Australian Government

Land & Water Australia

knowledge for managing Australian landscapes

Annual Operational Plan 2007-08

Australian Government

Land & Water Australia

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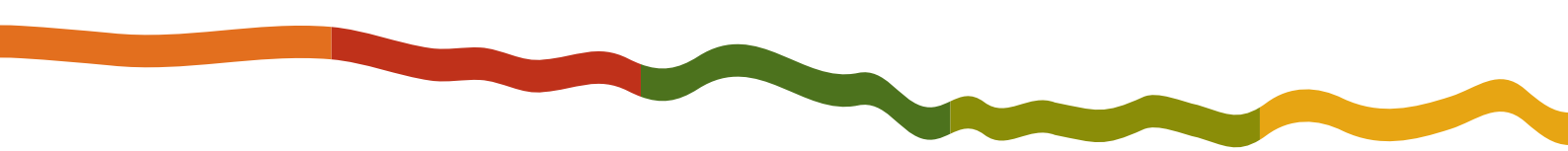


1. Land & Water Australia's Mandate

The legislative base

Land & Water Australia (legally the Land and Water Resources Research & Development Corporation) is a statutory corporation established under the *Primary Industries and Energy Research and Development (PIERD) Act 1989*, within the Australian Government's Agriculture, Fisheries and Forestry portfolio. The Corporation focuses its activities on the four objects of the *PIERD Act*:

1. achieving the sustainable use and sustainable management of natural resources
2. increasing the environmental, social and economic benefits to primary industries and the community
3. making more effective use of the resources and skills of the scientific and general community
4. improving accountability for research and development expenditure.

Strategic approach

Land & Water Australia is responsible for research aimed at the productive and sustainable management of the land, water and vegetation resources underpinning Australia's primary industries and regional communities. The Corporation fosters national collaboration in order to improve the efficiency and effectiveness of this research effort. The Corporation emphasises the establishment of national collaborative research programmes, supported by numerous stakeholders. These programmes bring together resource managers, policy developers, resource users and researchers to identify research priorities and to ensure that research findings are adopted and implemented.

Land & Water Australia aims to lead the national research effort where it can by playing a unique role in the nexus between land managers, researchers and government at all levels. Our role is distinctive in several ways:

- Our interests are not constrained by any particular commodity, region, discipline or research provider.
- Our research investments range across the biophysical and social sciences.
- We place significant emphasis on adoption of research outcomes.
- As the host agency for the National Land & Water Resources Audit, we are well placed to link the best available data and information to our research funding and management.

We have a very broad mandate, with a modest mix of Australian Government and partner funding. This demands a strategic approach to target our investments and to maximise the return on our investments and our partners' investments. The key activities that comprise our strategic approach include:

- funding innovative, inter-disciplinary and integrated research that meets Australia's primary natural resource management knowledge needs and creates new opportunities for Australia's farmers, rural communities and future generations
- brokering partnerships between primary industries, management agencies, research providers and customers by converting research needs into research questions, linking to appropriate research providers, managing research efficiently, evaluating impact, managing knowledge assets and establishing effective adoption pathways
- identifying and understanding future research priorities and opportunities. Land & Water Australia is investigating broader water and climate strategies identified by Government and stakeholders as priorities for future research.

2. Responding to the National Research Priorities & Rural Research Priorities

National Research Priorities

The four National Research Priorities are:

1. An environmentally sustainable Australia
2. Promoting and maintaining good health
3. Frontier technologies for building and transforming Australian industries
4. Safeguarding Australia.

Land & Water Australia's charter clearly focuses on the first priority, but all the other priorities are important to our strategic thinking and investment analyses.

The goals of the first National Research Priority, an environmentally sustainable Australia, relevant to Land & Water Australia are:

- *Water - a critical resource:* sustainable ways of improving water productivity, using less water in agriculture and other industries, providing increased protection of rivers and groundwater and the re-use of urban and industrial waste waters
- *Transforming existing industries:* new technologies for resource-based industries to deliver substantial increases in national wealth while minimising environmental impacts on land and sea
- *Overcoming soil loss, salinity and acidity:* identifying causes and solutions to land degradation using a multidisciplinary approach to restore land surfaces
- *Sustainable use of Australia's biodiversity:* managing and protecting Australia's terrestrial and marine biodiversity both for its own value and to develop long term use of ecosystem goods and services ranging from fisheries to ecotourism
- *Responding to climate change and variability:* increasing our understanding of the impact of climate change and variability at the regional level across Australia, and addressing the consequences of these factors on the environment and on communities.

Rural Research Priorities

The seven Rural Research and Development Priorities are:

A. Sustainable natural resource management

B. Improving competitiveness through a Whole of Industry approach

C. Maintaining and improving confidence in the integrity of Australian agricultural, food, fish and forestry products

D. Improved trade and market access

E. Use of frontier technologies

F. Creating an innovative culture

G. Protecting Australia from invasive diseases and pests.

Land & Water Australia's charter clearly focuses on Rural Research Priority A,'Sustainable Natural Resource Management', but has significant outcomes in priorities E, F and G, and spillover outcomes to B and C.

Table 1: Planned actions for 2007-08 against National and Rural Research Priorities

Implementing the National and Rural Research Priorities

National Research Priority 1
An environmentally sustainable Australia

Rural Research Priority A
Sustainable natural resource management

This priority is core business for Land & Water Australia. The following key actions are planned for 2007-08.

Water - a critical resource

Land & Water Australia has a broad portfolio of research into water related issues; it spans our research arenas and includes work of environmental, economic and social importance. The portfolio is complementary to other Government initiatives and will help to inform the National Plan for Water Security.

The Tropical Rivers and Coastal Knowledge (TRaCK) programme recognises the increasing importance that northern Australia will play in our water future. The focus is on improving our scientific understanding of northern Australia's riverine ecosystems to support their sustainable use, protection and management.

The Land & Water Australia Board has determined that it will continue its investment in sustainable irrigation with a new phase of the National Program for Sustainable Irrigation commencing in mid 2007. Land & Water Australia has fifteen years of irrigation research which will help underpin delivery of the objectives of the new National Plan for Water Security, an initiative that will require drawing on existing knowledge and undertaking implementation research and evaluation. The National Program for Sustainable Irrigation will develop knowledge resources to inform the National Plan and assist the Government to build links with irrigation science, community and industry expertise to aid in the achievement of the aims of the National Plan.

The new phase of the National Program for Sustainable Irrigation will also be investing to develop a vision for irrigation research and development needs for the next ten years. Key new research investment will be made to generate new knowledge and technology needed to increase water use efficiency (including reducing the massive losses still experienced through evaporation and leakage), managing water resources in the context of climate risk, harmonising irrigation systems and better understanding the root zone (in response to precision irrigation and water quality).

Our Environmental Water Allocation programme will also provide important information on the environmental needs and benefits of additional water gained through the National Plan for Water Security. Research needs regarding climate change and variability effects on water resources in Australia (including issues of scarcity and reliability of supply) will be a theme under a new research plan for the Managing Climate Variability Program. This work is expected to be delivered in collaboration with the National Program for Sustainable Irrigation.

The South-East Australia Climate Initiative will deliver new projections into the impact of climate change and variability on water resources in the south east. The initiative is a partnership between Land & Water Australia (through the Managing Climate Variability Program), Murray-Darling Basin Commission, Australian Greenhouse Office and the Victorian Department of Sustainability and Environment. Improving soil health and its capacity to conserve water is a key aim of the Healthy Soils for Sustainable Farms Programme.

Our Social & Institutional Research Programme will build on its identification of research priorities for the National Water Initiative with the commissioning of research on water planning in Australia in 2007-08. During this time three of our Senior Research Fellows will deliver important and ground-breaking syntheses on the effects of groundwater pumping on streamflow, the effects of drought on aquatic ecosystems and the learning from catchment hydrology studies in Queensland.

Land & Water Australia aims to develop an integrated water strategy to build effective links across its portfolio to deliver research outputs focussed on the Australian Government's water agenda.

Transforming existing industries

Farming systems including grazing enterprises, grain growing, horticulture, dairy and cotton will be further developed to improve on-farm productivity whilst at the same time contributing to catchment and regional natural resource management targets and priorities.

New insights into advancing the mixed farming sector will allow for significant improvements in productivity whilst controlling salinity, improving soil health and promoting the conservation of biodiversity. A new range of applications which incorporate seasonal forecasting will be delivered for use by farmers and consultants to assist in risk management and on-farm decision making.

New and existing climate change science and tools will enhance forecasting and the prediction of climate change and variability in agriculture and regions. Such knowledge could transform management and production strategies among commodities and the location of industries, building more resilient agricultural enterprises.

Regionally based projects will be supported with irrigation communities which facilitate the adoption of technologies on farms and which deliver regional outcomes.

Developing new water use efficiency technologies and supporting on-farm adoption will remain a primary focus under irrigation investment. Greater water use efficiency will assist farm businesses to adapt to increasingly water scarce conditions. The limits to adaptive capacity will also be considered.

The interaction between climate risk and water will be explored in the context of its influence on the long-term viability of irrigated commodities and the options available to water dependent rural communities facing scarcity and increasing competition for water resources.

Overcoming soil loss, salinity and acidity

The Healthy Soils for Sustainable Farms programme is investing through 12 projects nationwide to identify soil health issues such as soil structure, erosion, nutrients, salinity and biology with farming groups, state agencies, and regional/catchment bodies.

Adoption of sustainable farming systems will be promoted through farmer-based workshops, field days and demonstration sites which include reduction of soil loss and managing the movement of water within the soil.

Tools and information resources such as on-farm soil test kits and soil health ute guides will be developed with specific commodities to deliver training and practical tools which are directly relevant to individual grower needs. Research to build better understanding of the movement of salt within the root zone will continue in collaboration with irrigated commodities such as grapes and horticulture.

Sustainable use of Australia's biodiversity

The Native Vegetation & Biodiversity initiative focuses on better utilising and managing Australia's native vegetation and biodiversity resources to support their sustainable use and management and to deliver ecosystem goods and services. At the same time, outputs from the previous nine years of research on native vegetation will continue to be synthesised and promoted. The Joint Venture Agroforestry Programme is focussing on achieving commercial industries and targeted environmental outcomes through providing the tools and techniques to engage investors, rural advisors and regional natural resource management groups.

Healthy soils investments will build knowledge and understanding of the role of soil biology and biodiversity in sustainable production and natural resource management. This knowledge will be extended to farmers through farmer-led workshops, field days and demonstration sites.

The role of biodiversity on mixed farming enterprises from the perspectives of ecosystems services and diversity will be assessed working with 43 farm businesses in Grain & Graze's nine regional projects.

Responding to climate change and variability

The Managing Climate Variability Program will be investing in better climate forecasting tools and use of climate risk management to increase the ability of farmers and natural resource managers to deal with climate variability and adapt to climate change.

A number of projects will draw together researchers' expertise with farmers to develop applications such as Yield Prophet® which enable farmers to make key management decisions on the basis of the interaction between factors such as climate, soil type and soil water availability.

Investments will be made to better understand, at regional and commodity scale, scenarios of climate change and the implications for agriculture and natural resource management. The Program will identify practices, enterprise mixes and risk management strategies which better enable farmers and resource managers to adapt to climate change. Such strategies will be considered region by region given that climate change and variability impact regions differently. Better understanding the impact of climate change and variability on water resources will be investigated. Tools for water and natural resource planners to account for climate risk will also be explored. Capacity will be built within agriculture, regional resource management and science to incorporate managing for climate risk in order that threats and opportunities can be responded to.

National Research Priority 2
Promoting and maintaining good health

A ground-breaking project within the Social and Institutional Research Programme through Charles Darwin University is researching the links between individual and community health in remote Aboriginal communities, and the quality of natural resources and their management. Initial findings suggest that these issues are closely linked and the results will be disseminated during 2007-08.

A number of programmes seeking improvements in environmental quality and farm profitability will contribute to the health and welfare of rural communities. Through its industries collaborations Land & Water Australia has explicit goals of working with farmers to build confidence, pride and skills to increase quality of life, and a vibrant rural industry sector.

Rural Research Priorities B,C,D
Improving competitiveness through a whole of industry approach

Maintaining and improving confidence in the integrity of Australian agricultural, food, fish and forestry products

Improved trade and market access

A range of Land & Water Australia programmes, particularly those funded through the Industries Arena, will improve long term industry competitiveness by assisting industries to better meet changing community and consumer expectations about the sustainability of their production systems.

National Research Priority 3
Frontier technologies for building and transforming Australian industries

Rural Research Priority E
Use of frontier technologies

Land & Water Australia will continue to support the application of frontier technologies, often developed in fundamental disciplines, to help solve natural resource management problems. This is achieved through the annual call for high innovation projects (Innovation Call) which has been successful in attracting new and novel combinations of existing technologies. Frontier technology research projects commencing in 2007-08 include: A rapid genetic approach for assessing sediment biodiversity and functioning; Healthy catchments through detection and remediation of contaminants with novel technologies; Exploiting Australia's Isoscape: novel methodology to underpin climate change modelling.

The South-East Australia Climate Initiative is investing in new technological capacity within Australia to downscale Global Climate Models to develop scenarios for the impact of climate change on water resources in the south-east.

Through its investments in climate, Land & Water Australia will be identifying opportunities to draw on the substantial investment in climate change science to translate that capacity and new technology to bring about a step change in skill in seasonal and inter-annual forecasting.

Land & Water Australia will invest in technologies which lead to substantial improvements in irrigation water use efficiency.

Rural Research Priority F
Creating an innovative culture

Land & Water Australia has Innovation as one of its four research Arenas. This Arena specifically seeks out and supports more blue sky, cutting-edge research – seeking 'outside the square' solutions and supporting proof-of-concept work to identify potentially fruitful areas of innovation. It also supports a range of scholarships to build research capacity in natural resource management and a highly successful fellowship scheme for Australia's top researchers to complete seminal works.

Through collaborative initiatives with sister Research & Development Corporations, innovative approaches to achieving sustainable production and natural resource management outcomes are fostered. A collaborative approach 'pushes the boundaries' of investors beyond traditional investments.

National Research Priority 4
Safeguarding Australia

Rural Research Priority G
Protecting Australia from invasive diseases and pests

Land & Water Australia manages the research component of the Defeating the Weeds Menace programme which commenced in earnest during 2006-07 and will continue through until June 2008. It is focusing on weed issues across Australia that are having an impact on farming and biodiversity. Priority research themes include reducing the rate of emergence of new weed problems, reducing the impact of existing weed problems of national priority, and supporting national frameworks and capacity for sustainable weed management.

3. Links to Land & Water Australia's Strategic R&D Plan (2005-2010)

Land & Water Australia commenced a new Strategic R&D Plan (2005-2010) on 1 July 2005. In developing the Strategic Plan, a comprehensive environmental scan was conducted (an activity which is ongoing through the Australasian Joint Agencies Scanning Network currently supported by Land & Water Australia). Specific research activities and outputs planned for 2007-08, as well as longer term planned outcomes, are described in section 6.

The management of Australia's rich and unique natural resources has never been higher on the national agenda. The extensive drought has heightened public awareness of the importance of water and climate to society.

Water resources in southern Australia are under extreme pressure, with the majority of the Australian population now experiencing water restrictions and irrigators facing severely reduced or zero water allocations. Increasing water demand from a growing population, irrigated agriculture and river health is running into decreasing supply due to climate change and revegetation of landscapes. Placing catchments on a sustainable water resource footing is a central tenet of the Australian Government's new National Plan for Water Security.

Australia has long had to deal with extreme **climate** variability, but there is now undeniable evidence that climate is changing due to the enhanced greenhouse effect. Greenhouse gas emissions are leading to increased temperatures and sea-level rise world-wide. Climate change is causing droughts to lengthen, intensify and occur more frequently – and Australia is currently suffering its worst on record. Data is also suggestive of changing snowfall in alpine regions, changing rainfall patterns and increasing cyclone intensity. Native ecosystems, agroecosystems and urban centres are all feeling these effects.

Australian **soils** are the engine room of agricultural productivity and have only recently gained prominence again amongst research funders. Our **agricultural production systems** have to be smarter and more sophisticated to achieve comparable levels of profitability with our international competitors who enjoy younger, richer soils with more reliable climates. New technology and farming systems are paving the way towards increasing soil productivity and minimising off-site impacts such as soil erosion.

Australia has the greatest **biodiversity** in the developed world and most of our native species exist in no other country, which means that responsibility for their management and future prospects rests with us. The management of vegetation, both pastures and trees, is critical in achieving an appropriate hydrological balance, in managing carbon emissions, in minimising further losses of biodiversity and in sustaining many of our grazing systems. Invasive introduced species, both plants and animals, continue to impose significant costs on agricultural production, and fierce competition and predation pressures on native species.

Demographic change, especially along the eastern seaboard, will intensify competition for rural land and place pressure on the resource base, while opening up new opportunities through the influx of new capital and a wider range of people.

The uniqueness of Australia's landscapes, climates, soils and biota means that we need to develop a profound understanding of our natural resources, and find solutions for our own problems. These problems

can no longer be treated in isolation; we can't address water security without accounting for future climate scenarios, vegetation plantings or the cost of energy; we can't make sensible decisions without understanding how whole landscapes work and their elements interact.

In response to the challenge of balancing the often competing demands on rural landscapes, governments across Australia from 2000 onwards, led by the Australian Government, fostered organisations at catchment and regional scales. These catchment bodies and regional committees are charged with important planning responsibilities, and often with the demanding task of prioritising and allocating public funding through large national funding programmes such as the National Landcare Programme, Natural Heritage Trust and the National Action Plan for Salinity and Water Quality. These organisations have become important players in the natural resource management knowledge system, and critical clients for natural resource management research outputs.

Against this background, there is a greater need than ever for carefully targeted and well-managed research: to generate the uniquely Australian knowledge needed to improve Australian farming systems and consequent profitability; to manage our natural resources more sustainably; to inform large public investments in natural capital; to assist communities adapt and change to external pressures; and to help governments balance competing demands on natural resources and rural landscapes.

Strategic directions

The Corporation is required under the PIERD Act to prepare a Strategic R&D Plan every five years. The Strategic Plan for the 2005-2010 period has the following key elements:

Vision: Land & Water Australia's vision is

"The sustainable use and management of natural resources for the benefit of primary industries and the Australian community"

Outcome: The overall outcome we are working towards, in line with the Australian Government Department of Agriculture, Fisheries and Forestry and other key stakeholders, is

"'Knowledge, understanding and informed debate to inspire innovation and action in sustainable natural resource management"

Mission: Land & Water Australia's mission, directed to achieving the above outcome, is

"To invest in knowledge, partnerships, innovation and adoption to underpin sustainable natural resource management"

Strategy 1: Research Investment

Investing in research for sustainable natural resource management remains our core business and our highest priority. Our research management processes are focused on: the identification of national priorities; selection of topics where we can add most value; development of the most effective interventions; design and implementation of the research and adoption process; and evaluation of the results. Strategy 1 is delivered through four research Arenas:

Industries Arena

The Industries Arena supports primary producers in generating economic, environmental and social benefits. Land & Water Australia manages and invests in collaborations between rural Research & Development Corporations, state agencies, private water companies and the Australian Government. These partnerships invest in those issues which are best dealt with across industries and regions – such as climate change and variability, soil health, irrigation and farming systems. A key focus is research that bridges the critical gap between farming practices at paddock and farm scale, and catchment-scale plans and targets for outcomes such as water quality and biodiversity.

Landscapes Arena

The Landscapes Arena targets catchment and regional bodies, advisors, governments, and primary products. It focuses strongly on understanding ecological functions and processes at the farm-to-landscape scale, and the technical and socio-economic challenges of the regional model of natural resource management. Partnerships are sought to increase the scale and impact of the Arena but Land & Water Australia-determined priorities are a primary focus.

People Arena

The People Arena targets the full gamut of natural resource management stakeholders in policy and implementation roles, and operates at multiple scales with a particular focus on regional activity. The research targets the social, economic and institutional issues that are often at the heart of natural resource management problems and central to their solution. It encompasses a range of social sciences, economics and legal disciplines, integrated with biophysical research in the other Arenas where feasible and appropriate. Partnerships are sought to increase scale, impact and adoption, particularly at the project level.

Innovation Arena

The three Arenas above are based primarily around commissioned research on priorities identified by Land & Water Australia and its funding partners. To complement this commissioned research, and recognising the need to allow space for more novel ideas and researchers' own suggestions, Land & Water Australia reserves a portion of its research portfolio for blue sky and cutting-edge proposals emerging from the scientific community, that don't necessarily overlap with the priorities of other programmes. The Innovation Arena also has a key focus on building research capacity in natural resource management through targeted and highly competitive post-graduate scholarships. A new scheme of senior research fellowships is providing grants to Australia's leading scientific thinkers to develop seminal syntheses on fragmented research, emerging ideas and new approaches to sustainable natural resource management.

Strategy 2: Collaboration and Strategic Analysis

Land & Water Australia's collaborations bring together researchers and stakeholders from across Australia to reach consensus on research priorities and desired outcomes, and to facilitate adoption. We seek to collaborate with rural industries, other funding bodies, government agencies and community-based groups to broker partnerships for research programmes and to build capacity within the research community to work with industry, rural communities and government. These partnerships influence research directions, minimise duplication, maximise research investment on key priorities and provide a great platform for increasing adoption.

Land & Water Australia is also developing a more active role in promoting, integrating and reporting natural resource management research across the rural Research & Development Corporations and the natural resource management field more generally. We will further develop this capacity and report to government

and the wider community (working in partnership with the National Land & Water Resources Audit where appropriate) on current natural resource management research and activity, and existing and emerging natural resource management issues in Australia likely to be of high future significance. As water and climate have been identified as priority issues for natural resource management in Australia, Land & Water Australia is developing integrated water and climate plans for its research portfolio to enable the organisation to respond more effectively to its business environment.

Strategy 3: Knowledge into Practice

Land & Water Australia will work to increase the adoption of existing and new knowledge through continuous improvement of its organisational systems, its staff and researchers' capacity, and its links to farmers, rural industries, catchment managers and policy makers.

The Knowledge and Adoption team will work across sectors, with farming groups, agri-business consultants, NGO networks and natural resource management facilitators. We will continue working in partnership with the Department of Agriculture, Fisheries and Forestry on the Knowledge for Regional NRM Programme, building tools to assist regional natural resource management bodies access and share information with each other and research providers, and improve the capacity of natural resource management regions to access, manage, share and generate information and knowledge.

We will continue to improve adoption by developing knowledge and adoption strategies for new programmes, better managing the legacy of completed programmes and developing synthesis products that provide useful information for targeted groups such as regional organisations, policy makers and land managers.

Return On Investment

Land & Water Australia continuously evaluates its research investments to measure accurately and robustly its Return On Investment in economic, environmental and social terms. In 2007-08, we will complete the evaluation of over 50% of completed projects since inception in 1990, using an internally-developed methodology published in an international journal.

4. Income & Expenditure in 2007-08

Land & Water Australia expects to receive $13.018m from Commonwealth appropriations in the 2007-08 financial year. It is estimated that third party contributions and other income will be around $21.2m in 2007-08.

The Corporation's emphasis on research activities is demonstrated by around 84% of total expenditure being directed in this area during 2007-08. Forecast expenditure is detailed in the following income and expenditure budget and graph. The Corporation has included all the expenditure items as required under Section 33 of the *PIERD Act 1989*.

Table 2. Land & Water Australia 2007-08 Budget

Revenues		**$,000s**	**%**
Revenue from Government		13,018	38%
Third party contributions		20,492	60%
Interest & other income		710	2%
Total Revenue		**34,220**	**100%**
Expenses			
Strategy 1: Research Investment	Industries	9,975	29%
	Landscapes	10,748	31%
	People	1,211	4%
	Innovation	2,032	6%
	Sub-TOTAL	**23,966**	**70%**
Strategy 2: Collaboration & Strategic Analysis		300	1%
	National Land & Water Resources Audit	4,356	13%
	Sub-TOTAL	**4,656**	**14%**
Strategy 3: Knowledge into Practice	**Sub-TOTAL**	**2,483**	**7%**
Corporate Enabling Functions	**Sub-TOTAL**	**3,115**	**9%**
Total Expenses		**34,220**	**100%**
Net Surplus (Deficit)		**0**	
Accumulated surplus at beginning of reporting period		**7,753**	
Total Accumulated Results		**7,753**	
CAPITAL BUDGET [1]		**100**	

1 In 2007-08, the Corporation has a capital expenditure budget of $100k funded from internal reserves. The related depreciation expense has been included in corporate expenditure.

The pie charts below depict the planned distribution of expenditure for the Corporation in 2007-08 across the three key strategies in the Strategic R&D Plan 2005-10 (Figure 1), and across the four research Arenas within Strategy 1 (Research and Development) in the Strategic R&D Plan (Figure 2). The left hand chart in each case depicts total expenditure (Land & Water Australia funds and partner funds) and the right hand chart depicts Land & Water Australia funds only.

Figure 1. Planned Expenditure across Strategies 2007-08

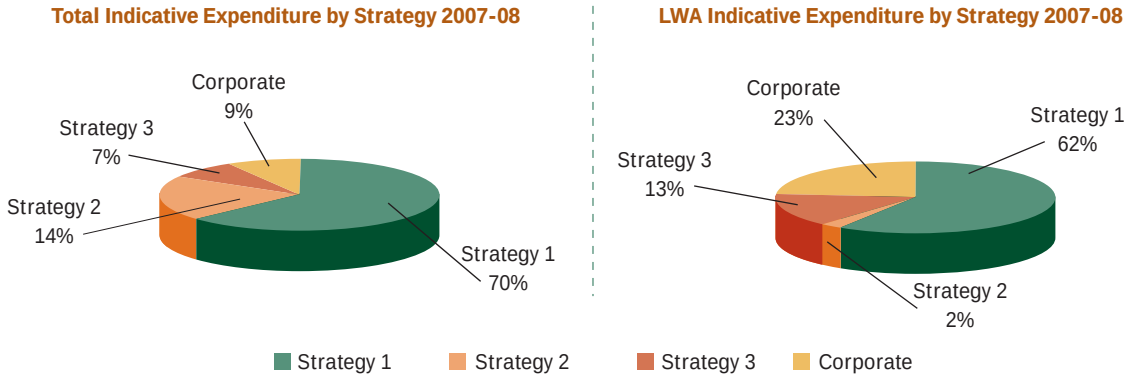
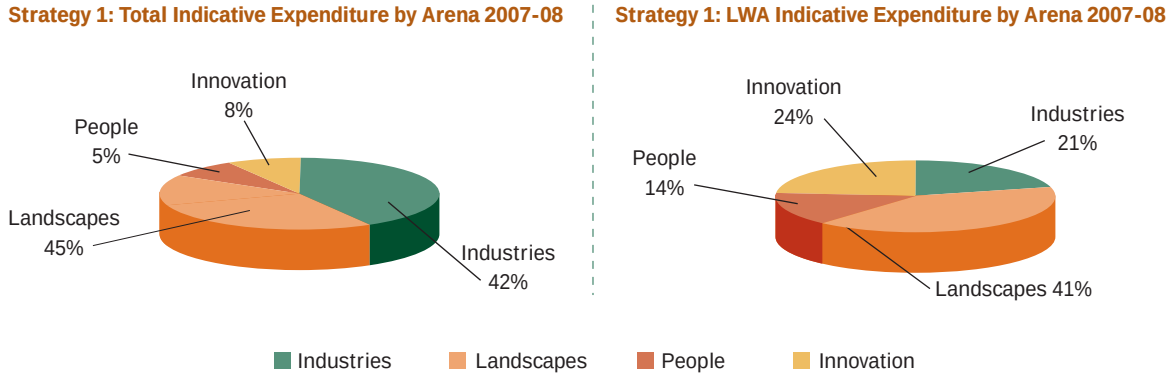


Figure 2. Planned Expenditure across Research Arenas within Strategy 1 2007-08



Several key points about Land & Water Australia's business model can be gleaned from the budget table in Table 2, and the pie charts in Figures 1 and 2 above:

1. In 2007-08, revenue from partners significantly exceeds that from the core Australian Government appropriation. Figure 1 shows that partner funds are invested primarily in Research (Strategy 1), and to a lesser extent Collaboration and Strategic Analysis (Strategy 2 – mainly the National Land & Water Resources Audit). Land & Water Australia investments in Knowledge and Adoption (Strategy 3) and Corporate Enabling Functions underpin the collaborative business model that is so attractive to investing partners.

2. Figure 2 shows that the bulk of partner research investment is through the Industries Arena, which accounts for 42% of total research expenditure but only 21% of Land & Water Australia expenditure on research. Landscapes accounts for 41% of Land & Water Australia expenditure.

5. Corporate Governance and Accountability

Land & Water Australia is committed to the highest standards of corporate governance in meeting or exceeding the requirements of the *Commonwealth Authorities and Companies Act (1997)*. Processes adopted by Land & Water Australia include: annual internal and external (independent) audits of all financial and accountability operations; a Board Charter and code of conduct for directors including a due-diligence checklist completed at each Board meeting; external evaluations of Board performance; an independent external member of the Audit Committee; detailed governance and best practice guidelines for programme management committees (including procedures for the disclosure and management of conflict of interest); and an organisation-wide risk identification and management framework.

Land & Water Australia's key strategies are underpinned by a strong commitment to corporate governance and accountability, which in turn depend on sound corporate enabling functions. As the Corporation has grown in recent years and entered into many more partnerships with a wider range of collaborators, the demands on our corporate enabling functions have increased. A major overhaul of the key corporate enabling functions (Finance, Governance, Procurement, Human Resources, IT and Information Systems) undertaken through 2006-07 has resulted in a solid platform for the future growth of the Corporation.

During 2007-08, ongoing improvements will be consolidated and integrated into standard operating procedures across the Corporation. The mitigation of inherent risks will continue to be a major focus for the organisation. To assist in risk mitigation practices, the revised governance framework adopted by the Board in 2006 will be further developed during 2007-08 to include Executive Director Instructions, and resource guidelines/procedures and templates for inclusion on the intranet.

The Corporation will go live with a new Programme Management Information System, Clarity, on 1 July 2007. The new System was procured via a consortium with the National Water Commission, and the Rural Industries and Cotton Research & Development Corporations and will deliver considerably more functionality, efficiency and improved compliance reporting.

Finance and risk management

Land & Water Australia will continue to provide internal and external stakeholders with timely and accurate financial information. An improved interface between the Corporation's accounting package and Clarity will deliver more timely programme budgets and updated expenditure forecasts as research projects evolve. Land & Water Australia will continue to use its risk management plan as a key management tool in achieving outcomes of the Strategic R&D Plan 2005-10. The Finance Committee and the Audit Committee (sub-committees of the Land & Water Australia Board) will continue to oversee the financial management, and the risk management and fraud control plans, consistent with their respective roles in providing strategic and policy guidance to the Corporation.

Human Resource Management

Land & Water Australia has adopted a new Human Resources strategic plan. The plan aims to ensure that Land & Water Australia remains a competitive employer in the Canberra market, able to attract, retain and support people with the necessary skills, experience, networks and commitment to meet our goals. That plan sets out activities and initiatives in areas such as staff training and induction, performance management, work-life balance and recruitment.

Knowledge and Information Systems

Land & Water Australia is in the knowledge business. We invest in knowledge, we manage knowledge assets, and we facilitate the uptake of research outputs to get knowledge adopted into practice. We also undertake

strategic analyses for our own internal purposes, and for wider target audiences through Strategy 2. It is important that Land & Water Australia is able to describe, tap into, analyse, synthesise, disseminate and make accessible its whole portfolio of research outputs generated since 1990, and that this portfolio of knowledge assets is continuously updated with the progress of every single research project and synthesis activity. This is not a trivial challenge, but developments in IT systems and the world wide web have opened up new possibilities for managing data, information and knowledge more effectively and efficiently.

During 2007-08, Land & Water Australia will make full use of its new web content management system by delivering information to stakeholders in a more timely and user-friendly manner. Clarity will provide improved functionality and integration with existing and proposed applications.

6. Planned Activities, Outputs, Outcomes & Performance Measures for 2007-08

Planned Outcome for 2007-08

The overall planned outcome from Land & Water Australia's Strategic R&D Plan 2005-10 is given below, and detailed activities and outputs are presented against each strategy overleaf. Each year, progress towards this longer term outcome is evaluated and updated through a triple bottom line benefit-cost analysis based on case studies of the Corporation's completed research. Analyses to date cover 36% of the Corporation's completed projects since 1990. This will be increased to over 50% in 2007-08.

Land & Water Australia's charter clearly focuses on the first National Research Priority, An Environmentally Sustainable Australia, and Rural Research Priority A, Sustainable Natural Resource Management. However, where programmes have spillover outcomes to other priorities these are listed.

Planned Outcome	Performance Indicator	2007-08 Performance Measurement
Knowledge, understanding and informed debate to inspire innovation and action in sustainable natural resource management.	Improvements in the understanding, management and condition of Australia's natural resources that can be linked demonstrably with the adoption of the outputs of our research investments.	Triple bottom line benefit cost analysis of 32 major Land & Water Australia innovations and programmes, covering approximately 50% of Land & Water Australia's completed projects since 1990. Both qualitative and quantitative measures of benefits of research and their impacts on the condition of Australia's natural resources are undertaken.

Strategy 1 - Research investment

Performance indicator: Generation of new knowledge useful to the sustainable management and use of Australia's natural resources.

Performance measure: Audit of knowledge assets and technologies produced and disseminated and predictions of their utility.

Note: The figures below refer to direct cash investment only. Actual investment at the level of research projects is higher again, when project level cash and in-kind contributions from research providers is considered.

Additionally, Land & Water Australia in-kind contributions to support research will be in the order of $4.03m, through provision of corporate services and arena level support.

Planned Activities for 2007-08	National Research Priorities --- Rural Research Priorities	Inputs ($)	Major Planned Outputs for 2007-08	Planned Outcomes for 2005-10
Land, Water & Wool: Legacy and Additional Activities The 5.5 year Land, Water & Wool research program was completed in March 2007. Some additional research activities have now been contracted to add to data sets for improved analysis over longer time frames than Land, Water & Wool allowed. In addition, legacy activities including some synthesis and delivery work will be undertaken.	1* --- A, B* (*see code in section 2)	LWA Contribution through Strategy 3 Partners $0.612m	Sustainable Grazing on Saline Land Synthesis Product. This product will bring together existing knowledge on technical solutions, management practices, environmental benefits and social consequences of the rehabilitation of saline land. Additional data collection on productivity and environmental indicators for saline land and native vegetation. Delivery and communication activities relating to the program final reports.	Additional (above 3,100 achieved during the program) unspecified adoption among woolgrowers of improved NRM practices. A better understanding in regional NRM bodies of how woolgrowers can contribute to regional NRM targets while improving productivity.

Grain & Graze Nine regional projects from across the mixed farming belt of Australia reporting on the outcomes of their research, development and extension projects over the past four years. National research projects covering economic and social analysis and biodiversity will conclude and report. National and regional forums held which bring together Grain & Graze stakeholders. A proposal in place for the future of Grain & Graze or a transition from Grain & Graze to complementary farming systems investments by partners. Communications activities continue.	**1** --- **A, B**	LWA $0.822m Partners $3.520m	An integrated report about the prospects for the sustainability of mixed farming from a triple bottom line perspective which draws on the learnings from the nine Grain & Graze regional projects and the four national projects. The report will include: • best-bet knowledge about the economic benefits/dis-benefits of the adoption of new practices • a compilation of farmer knowledge and experiences captured during the five years of Grain & Graze • the factors that influence mixed farmers decisions about changing their farming systems • improved information on the financial impact of alternative enterprise mixes to assist farmers better assess the role of new strategies and whether their adoption will improve the profitability of their enterprises • insights into the opportunities to improve ecosystem services and profitability and whether enterprise diversity leads to increased on-farm biodiversity.	Outcomes by June 2008 A 10% increase in mixed farm productivity driven by a 5% increase in grain yields and a 10% increase in livestock production. 6,500 mixed farmers adopting changed farm practices which increase their sustainability and profitability. Improved condition of natural resources on mixed farms, in line with regional or catchment targets. More confident and knowledgeable mixed farmers.

			Across the nine Grain & Graze regions of Australia, the following changes in on-farm practice which increase sustainability and profit are expected: New Practices: • improved crop and pasture rotations, including alternative pastures • better matching of feed supply and demand, increasing profitability • techniques which increase ground cover • a greater area of high input cereals being grazed • water use efficiency rules used in management decisions • increased areas of native vegetation under management • improved stubble management reducing burnt area. Adoption • more producers using risk management strategies (e.g. futures & currency) • farmers using improved strategic and tactical management	

			• better grazing management practices used such as adjustment of stocking rates to improve feed production and utilisation • More farmers using paddock monitoring (including soil testing, paddock history/ data collection) And dependent on region • increased sowing of subtropical perennial grasses, forage crops, winter wheats, and grazing cereals • increased awareness of the potential of alley farming with forage shrubs to improve profitability of mixed farming systems • increased numbers of producers following IPM principles • increased use of lucerne as a break crop in the farm system.	

<u>National Program for Sustainable Irrigation</u> A new phase of the program will commence early in 2007-08. Areas of investment are outlined below. Improved water use efficiency on farms through new technology and practices. A better understanding of the management practices which minimise environmental impact while maximising production. Knowledge resources that inform the implementation of the Australian Government National Plan for Water Security. Knowledge and tools to assist producers, industries, water managers and policy makers to know when they are acting sustainably.	**1** --- **A, B**	<u>LWA</u> $0.296m <u>Partners</u> $1.056m	Knowledge Harvest completed which gathers and interprets Land & Water Australia's 10 year capacity in irrigation research for stakeholder audiences. Audiences to be targeted are individual irrigators, industry groups, water companies and policy makers. A new phase of the program launched.	<u>Outcome by 2007</u> Substantial improvement in the environmental and productive performance of irrigated agriculture in Australia.

Collaboration between irrigation research investors Australia wide to define, commission and manage research projects that substantially improve the sustainability of the sector.				

Managing Climate Variability A new phase of the program is expected to commence early in 2007-08. Expected areas of investment are oulined below. Seasonal forecasting – exploiting climate change science to provide Australia with more certainty and longer range prediction in its seasonal forecasts. Water resources – building on improved seasonal forecasting skill to provide Australia with the knowledge to predict the available water over time and across landscapes as our climate varies and changes.	**1** --- **A**	LWA $0.300m Partners $0.803m	Projections on the influence that climate change will have on climate (variability and change) and water availability (rainfall and runoff) in south east Australia.	Agriculture and other natural resource managers increasing profitability and sustainability by using climate variability information, tools, and applications which assist risk management for climate. Greater use and application of seasonal climate forecasts in decision making about agriculture and natural resource managers through enhanced skill and reliability of forecasts and confidence among users. Adaptive capacity within agriculture and NRM to respond to opportunities and threats posed by climate change.

Agricultural applications – building on seasonal forecasting skill and improved knowledge of natural resources attributes to provide climate variability related commodity-specific decision support tools that identify benefits and opportunities for increased profitability and improved natural resources condition. Adaptation to climate change – interpreting climate change science and the likely longer term changes in natural resources attributes to identify adaptation scenarios applicable to natural resource based industries.				The state of knowledge regarding the key drivers of Australian climate on a regional basis established to inform risk and adaptation strategies at regional and commodity scale.

Adoption – integrating climate variability, climate change, natural resource attributes and decision support tools to foster understanding and uptake of climate related opportunities that benefit natural resource based industries and Australia's natural resource condition. Fundamental climate datasets – designing and undertaking all science activities so that fundamental data sets are enhanced, quality assured and made readily available. Collaboration between rural RDCs and the Australian Government to deliver climate change and variability knowledge and tools to agriculture and resource managers.				

Healthy Soils Programme Utilise applied research and demonstration sites nationwide for training and dissemination of Healthy Soils messages. Make strategic investments in projects to fill knowledge gaps identified within programme. National Symposium July 2007. Peer reviewed core knowledge for Knowledge Bank available for public access (release 1). Undertake communication activities that raise awareness about healthy soils. Collect monitoring and evaluation data for projects and programme.	**1** --- **A,B**	LWA $0m Partners $2.238m	Proceedings released from National Symposium. Release 1 of the Knowledge Bank available. Monitoring & evaluation report complete. The 'Healthy Soils Ute Guide for Vegetable growers' produced on CD/DVD; accredited soil health management training course. 50 quantitative soil health test kits, and scorecards for self-assessment on-farm distributed in south-east QLD and northern NSW. A BMP soil health field guide and training courses delivered to cotton growers. WA: State-wide soil health monitoring programme; information delivered to growers and agri-business via eight workshops and ten demonstration catchments. Report and demonstration booklet produced; website of biological, chemical and physical properties available. Report on findings from community participative research comparing biological and conventional farming methods in the Mid-Loddon catchment.	Outcomes by June 2008 More farmers moving to 'practices which maintain and restore our soils' which in turn contributes to healthy catchments and sustainable agricultural enterprises. Replenishment of Australia's expertise in soils. Increase in the number of soil health projects being undertaken by research and extension providers. Increase in the number of farmers participating in workshops and training activities in soil health aimed at achieving adoption of changed practices on farm.

			VIC: Soil health knowledge resources developed for three focus regions. Evaluation of soil health management through at least 21 paired sites. 800 farmers, 50 private sector advisers and 30 state agency and farmer group extension officers trained in soil health. QLD: A customised 'Sustainable Soil Management' reference manual. Reference database of current soil health status (based on 400-500 sites in Qld and northern NSW cropping regions) completed. 20 organic management practice workshops and three best practice 'soil health management guides' delivered in three south-east QLD catchments. NSW: 30 LANDSCAN workshops conducted (approx 400 farmers). 30 on-farm sites demonstrating perennial grass species. Locally relevant best management practices and soil health guides produced, supporting on-going monitoring by farmers and advisers. Soil test results incorporated into the NSW soils database (SALIS).	

Environmental Water Allocation Manage contracted research projects. Scope and commission new research projects. Implement Knowledge and Adoption Plan. Confirm activities to meet needs of new programme partners. Implement new research needs in water dependent ecosystems and environmental flow management.	**1** --- **A**	LWA $0.757m Partners $0.281m	Current research projects to deliver: • demonstrated benefits of environmental water allocation • methods for monitoring and evaluating environmental water allocation • new mechanisms for managing groundwater dependent ecosystems • assessments of water needs of aquatic ecosystems across Australia • collaboration between researchers, policy and managers in designing environmental allocations • suggestions for innovative institutional approaches to water allocations.	Improved methods for monitoring and evaluating environmental water allocation. More effective engagement of researchers with managers in designing environmental allocations Improved ability for policy-makers, planners and managers, particularly regional groups, to make decisions on water allocation. Improved understanding of water needs of aquatic ecosystems across Australia. Improved understanding of the opportunities and threats to water availability.

Tropical Rivers and Coastal Knowledge Implement new Tropical Rivers and Coastal Knowledge research consortium arrangement and associated projects. Administer contracts with Department of the Environment and Water Resources and the National Water Commission. Manage contracted research projects. Implement Knowledge and Adoption Plan. Seek additional programme partners. Disseminate outputs from completed projects.	**1** --- **A**	LWA $0.780m Partners $3.487m	New research projects underway that provide the science and knowledge needed for the sustainable use and management of tropical rivers and coasts, including those to: • increase understanding of the environmental, cultural, economic and social benefits provided by tropical rivers • develop methods and tools for assessing the implications of current use and potential developments • identify opportunities to develop sustainable enterprises • build the capacity and knowledge of the local community to manage Australia's tropical rivers and coasts.	Improved ability for policy-makers, planners and managers, particularly regional groups and Indigenous communities, to make decisions about use of and management of tropical rivers. Improved knowledge for determining management priorities and evaluating the impact of land uses and management practices in tropical Australia. Improved understanding of risks and threatening processes in order to develop effective responses.

Native Vegetation and Biodiversity Manage contracted research projects. Implement Knowledge and Adoption Plan. Seek additional programme partners. Promote activities in the semi-arid regions and tropical savannahs. Publish and promote synthesis and review products for target audiences.	**1** --- **A**	LWA $1.328m Partners $0.200m	Current research projects underway that support the sustainable use, protection and management of Australia's native vegetation and biodiversity including to deliver: • quantified benefits of vegetation for pest control in cotton and grain crops • GIS tools to assist land managers predict the outcome for fire management tools in the Murray-Mallee region • landscape design principles for maintaining ecosystems services in tropical agricultural landscapes • methods to improve native vegetation restoration in productive landscapes • improved education and extension tools. Maintain partnerships with agencies, industry, regional NRM bodies and community groups involved in vegetation management activities. National research capacity in vegetation, ecosystem services and biodiversity management.	Improved understanding and valuing of landscape processes, including the role and function of biodiversity in delivering ecosystem services. Improved understanding of risks and threatening processes in order to develop effective responses. Improved ability for policy-makers, planners and managers, particularly regional groups, to make decisions on use and impacts on native vegetation.

Defeating the Weeds Menace R&D Plan Manage contracted research projects and commissioned activities. Implement Knowledge and Adoption Plan. Promote outputs of research projects.	**1, 4** --- **G**	LWA $0m Partners $3.334m	Current research projects underway that generate new knowledge to prevent the development of new weed problems, to reduce the impacts of weeds of national priority, and to build capacity for their management in the future including: • development of efficient methods for surveying and eradicating agreed priority emergent weeds and options • support for the development of biological control for agreed national priority weeds • provision of knowledge to support a national information system for weeds • development of new integrated weed management strategies that incorporate an understanding of landscape scale ecological processes • quantification of the impacts of weeds on sustainability and the environment (including the ecological costs of weeds) and the relative benefits and costs of different control measures.	Outcomes by 2009 A lowered rate of emergence of new weed problems. A reduced impact of existing weed problems of national priority. Increased national capacity to manage weeds. Improved decision-making on resource allocations to manage weeds.

Joint Venture Agroforestry Programme (managed by Rural Industries Research & Development Corporation) Manage research agreement with Rural Industries Research & Development Corporation. Implement Knowledge and Adoption activities.	**1** --- **A, B**	LWA $0.450m Partners $0m	Current and new projects contracted and underway to deliver: • improved methods for direct seeding (improved survival and establishment, reduced cost, and improved communication of existing regional expertise in direct seeding techniques) • trial markets for ecosystem services for farm forestry plantings. Guidelines for improved design and management of plantations for biodiversity and ground water table outcomes. Knowledge and adoption plan implemented for completed projects.	Outcomes by 2009 New products and improved agroforestry systems using woody perennials, which augment farm income whilst maintaining biodiversity and sustainably managing natural resources. Wider consideration of the potential for broadscale planting of woody perennials in low to medium rainfall zones to meet environmental and economic objectives, in particular dryland salinity. A greater awareness of the potential of environmental services markets for agroforestry. Better understanding of agroforestry product supply and marketing.

Social and Institutional Research Programme Manage existing portfolio of projects and concluding projects during 2007-08. Commission new collaborative projects for balance of programme funding to 2010. Conduct mid term-programme review. Support integration across Land & Water Australia programmes and linkage between Land & Water Australia research and policy. Coordinate and develop the internal Land & Water Australia indigenous research portfolio, working closely with the Tropical Rivers and Coastal Knowledge research hub.	**1** --- **A, F**	LWA $0.826m Partners $0.020m	Effective, timely and on budget management of portfolio of current 30 projects across the following themes: • NRM institutions and governance • choice and mix of NRM policy instruments • landscapes, lifestyles and livelihoods. Initiate new collaborative projects accounting for balance of available programme funding to 2010 in the following priority areas: • water reform arrangements, including water plans and planning • regional NRM governance and capacity • market based instruments, including stewardship and carbon trading • peri urban issues related to agriculture, NRM and planning.	Improved effectiveness of and increased options for institutional arrangements for NRM, including for regional groups and national water reform. Understanding the methods and costs and benefits of institutional arrangements and capacity for integrated NRM. Development of strategies and policy instrument choice and mix, especially market based instruments, to increase adoption of affordable, sustainable NRM options, systems and practices. Increased capacity of policy-makers and resource managers to anticipate the future scenarios and impacts of changing policy and management approaches and to design effective transition arrangements.

Manage and review investment in Cooperative Venture on Capacity Building jointly with partner Research & Development Corporations.			Deliver a range of related cross cutting and integrating initiatives and outputs including: • adoption of outcomes of SIRP mid term review including necessary modifications • participation and investment in any new RDC capacity building programme following review • arrangements for taking forward any new cross Land & Water Australia indigenous engagement initiatives • guidelines for more effective engagement of policy makers with NRM research • participation in new integrated cross Land & Water Australia programmes including water and climate change. Research results demonstrating: • better informed policy and legislation on the regulation of indigenous rights through environmental legislation • more effective engagement of volunteers in natural resources management especially at the regional level	Strategies to support and improve engagement and interactions between indigenous people and government, NRM agencies and researchers. Greater understanding of the levers, drivers and constraints linking lifestyles, livelihoods and landscapes to achieving change for sustainable NRM, including in peri urban areas.

			• increased participation of landholders in market based instruments for NRM • adoption of indigenous water agreements that complement indigenous livelihoods in land and water management • improved awareness of new approaches for sustainable governance and management in peri urban areas • enhanced capacity and awareness of opportunities for effective indigenous engagement in water resources planning, management and reform • adoption of best practice governance principles and indicators for regional NRM • demonstration of improved design approaches for landholder conservation contract duration and renegotiation to achieve sustainable outcomes.	

Innovation Conduct a national call for high innovation projects. Conduct a national call for scholarships. Select two new Land & Water Australia Senior Research Fellows.	**1, 3** --- **A, F**	LWA $2.032m	A group of highly innovative projects and at least four PhD scholarships selected and funded from competitive national calls. Research results on: • Inland River Floodplains: The role of sediment and nutrient exchanges • Fire, fragmentation and small mammals; synergistic impacts on ecosystem dynamics • Salinity processes in Lake Eyre Basin Rivers. Effects of bushfires on water yield and quality better understood. New remote sensing technology used for mapping vegetation. Indigenous values and rights in water management recognised. New technology for desalinating brackish groundwater. Environmental water needs of Australia's rivers mapped.	Outcomes by 2010 Significant breakthroughs achieved in novel approaches and technologies for sustainable NRM. Australian research capacity built in NRM. Seminal syntheses by leading researchers influence NRM policy and practice.

			Two new fellowship reports: • Blueprint for a Red Land • Capture and synthesis of hydrology and water quality knowledge from Queensland catchment studies. Wide promotion of the three inaugural Senior Research Fellowships: • Stream-Aquifer Interaction in Australia • ReThinking Rural Australia • Drought and Freshwater Ecosystems.	

Strategy 2- Collaboration & Strategic Analysis

Performance indicator: Number and financial leverage of programme and project partnerships.
Increased research capacity.
Quality of analysis of strategic issues in natural resource management.

Performance measure: Financial leverage of collaborative programmes.
Change in the distribution and quality of the natural resource management research base.
Government feedback on the quality and utility of Land & Water Australia reports on natural resource management research issues.

Planned Activities for 2007-08	National Research Priorities --- Rural Research Priorities	Inputs ($)	Major Planned Outputs for 2007-08	Planned Outcomes for 2005-2010
Partnership negotiations for both new and ongoing programmes. Analyses of national NRM issues and trends, integrated water and climate plans for Land & Water Australia.	**1, 2, 4** --- **A, B, F, G**	LWA $0.300m	Partnerships for new Land & Water Australia initiatives established. Discussion papers on topical NRM issues, and integrated research strategies for climate and water within the Land & Water Australia portfolio. Continued evaluation of the Land & Water Australia portfolio through Return On Investment analyses.	Greater efficiencies in research investment, reduced duplication of effort, and effective application of Australia's NRM research capability against national priorities. Australian NRM research investors and policy makers well informed on national research priorities and research activities across Research & Development Corporations.
Coordination of the Research & Development Corporations - Natural Resource Management Working Group.	**1, 3, 4** --- **A, B, F, G**	LWA $0m Others $0.040m	New report developed on Research & Development Corporations' investment in NRM for the 2006-07 financial year.	Greater consistency and collaboration among Research & Development Corporations on investment in NRM.

Strategy 2- Collaboration & Strategic Analysis
National Land & Water Resources Audit

Performance measure: Delivery of corporate administrative and contract management services as per the Service Level Agreement to the National Land & Water Resources Audit signed with the Department of Agriculture, Fisheries and Forestry.

Planned Activities for 2007-08	National Research Priorities --- Rural Research Priorities	Inputs ($)	Major Planned Outputs for 2007-08	Planned Outcomes for 2005-2010
Land & Water Australia will work to support the achievement of the Audit's Annual Operational Plan, developed by the Audit Management Unit and endorsed by Audit Advisory Council and the Natural Heritage Ministerial Board.	1 --- A	LWA $0 NHT $4.356m	Accommodation and corporate support to levels set out in the annual service level agreement between Land & Water Australia and the Department of Agriculture, Fisheries and Forestry.	Agreed national indicators of resource condition and social and economic change as identified in the National Monitoring and Evaluation Framework. Tools and methodologies to: underpin nationwide assessments of Australia's land, water and biological resources; and to support monitoring and evaluation of NRM policies and programmes to support sustainable development.

Strategy 3- Knowledge into Practice

Performance indicator: Increased adoption of Land & Water Australia research outputs and products over the next five years.

Performance measure: Adoption profiles of Land & Water Australia programme and portfolio outputs and products including e-nalysis and publications.

Planned Activities for 2007-08	National Research Priorities --- Rural Research Priorities	Inputs ($)	Major Planned Outputs for 2007-08	Planned Outcomes for 2005-2010
Embed managing for adoption of research into all stages of programme and project lifecycles. Encourage sharing of and investment in intellectual capital for adoption across research organisations. Increase the relevance and adoptability of our applied research. Capitalise on and value-add to our knowledge base. Develop best available organisational systems to underpin knowledge management and adoption.	**1, 3, 4** --- **A, B, F, G**	LWA $1.783m NHT $0.700m	Knowledge and Adoption strategies developed for new programmes. Legacy products/processes developed for completed programmes. Ongoing building of capacity of researchers and Land & Water Australia staff to achieve best possible adoption outcomes including one-on-one advice and workshops on the Knowledge and Adoption toolkit. Bring together research organisations to share their expertise in research uptake and adoption and to collaborate where appropriate. Synthesis products and processes developed and evaluated.	Improvements in the adoptability and adoption of Land & Water Australia-funded research outputs. Managing for adoption embedded into all stages of programme and project lifecycles with best practice monitoring and evaluation processes in place. Productive partnerships with industries to enable adoption of NRM research. Efficient pathways for adoption established in the regional framework for NRM delivery. Continuous improvement of Land & Water Australia people and partners' capacity to contribute to the adoption of research. Continuously improved access to, and distribution of, Land & Water Australia information and products.

Encourage high level and continuous improvement of Land & Water Australia people and partners' capacity to contribute to the adoption of research. Improve access to, and distribution of, Land & Water Australia information and products.			Increased interactive capacity of corporate website. Mechanisms and tools developed to assist regional NRM organisations access and share information with each other and research providers. Improved capacity of NRM regions to access, manage, share and generate information and knowledge. Corporate and programme level events, publications and materials. Specific performance measures for 2007-08 are: • corporate events to be held sharing Land & Water Australia research (excluding programme events) – 15 per year • corporate publications – 10 published, 12,000 distributed • programme publications – 90 published, 68,000 distributed • web views – 100,000 views	

			• increasing adoption scores from stakeholders across eight key adoption measures gathered in the stakeholder survey • improving access to and use of research by the 56 regional NRM bodies (CMAs) by developing and rolling out the 'NRM toolbar' • improving the capacity of at least six regional NRM bodies to manage knowledge through pilots and training • improving knowledge sharing between regional NRM bodies through establishing sister regions (four pairings) and regional knowledge sharing events (four).	

Appendix A

2007-08 Research Expenditure Estimates against National Research Priorities and their Goals ($'000)

National Research Priorities (NRP)	An Environmentally Sustainable Australia (1)							Promoting and Maintaining Good Health (2)				Frontier Technologies for Building and Transforming Australian Industries (3)					Safeguarding Australia (4)					Total
	A1 $	A2 $	A3 $	A4 $	A5 $	A6 $	A7 $	B1 $	B2 $	B3 $	B4 $	C1 $	C2 $	C3 $	C4 $	C5 $	D1 $	D2 $	D3 $	D4 $	D5 $	
Industries Arena	1555	1194	3994		1295		1280									1656						10974
Landscapes Arena	5980				2176														3668			11824
People Arena	400			133	266		67									400			67			1333
Innovation Arena	671	67	112	112	110		224						603			336						2235
Strategy 2	1073	975	496	17	1454		116						958			33						5122
Strategy 3	841	194	398	23	460		146						136			210			324			2732
Total	10520	2430	5000	285	5761		1833						1697			2635			4059			34220

Appendix B

2007-08 Research Expenditure Estimates against Rural Research Priorities ($'000)

Rural Research & Development Priorities (RRDP)	Sustainable Natural Resource Management (A)	Improving Competitiveness through a Whole of Industry Approach (B)	Maintaining & Improving Confidence in the Integrity of Australian Agricultural, Food, Fish and Forestry Products (C)	Improved Trade and Market Access (D)	Use of Frontier Technologies (E)	Creating an Innovative Culture (F)	Protecting Australia from Invasive Diseases and Pests (G)	Total
Expenditure	$	$	$	$	$	$	$	$
Industries Arena	9318					1656		10974
Landscapes Arena	8156						3668	11824
People Arena	866					400	67	1333
Innovation Arena	1296				603	336		2235
Strategy 2	4131				958	33		5122
Strategy 3	2062				136	210	324	2732
Total Expenditure	25829				1697	2635	4059	34220