: none"> – Understanding the neurobiological and sentience aspects of animal welfare; – Applying scientifically defensible methodology to establish, amend or validate animal welfare standards and practices; – Identify/develop specific and objective measures of animal welfare. 	Defining and assessing animal welfare is presented as a major priority area for the majority of livestock industries, and additionally, the RD&E providers. This theme will assist in underpinning policy development, addressing welfare issues and enhancing the multidisciplinary approach required to improve current methods of assessing animal welfare.
2. Pain assessment and management	Minimising risks to animal welfare by improving pain management during surgical procedures and/or establishing alternatives	<ul style="list-style-type: none"> – Investigating current surgical procedures towards establishing alternatives that will improve animal welfare; – Review, evaluate and apply efficient and cost effective pain management strategies to improve current animal husbandry practices. 	Pain assessment and appropriate pain management is a critical aspect to enhancing animal welfare and of interest to several of the livestock industries. This theme will assist to underpin theme 3, where alternatives to current surgical and routine husbandry procedures will be examined with specific focus on pain management and mitigation.
3. Management, housing and husbandry	Improved animal welfare outcomes through the application of enhanced farm and supply chain management practices and tools and improved housing and production systems which minimise and/or mitigate animal	<ul style="list-style-type: none"> – Researching current and future welfare issues, (e.g. group size, space allowance, environmental stimuli, social interactions); – towards establishing improved management strategies; – Developing sound farm management practices (including nutrition, disease, reproduction, chemical use) to prevent, manage and improve animal welfare outcomes; – Investigating the welfare implications of existing (conventional) 	This theme will significantly support applied animal welfare RD&E and therefore regional development (D) and local extension (E). Additionally, this theme will substantially include RD&E activities underpinning information gaps/needs for policy, as well as immediate issues impacting the industries. This theme will enable individual issues confronting an industry to be considered (such as projects relating to welfare assessment within an alternative housing

	welfare risks	<p>and alternative production systems, including feedlots and free range;</p> <ul style="list-style-type: none"> – investigating the welfare implications of current and future animal husbandry procedures and supporting the development of innovative, cost effective tools and management practices that provide improved animal welfare outcomes. 	<p>or production system or in relation to a specific practice). These issues may be developed within sector specific strategies and/or integrated with individual RD&E investor and provider strategic planning processes. It is anticipated that several RD&E priorities in this theme will lead to collaborative approaches between investors and providers, including cross sectoral collaboration.</p>
4. Transport, humane destruction & slaughter	Improved understanding of the animal welfare risks associated with transport, stunning and slaughter and better application of enhanced practices to minimise welfare risks	<ul style="list-style-type: none"> – Investigate the animal welfare implications of road, sea and air transport and develop improved management strategies that safeguard animal welfare; – Investigate current and future animal welfare issues associated with transport, euthanasia, stunning and slaughter; – Examine options for improving the uptake of approved practices for euthanasia and slaughter; – Investigate options for mass slaughter in the event of emergency (e.g. disease). 	<p>This theme was established to specifically address transport, humane destruction and slaughter – all of which impact the livestock industry and will provide a sound basis for coinvestment and collaboration.</p>
5. Public attitudes, social science & community	Animal welfare practices are aligned with customer and community expectations	<ul style="list-style-type: none"> – Investigate and understand public and consumer attitudes towards assisting in developing animal welfare standards aimed at providing assurance that animal welfare is being safeguarded; – Benchmark and monitor trends in changing attitudes to animal welfare that impact market access; – Develop risk management strategies to improve public perception of the livestock industries. 	<p>This theme was established to enable direct linkage with the sector specific strategies which all indicate the importance of understanding consumer and community attitudes, improving customer perceptions and market access.</p> <p>Where projects have a primary objective of improvement in animal welfare and are of national significance and/or present potential areas for collaboration and co-investment with other industries, it is encouraged that these projects underpin this Strategy. Where projects may result in an animal welfare benefit and/or contain a smaller animal welfare component, but have a broader production objective, these are likely to be developed and delivered within the relevant sector specific strategies. It is anticipated that this theme will provide considerable opportunities for collaboration and possibly co-investment, on the basis that these issues impact all industries, in terms of animal welfare.</p>

6. Education, training & extension	Education, training and extension strategies are developed and implemented to deliver animal welfare R&D outcomes. Industry, government and the community are better educated in animal welfare	<ul style="list-style-type: none"> – Develop and support industry education and training tools, with focus on target areas such as animal handling and animal husbandry practices; – Provide high-quality undergraduate, post-graduate and post-doctoral education programs that ensure students entering the animal industries are well prepared to deliver sound, scientific advice; – Establish education programs for the general community and schools on animal welfare and that better educate people on animal welfare practices and issues; – Enhance the uptake of animal welfare training and extension programs in industry; – Facilitate and improve the adoption of animal welfare messages through existing industry extension and farm quality assurance programs. 	This theme was established to address the need for a coordinated approach to animal welfare education and extension. This theme will provide opportunity to co-operate directly with the sector specific RD&E strategies and integrate animal welfare outcomes within existing industry education and extension frameworks. Principles for co-ordinated extension are currently under development by the PISC RD&E Sub Committee. These will be utilised towards the delivery of projects under this theme.
7. Policy & market access	Research and development provides sound underpinning of animal welfare policy and strategies are in place to ensure regular communication, collaboration and review of animal welfare policies and programs	<ul style="list-style-type: none"> – Monitor overseas and other livestock sector policy trends and research outcomes and improve strategies to manage implications from overseas policy and future input into overseas policy; – Apply animal welfare RD&E to review of codes and standards and provide sound scientific advice to support new policy; – Review and develop animal welfare priorities and industry strategies – Ensure capability to provide high-level policy advice on a needs basis; – Address gaps in RD&E capacity through improved collaboration, communication and long term RD&E priority planning and project tender processes 	This theme was established to address the need for a coordinated approach to facilitate RD&E underpinning policy and to improve the ability of the industries to adapt to national and international market signals. This theme will be managed to enable co-operation with the sector specific RD&E strategies, the AAWS and individual RDC and governments so as to identify opportunities for RD&E to underpin policy and/or enhance market access.

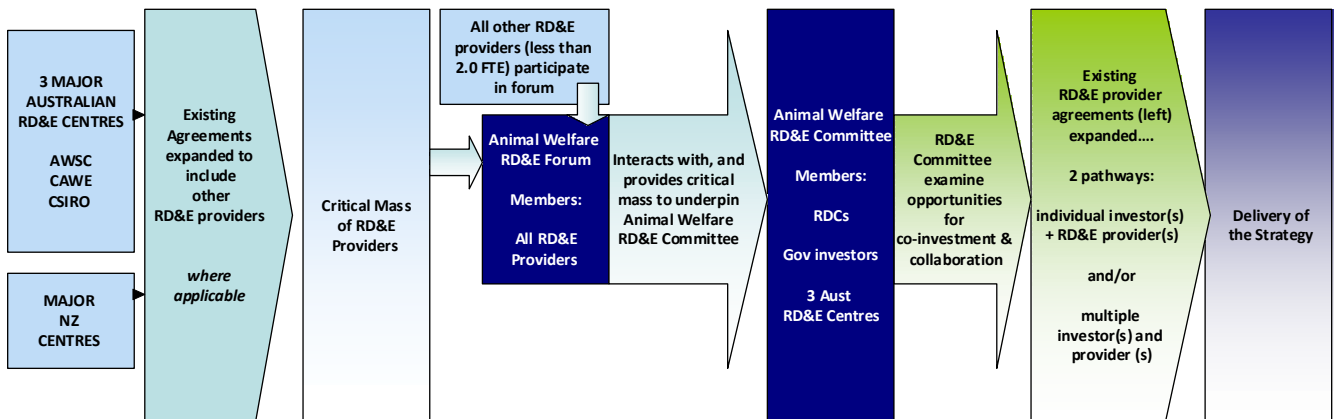
25. APPENDIX 5. COLLABORATIVE MODELS FOR CONSIDERATION

Collaboration between RD&E providers



Collaboration between RD&E providers

Collaboration between RD&E investors and providers



26. APPENDIX 6. FTEs WITHIN EACH ORGANISATION

The breakdown of FTEs across the State agencies and Universities is as follows:

Organisation	FTE				TOTAL
	scientist	extension	education	technician	
NSW Ag	0.3	0.25			0.5
DPI Vic	1.2	0.1	0.2	2	3.5
DEEDI	1	1.8			2.8
SARDI	2			2	4
WA Agric	2.2	0.2	0.4		2.8
Tas DPI	0.1				0.1
CSIRO	3.05	0.6	0.3		3.9
NT DoR	0.2	0.2			0.4
Total State/Federal Agency	10	3.1	0.9	4	18
University WA	2.5			1	3.5
University Adelaide	0.5	0.5			1
University of New England	0.9	0	0.1	0.2	1.2
University of Sydney	4				4
Monash University	0.6				0.6
Melbourne University	3.2	0	0.4	2	5.6
La Trobe University			0.5		0.5
Murdoch University	3.1	0.4	0.4		3.9
University of Queensland	4.2				4.2
Total University	17	1.1	1.4	3.2	22.7
TOTAL FTE	27	4.2	2.3	7.2	42.5
