

## Tracking performance: against Australia's National Research Priorities

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Key performance indicators	Performance 2005–06
<ul style="list-style-type: none"> <li>Increased share of resources devoted to priority themes 1 and 4.</li> </ul>	Funding of research projects relevant to Priority Themes 1 and 4 increased from 57% of total projects funding in 2004–05 to a budgeted level of 59% in 2005–06.
<ul style="list-style-type: none"> <li>Increased evidence of co-funding of projects in national research priority areas.</li> </ul>	Co-funding by collaborators in projects in priority themes 1 and 4 increased from \$14.98m in 2004–05 to \$18.84m in 2005–06

ACIAR's research funding priorities are driven strongly by Australia's overseas aid agenda and by country strategies that accommodate the development needs of partner countries in our region. ACIAR also operates within the strategic aid framework recently confirmed by the White Paper on Australia's overseas aid program with a renewed emphasis on accelerating economic growth and investing in people.

The overseas aid framework does not however preclude simultaneous attention to the National Research Priorities (NRP) with their potential for securing mutual research and development benefits for both our regional developing-country partners and Australia.

In 2005–06 additional emphasis was given by ACIAR to the NRP. This has continued to relate mainly but not exclusively to the national priority goals of 'an environmentally sustainable Australia' (Theme 1) and 'safeguarding Australia' (Theme 4). In overall terms ACIAR budgeted expenditure in 2005–06 on Theme 1 was \$11.21 million and for Theme 4 the \$9.45 million. Total outlays on NRP relevant projects were \$20.66 million. This represents a 7.3 per cent increase over the year, although part of this is due to closer monitoring of NRP record-keeping in ACIAR.

### An environmentally sustainable Australia

Many of the countries with which ACIAR engages in research partnerships experience similar environmental challenges as Australia. Water and soil management techniques have continued to receive high levels of attention over the year. Examples of outputs generated include improved understanding of institutional arrangements for water management and more efficient resource allocation such as irrigation water to crops. Both outputs have also added to Australia's knowledge base in this important area of national interest.

Similarly research partnerships have contributed to a joint understanding of soil acidity and salinity and found better approaches to revegetation and reduction of environmental degradation.

Given the lags between research outputs and adoption it is difficult to quantify the above impacts but a recent generic review (meta evaluation)



has pointed to significant gains through forestry, bio-control and crop/livestock genetic improvements.

### **Safeguarding Australia**

As outlined in this report ACIAR projects have a continuing emphasis on the protection of Australia and neighbouring countries from invasive pests and diseases. While such areas of research are not entirely new, ACIAR has enhanced its commitment to them to secure mutual gains with regional countries.

Agricultural pests and diseases are an increasingly significant challenge for Australia and the region. Recent research outputs have delivered improved diagnostic techniques across a range of crops and animal species, aided disease-resistant crop breeding and improved pest and disease control mechanisms. Such achievements are directly beneficial to Australia's quarantine protection processes, while also assisting developing countries to compete in the biosecurity arena with both trade and human health benefits.

ACIAR also undertook a range of activities which are categorised under the NRP Theme 2 – promoting and maintaining good health, and Theme 3 – frontier technologies for building and transforming Australian industries. Human health is naturally enhanced by improved nutrition and by research on zoonotic disease controls—both of which are directly and indirectly addressed in a range of ACIAR projects. In the case of frontier technologies ACIAR focuses on support of lower risk, more mature science that is expected to deliver earlier benefits, including capacity-building impacts to developing countries. Appropriate and incremental technologies rather than frontier technologies are emphasised, depending on the community and farmer needs and adoption capacities in individual countries.

**Performance indicator 1: ACIAR investments in National Research Priorities (themes 1 and 4) 2004–05 to 2005–06**

	2004–05 actual (\$m)	2005–06 actual (\$m)
<b>1. An environmentally sustainable Australia</b>		
1.1 Water – a critical resource	3.67	3.53
1.2 Transforming existing industries	0.98	1.54
1.3 Overcoming soil loss, salinity and acidity	3.02	3.07
1.4 Reducing and capturing emissions	0.55	0.57
1.5 Sustainable use of Australia’s biodiversity	2.30	2.14
1.7 Responding to climate change and biodiversity*	0.20	0.36
<b>Total Theme 1</b>	<b>10.72</b>	<b>11.21</b>
<b>4. Safeguarding Australia</b>		
4.1 Critical infrastructure	0.02	0
4.2 Understanding our region of the world	1.71	1.99
4.3 Protecting Australia from invasive diseases and pests	6.82	7.46
<b>Total Theme 4</b>	<b>8.55</b>	<b>9.45</b>
<b>TOTALS 1 AND 4</b>	<b>19.26</b>	<b>20.66</b>
<b>TOTAL as percentage of total ACIAR bilateral project funding</b>	<b>57%</b>	<b>59%</b>

\* New priority area added by the Government during 2003–04

**Performance indicator 2: Co-funding by collaborative organisations in projects relevant to the National Research Priorities (themes 1 and 4)**

	2004–05 actual (\$m) <sup>#</sup>	2005–06 actual (\$m)
<b>1. An environmentally sustainable Australia</b>		
1.1 Water – a critical resource	3.59	3.78
1.2 Transforming existing industries		0.94
1.3 Overcoming soil loss, salinity and acidity	2.93	2.05
1.4 Reducing and capturing emissions	0.93	1.05
1.5 Sustainable use of Australia’s biodiversity	1.69	2.41
1.7 Responding to climate change and biodiversity*	0.14	0.24
<b>Total Theme 1</b>	<b>9.28</b>	<b>10.47</b>
<b>4. Safeguarding Australia</b>		
4.1 Critical infrastructure		0
4.2 Understanding our region of the world	0.57	0.97
4.3 Protecting Australia from invasive diseases and pests	5.13	7.4
<b>Total Theme 4</b>	<b>5.7</b>	<b>8.37</b>
<b>TOTALS 1 AND 4</b>	<b>14.98</b>	<b>18.84</b>

<sup>#</sup> For 2004–05 co-funding refers primarily to bilateral projects.

\* New priority area added by the Government during 2003–04

The previous table shows a significant increase in co-funding of projects in national research priority areas in the reporting period. A marked feature of this increase is the larger contributions of cash and in-kind by partners and collaborative organisations in the research of invasive diseases and pests. This reflects the national and regionally recognised importance, and the mutual benefits from, addressing animal and plant health and quarantine challenges.

The Centre has continued to interact in the application of national research priorities with a range of Australian research partners including cooperative research centres, rural research and development corporations, universities and state departments of agriculture.

The attached table describes the range of outputs from those ACIAR-funded research projects under defined national research priority areas that are of direct benefit to Australia. In 2004–05 a total of 50 projects out of 213 active bilateral projects were delivering direct benefits to Australia in national priority areas. This compares with 38 such projects in 2003–04.

**Projects in 2005–06 with Australian benefits directly relevant to Australia's National Research Priorities**

**Theme 1: an environmentally sustainable Australia**

Priority goals	ACIAR projects	Key Australian project title/outputs
1.1 Water—a critical resource	CIM/1995/130	Soybean variety adaptation and improvement in Vietnam and Australia
	CIM/1996/025	Physiological and genetic approaches for the development of waterlogging tolerance in wheat on sodic/alkaline and neutral soils in India and Australia
	CIM/1999/047	Increased productivity of rice-based cropping systems in Lao PDR, Cambodia and Australia
	FIS/2002/001	Developing aquaculture in degraded inland areas in India and Australia. <i>Improved utilisation of degraded resources (saline-affected and waterlogged land and saline groundwater) for aquaculture using materials and methods that will be applicable to farmers.</i>
	HORT/2003/045	Improvement of vegetable production and postharvest management systems in Cambodia and Australia
	LWR/2001/051	Assessing land suitability for crop diversification in Cambodia and Australia
	LWR/2002/018	Regional impacts of re-vegetation on water resources of the Loess Plateau, China and the Middle and Upper Murrumbidgee Catchment, Australia
	LWR/2004/069	Minimising agricultural pollution to enhance water quality in Laguna de Bay (Philippines) and Mt Lofty Ranges (Australia)
	SMCN/2000/089	Permanent beds for irrigated rice–wheat and alternative cropping systems in north-west India and south-east Australia. <i>Permanent crop bed technology to increase water use efficiency in irrigated cropping while reducing energy inputs.</i>
	SMCN/2004/035	Technology for direct drilling into rice and other heavy stubbles in Pakistan and Australia
1.2 Transforming existing industries	HORT/2000/127	Improving and maintaining productivity of bamboo for quality timber and shoots in Australia and the Philippines
	HORT/2003/045	Improvement of vegetable production and postharvest management systems in Cambodia and Australia
1.3 Overcoming soil loss, salinity and acidity	AH/2001/005	Salinity reduction in tannery effluents in India and Australia. <i>Prevention of saline environment contamination from tanneries by improved recycling of salt reagents used in leather tanning</i>
	ASEM/2000/109	Farming systems research for crop diversification in Cambodia and Australia. <i>Reduction of soil losses in cereal cropping in Northern NSW through introduction of conservation tillage practices</i>
	ASEM/2002/051	Sustaining and growing landcare systems in the Philippines and Australia
	ASEM/2003/011	Herbicide use strategies and weed management options in Philippine and Australian cropping. <i>An economic model for identifying socially optimal herbicide management strategies using Western Australian data.</i>
	FST/2003/002	Development and evaluation of sterile triploids and polyploid breeding methodologies for commercial species of Acacia in Vietnam, South Africa and Australia. <i>Establishment of a reliable technology for production of triploid genotypes of acacias and acacia hybrids and established field trials for the future confirmation of productivity improvements and sterility.</i>
	LPS/1998/035	Ruminant production in the red soils region of southern China and in northern Australia
	LWR/1997/150	Salinity management in southeastern Australia, northeastern Thailand and Lao PDR. <i>A combined economic and hydrological model of salinisation is being further developed for catchment in the Upper Macquarie Valley, NSW</i>
LWR/1998/130	Water resources and salinity management in agricultural areas of inland northern China and northern Australia. <i>Understanding mechanisms of waterlogging and salinity so that vulnerability to salinisation under different management practices can be mapped.</i>	
	LWR/2002/085	Utilising basic soil data for the sustainable management of upland soils in Vietnam and Australia. <i>Use of a fertility capability classification to improve soil and fertiliser management in the Herbert River catchment of Queensland.</i>
1.4 Reducing and capturing emissions in transport and energy generation	LWR/2003/039	Improving the management of water and nitrogen fertiliser for agricultural profitability, water quality and reduced nitrous oxide emissions in China and Australia
	ASEM/2000/088	Redevelopment of a timber industry following extensive land clearing

Priority goals	ACIAR projects	Key Australian project title/outputs
1.5 Sustainable use of Australia's biodiversity	CP/2001/027	Adaptation of low-chill temperate fruits to Australia, Thailand, Lao PDR and Vietnam
	FIS/2001/058	Sustainable tropical spiny lobster aquaculture in Vietnam and Australia
	FIS/2003/037	Artisanal shark and ray fisheries in Eastern Indonesia and their relationships with Australian resources. <i>Assessment of the diversity of Australian shark and ray fishery stocks in NW waters</i>
	FIS/2004/065	Culture of promising indigenous fish species and bioremediation for barramundi aquaculture in northern Australia and PNG
	FST/1996/124	High performance eucalypts and interspecific hybrids for marginal lands in south and eastern South Africa and south-eastern Australia. <i>Hybrid eucalypts jointly developed in South Africa and Australia will provide new germplasm for use in revegetating degraded sites in inland Australia.</i>
1.7 Responding to climate change and variability	FST/1998/096	Domestication of Australian trees for reforestation and agroforestry systems in developing countries. <i>Delivery of improved knowledge and application of taxonomic variation, silviculture and genetic improvement of Australian species to expand hardwood plantations.</i>
	FST/2000/003	Mixed species plantations of high-value trees for timber production and enhanced community services in Vietnam and Australia. <i>Mixed species plantations will provide more productive options for reforestation with native species, with more diverse environmental services.</i>
	ASEM/2003/009	Bridging the gap between seasonal climate forecasts and decision-makers in agriculture. <i>Understanding the economics and social factors affecting adoption of seasonal climate forecasts by farmers.</i>
	SMCN/2002/033	Seasonal climate forecasting for better irrigation systems management in Lombok. <i>Seasonal climate forecasting for more efficient allocation of scarce irrigation to crops.</i>

#### Theme 4: safeguarding Australia

Priority goals	ACIAR projects	Key Australian project title/outputs
4.2 Understanding our region and the world	CIM/2001/039	Integrated management of Botrytis Grey Mould of chickpea in Bangladesh and Australia
	FIS/2000/061	Development and delivery of practical disease control programs for small-scale shrimp farmers in Indonesia, Thailand and Australia
	FIS/2004/064	Culture of promising indigenous fish species and bioremediation for barramundi aquaculture in northern Australia and PNG.
	FST/2003/025	Community partnerships for plantation forestry; enhancing rural incomes from forestry in eastern Indonesia and Australia.
4.3 Protecting Australia from invasive diseases and pests	AH/2000/009	Development of diagnostic and control methodologies for animal trypanosomiasis (Surra) in Papua New Guinea, Indonesia, the Philippines and Australia. <i>Diagnostic test for the identification of the exotic disease caused by <i>Trypanosoma evansi</i> in cattle, pigs and dogs.</i>
	CIM/1999/072	Oilseed Brassica improvement in China, India and Australia. <i>Enhanced oilseed Brassica germplasm in all collaborating countries through germplasm exchange, crossings and selection</i>
	CIM/2001/039	Integrated management of Botrytis Grey Mould of chickpea in Bangladesh and Australia. <i>Development of new controls on BGM in Australia with an integrated disease management approach</i>
	CP/1996/140	Biological threats to <i>Saccharum</i> germplasm and sugar production in PNG, Indonesia and Australia.
	CP/2002/013	Biology, damage levels and control of red-banded mango caterpillar in PNG and Australia. <i>Control of red-banded mango caterpillar, an exotic pest of mangoes recently discovered in mainland Australia.</i>
	FST/2000/123	Heart rots in plantation hardwoods in Indonesia and southeast Australia. <i>Minimisation of pruning-associated decay that limits the potential for selected plantation species to produce high-value products.</i>
	FST/2001/046	Development of forest health surveillance systems for South Pacific countries and Australia
	FST/2002/112	Domestication of Meliaceae species in Southeast Asia and Australia, particularly management of the problem of <i>Hypsipyla robusta</i> attack.
	FST/2004/053	Establishing forest pest detection systems in South Pacific countries and Australia.
	HORT/1998/140	Postharvest handling and disease control in melons in China and Australia
	HORT/2002/030	Improving subtropical citrus production in Sikkim and Australia.
HORT/2003/046	Integrated control of powdery mildew and other disease, weed and insect problems in squash in Tonga and Australia. <i>Foster the sustainability of the squash industry through improvements to integrated disease, pest and weed management—to improve field-based crop protection and quality.</i>	
HORT/2004/049	Improved farming systems for managing soil-borne pathogens of ginger in Fiji and Australia	
LPS/1998/026	Lucerne adapted to adverse environments in China and Australia.	