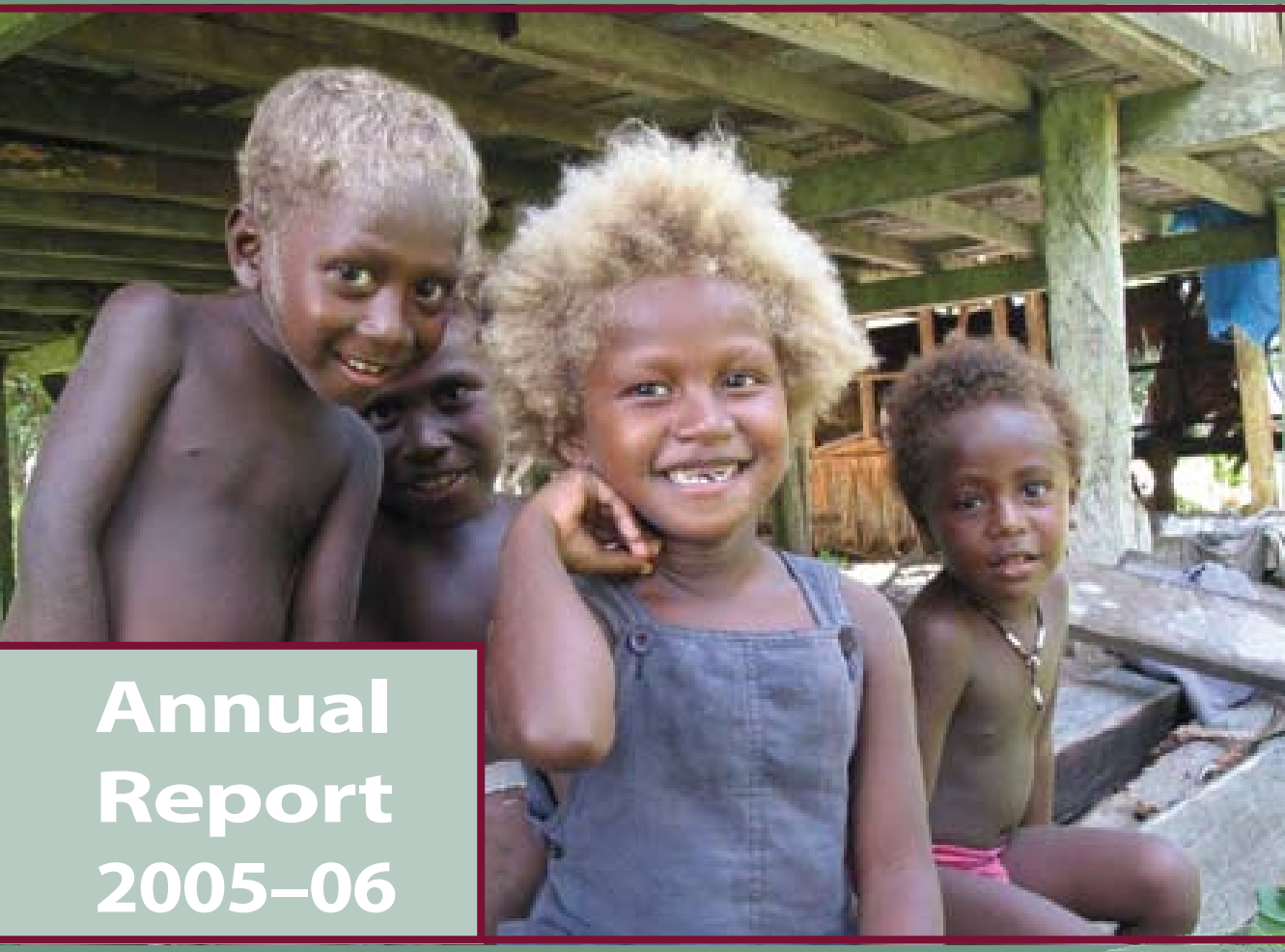
Australian Government

Australian Centre for International Agricultural Research



Annual Report 2005–06

Research that works

The Hon Alexander Downer, MP
Minister for Foreign Affairs

MEDIA RELEASE

MINISTER FOR FOREIGN AFFAIRS
ALEXANDER DOWNER

AA 06 14 26 April 2006

Australia to reach out to the region in the ongoing fight against poverty

Today I have launched the White Paper on Australia's overseas aid program – *Australian Aid: Promoting Growth and Stability*.

The White Paper will direct the delivery of Australia's aid over the next 10 years.

By reaching out to the Asia-Pacific region the Australian Government will aim to help millions of people overcome the scourge of poverty and live in peace and prosperity.

Our principal challenge will be to generate and sustain economic growth – in the region which is home to the greatest number of the world's poor.

We will seek to provide a brighter future for people through expanded assistance in education and health.

A major focus will be getting more children into school for longer and for a better quality education.

Through incentives we will encourage countries to improve government performance and will actively support the development of local leaders.

The *Australian Scholarships* initiative will double the number of education scholarships offered in the Asia-Pacific region through funding of nearly $1.4 billion over the next five years.

Australian Scholarships will bring together Australian Development Scholarships (ADS), managed by Australia's international aid agency, AusAID, and Endeavour scholarships, administered by the Department of Education, Science and Training (DEST).

And we will launch a new type of scholarship, *Australian Leadership Awards,* to help future leaders of our partner countries develop and maintain links with Australia.

We will work to improve the health of women and children and increase our efforts to tackle major diseases such as HIV/AIDS.

And Australia will spearhead an international effort to roll back malaria in the Pacific.

The provision of infrastructure assets like roads, telecommunications, power and public building such as schools and health facilities, will also be a key to poverty reduction.

We will encourage the broader Australian community to offer their skills to the aid program by seeking more partnerships with non-government organisations, professional groups, local government, business and schools.

Australia is already globally recognised for its commitment to overseas aid, in September 2005 we announced our goal of doubling aid to around $4 billion annually by 2010.

However to have an impact, our aid contributions need to be used effectively, so we will establish an Office of Development Effectiveness to monitor the quality of and evaluate Australia's aid programs.

The Office's *Review of Development Effectiveness* will be published annually and integrated into the Government's budget cycle, and will be particularly important in demonstrating the effective use of Australian taxpayers' money.

And we will untie our aid - as part of our commitment to enhancing competition and gaining better value for money through aid program contracts.

Greater Australian engagement with the region through a more effective aid program will promote regional stability, which is in the national interest.

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Photos: Brad Collis
Front cover: ACIAR allocates resources for more productive agriculture to improve the living of future generations in Pacific Island countries
Back cover: A field production officer with the Agricultural Quality Improvement Project (AQIP) in Cambodia, Mr Long Ky Meng shows the increased tillering that comes from planting high-quality seed.

ACIAR Annual Report
2005–06, October 2006
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Distribution
This report is available through the ACIAR website (www.aciar.gov.au) or by contacting ACIAR by email (comms@aciar.gov.au) or by telephone (02 6217 0500) or facsimile (02 6217 0501) to request a hard copy.

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Australian Government

Australian Centre for International Agricultural Research

The Hon. Alexander Downer, MP
Minister for Foreign Affairs

Dear Minister

30 September 2006

ACIAR Annual Report 2005–06

On behalf of the Board of Management it is my pleasure to present to you the Annual Report of the Australian Centre for International Agricultural Research 2005–06.

The report has been prepared in accordance with section 39 of our enabling legislation—*Australian Centre for International Agricultural Research Act 1982*.

Consistent with section 49 of the *Financial Management and Accountability Act 1997*, ACIAR's Director has taken steps to ensure that the annual financial statements have been prepared in accordance with the *Finance Minister's Orders*. These statements, certified by the Australian National Audit Office, are presented at pages 116–152 of this Annual Report.

In presenting the Annual Report, the Board wishes to acknowledge the highly professional and dedicated way in which ACIAR staff and commissioned research organisations have sought '... to achieve more productive and sustainable agricultural systems, for the benefit of Developing Countries and Australia, through international agricultural research partnerships.'

Yours sincerely

Dr Meryl J Williams
Chair
ACIAR Board of Management

cc: The Hon. Teresea Gambaro, MP, Parliamentary Secretary (Foreign Affairs)

Board resolution

The Board authorised the Chair to finalise ACIAR's Annual Report 2005–06 taking into account the views of Board members as expressed on the draft presented at the Board meeting 109.

Decision 109/10
7 September 2006

The Board

Chair
Dr Meryl J Williams

Members
Mr Peter Corish
Ms Joanna Hewitt
Dr John Williams

Director
Mr Peter Core

ACIAR staff at ACIAR workshop, February, 2006

Our Functions—Section 5, ACIAR Act 1982, and Our Objectives—ACIAR's Corporate Plan 2001–06

Our Functions

Section 5 (1) – ACIAR Act 1982

(a) Formulate programs and policies with respect to agricultural research for either or both of the following purposes:
  (i) Identifying agricultural problems of developing countries;
  (ii) Finding solutions to agricultural problems of developing countries;
(b) Commission agricultural research by persons or institutions (whether the research is to be conducted in Australia or overseas) in accordance with such programs and policies;
(c) Communicate to persons and institutions the results of such agricultural research;
(d) Establish and fund training schemes related to its research programs;
(e) Conduct and fund development activities related to its research programs; and
(f) Fund international agricultural research centres.

Our Objectives

ACIAR's Corporate Plan 2001–06

- Be aligned with Australian Government regional priorities;
- Have flexible and realistic funding arrangements;
- Broker support beyond project life;
- Demonstrate impacts from a majority of projects;
- Align investments with partner country and Australian farmer priorities;
- Have transparent, streamlined and disseminated processes;
- Communicate effectively with selected groups;
- Provide training that meets human resource needs of targeted customers;
- Have a skilled workforce focused on tasks that enhance ACIAR outputs; and
- Achieve international recognition for its work.

Vision

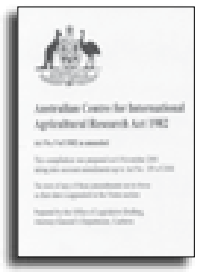
ACIAR looks to a world where poverty has been reduced and the livelihoods of many improved through more productive and sustainable agriculture emerging from collaborative international research.

Mission

To achieve more productive and sustainable agricultural systems, for the benefit of Developing Countries and Australia, through international agricultural research partnerships.

Outcome

Agriculture in developing countries and Australia is more productive and sustainable as a result of better technologies, practices, policies and systems.



Contents

Harvesting rice free of diseases linked to ACIAR's project to sustain rice production systems in Cambodia

Some key messages for ACIAR

- **ACIAR is in the service business:**
  - **with a stronger outward focused emphasis**
  - **stronger partnerships**
  - **more focused efforts to maximise impacts**
  - **better project management practices**
  - **enhanced accountability and greater transparency around our project investment portfolio.**

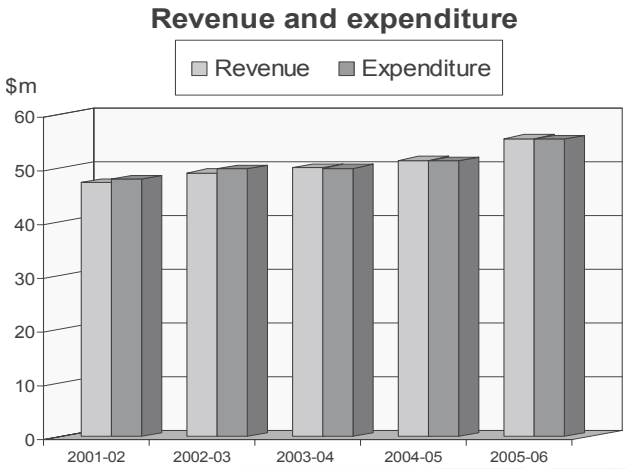
Four-year snapshot

Four-year snapshot

Financial ($m)	2002–03	2003–04	2004–05	2005–06
Revenue				
Appropriation	46.278	46.832	47.523	49.334
AusAID funds	2.543	3.169	3.646	5.437
Other revenue	0.381	0.073	0.322	0.807
Total	**49.202**	**50.074**	**51.492**	**55.578**
Expenditure				
Bilateral research	28.434	27.812	29.507	32.805
Multilateral research	9.827	10.181	9.984	10.002
Education and training	2.511	2.464	2.565	2.909
Other program expenditure	0.913	1.160	1.185	0.691
Salaries and corporate support[1]	8.216	8.378	8.160	9.012
Total	**49.901**	**49.995**	**51.401**	**55.419**
Operations				
Collaborative research				
Projects active in FY				
Bilateral	189	192	201	267
Multilateral	30	29	26	30
Projects started in FY				
Bilateral	39	38	51	76
Multilateral	5	8	7	6
Projects extended in FY				
Bilateral	30	33	41	47
Multilateral	4	5	4	2
Projects reviewed in FY[2]	26	34	24	34
Projects completed in FY[3]	43	50	43	93
Building capacity				
Non-project specific training courses	11	8	13	13
Fellowships:				
John Allwright Scholars active in FY	51	50	52	57
Scholarships awarded in FY	16	6	10	15
John Dillon Fellows in FY	4	3	6	5
Our staff				
Staff – Public Service Act (FTE)	45.7	44.3	42.04	44.44
Overseas officers – Locally engaged (FTE)	18.8	18.8	20.5	20.5

[1] Salaries and Corporate Support includes all travel costs.
[2] Includes both bilateral and multilateral projects.
[3] Includes both bilateral and multilateral projects concluded and due to be concluded as at 30 June 2006. Some of these projects may be extended following a review process.

ACIAR 2005–06 at a glance



Substantial mutual benefits to Australia

Project partnerships 2005–06

Overall research expenditure of approximately $43m, including on:

- nearly 300 active projects under management
- **82** new projects
- **93** completed projects.

A major joint program with AusAID aims to improve germplasm of field crops in East Timor

REACHING OUT TO PARTNERS

WITH RESEARCH THAT WORKS

ACIAR's Impacts

- Last year a major review found that total benefits from the 29 assessments in the Impact Assessment Series have been around $3.4 billion
- This year a major review was undertaken of Australian benefits from the same activities plus 12 additional assessments from before and after the last study
- The study also assessed the Australian benefits only from five more research areas chosen at random
- The results revealed an interesting mutual benefits story with total benefits to Australia from all 46 assessments totalling $735 million
- These were found to come from direct production benefits (44 per cent), indirect (35 per cent) and direct (12 per cent) protection from pests and diseases, and increased trade (9 per cent)

ACIAR's impact assessments

- Five assessments published in 2005–06 all showing strong investment returns on research and another five assessments commissioned and published in early 2006–07

ACIAR's adoption studies

- All large projects (more than $400,000) completed in 2001–02 reviewed, with results published

Impact assessment snapshot

Review of the returns to ACIAR's bilateral R&D investments

ACIAR commissioned a comprehensive review of the total benefits arising from the first 29 assessments published in the Impact Assessment Series. These benefits were balanced against the entirety of ACIAR's bilateral research investment from 1982 to 2005. The benefit-cost ratio of these 29 assessments, representing 8 per cent of ACIAR's total bilateral investment, when compared to the total ACIAR bilateral investment, was estimated at 3:1.

Impacts of mud crab hatchery technology in Vietnam

The growth of mud crab aquaculture in Vietnam has relied on the capture of wild juvenile crabs and fattening these to maturity. ACIAR-supported research introduced technology to rear crabs from the larval stage to maturity accelerating the growth of the industry, resulting in a net present value of $6.45 million and a benefit-cost ratio of 2.7:1.

Management of fruit flies in the Pacific

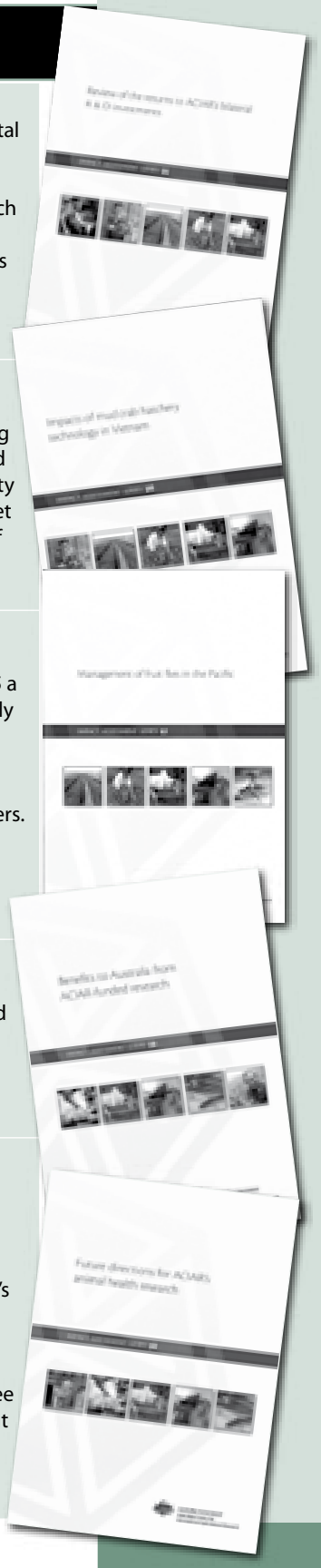
Fruit is a staple food and important export crop in the Pacific. The main pest of fruit is the fruit fly. Prior to 1985 a fumigant was used to protect fruit, but was subsequently banned, creating a barrier to fruit exports. ACIAR's research, supported by the Regional Management of Fruit Fly Project, joint United Nations-AusAID initiative developed controls for fruit flies, removing export barriers. The net present value of the ACIAR/RMFFP research and extension, incorporating all costs, is $15.6 million, representing a benefit-cost ratio of 2:1.

Benefits to Australia from ACIAR funded research

The flow of benefits to Australia from ACIAR research derives from projects of mutual interest to domestic and developing country agricultural industries. Of 41 past assessments 17 have quantifiable benefits to Australia, valued at $735 million against costs of $60 million.

Future directions for ACIAR's animal health research

The importance of animal health management to achieving economic, environmental and biosecurity outcomes is increasing in the Asia-Pacific region. This report proactively addresses developments and provides an outline of the strategic directions for ACIAR's animal health program. This strategy was developed by the Board based on a major review undertaken by external consultants and detailed responses to the recommendations from that review. The report is in three parts: the strategy, the review report and a management action plan in response to the recommendations of the review.



ACIAR Policy Advisory Council, Twenty-sixth meeting, 27–31 March 2006. From left: Peter Core (ACIAR Director), Mr Jia Jingdun (China), Mr Ian Kershaw (nominee of the Director General of AusAID), Dr John Williams (Australia), Dr Patricio Faylon (Philippines), Mr Jim Hallion (Australia), Dr Nguyen Van Bo (Vietnam), Minister for Foreign Affairs, the Hon. Alexander Downer, MP, Dr Meryl Williams (President), Mr Peter Corish (Australia), Dr Agus Muharam (Indonesia), Ms Joanna Hewitt (Australia)

Message from the Chair

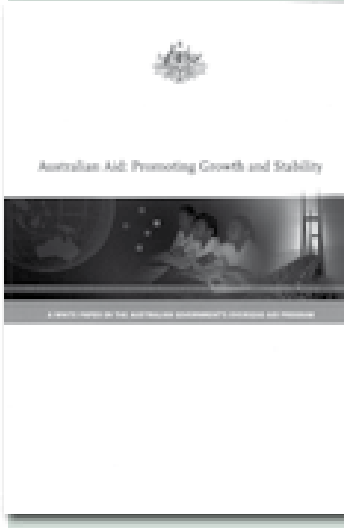
Dr Meryl J Williams, ACIAR Chair

Every Annual Report is special to ACIAR and its Board but, in my mind, this Annual Report is covering a period of special significance to ACIAR, illustrating its directions and the recent developments that will impact on operations into the future.

Two key developments occurred in 2005–06 for us. The first is that the Government tabled its White Paper on Australia's overseas aid program Australian Aid: Promoting Growth and Stability. The second is the Government's review of ACIAR governance framework in the context of the Uhrig Review of all Commonwealth Statutory Bodies.

The Government's White Paper

This White Paper provides the strategic framework for ACIAR, setting out where we will work, why, and how the program will be delivered. In its formulation I had the honour of being part of a three person team – the Core Group, led by Professor Ron Duncan – that was responsible for developing a set of recommendations that helped provide the building blocks for the White Paper. That report was delivered in November 2005 with the White Paper itself being released in April 2006.



This White Paper confirms that Australia's aid focus will continue to be on the Asia-Pacific region and, in terms of direction, it sets out four key pillars around which the program will be developed:

- accelerating economic growth
- fostering functioning and effective states
- investing in people
- promoting regional stability and cooperation

For ACIAR, 'accelerating economic growth' affirms our focus on the development of the agriculture, fisheries and forestry industries in our partner countries as one of the vital engines of growth and as a primary tool of poverty alleviation. By far the majority of people in our partner countries' populations live in rural and coastal areas and agricultural growth through innovation and reform is a pre-condition for broader-based growth in these areas. This is acknowledged in the White Paper.

Sustained, well targeted investments in agricultural research are one of the key tools for fostering agricultural productivity and growth. There are other key ingredients – infrastructure, education and health services, and functioning markets. All are vital cogs alongside a sustained research effort that facilitates innovation, agricultural growth and development.

There are a number of specific elements of the White Paper to which ACIAR needs to pay particular attention. The role of the private sector in its

partnerships and ACIAR input into the AusAID-led country development strategies that will form the corner stones of all aid related programs delivered by all Australian Government agencies are but two. A third is a new vehicle for public accountability for the whole aid program through the Annual Review of Development Effectiveness.

To ensure that ACIAR maintains alignment with the directions of the White Paper, the Board has established a number of key reference points that it will report on in next year's Annual Report. It is too easy for agencies to continue focusing on their busy day-to-day agenda and not put appropriate emphasis on the new directions set out in key documents like the recent White Paper. The Board, therefore, has set up internal reporting mechanisms, including its annual performance agreement with the Director, to ensure that White Paper alignment is part of the ACIAR mainstream in 2006-07.

Modernising ACIAR's Governance

ACIAR's current governance arrangements were essentially established in the *Australian Centre for International Agricultural Research Act 1982* (ACIAR Act). Since then, governments have enacted various legislation concerning the governance and accountabilities of government agencies plus thinking and practice of public sector governance has evolved to adapt to changing conditions. As part of ongoing governance review and reform, during 2005–06 the governance frameworks of Commonwealth statutory authorities were reviewed to ensure clear lines of accountability from the Minister down to the agency. In ACIAR's case, our governance framework has been reviewed and it is clear that some changes are required. There is ambiguity between the *Australian Centre for International Agricultural Research Act 1982* and the *Financial Management and Accountability Act 1997*, particularly in respect to the roles of the Board and the Centre Director. These ambiguities have been managed without impinging on Centre performance but it is not best practice to work around them and, in 2006–07, it is anticipated that the Government will introduce legislative amendments to address these issues.

Looking at 2005-06

The Board had a number of key issues before it in 2005–06. In addition to its regular agenda of finalising the ACIAR Program for 2006–07 and beyond as set out in the Centre's Annual Operational Plan, monitoring Director performance and approving all project expenditure over $150,000, it addressed a number of specific activities:

- a performance feedback review of all key Australian stakeholders of ACIAR, conducted by independent experts, that confirmed strong performance and made recommendations where improvements could be made;
- a review of ACIAR's Animal Health research efforts, particularly its work on avian influenza;
- an aggregate analysis of returns on ACIAR's bilateral R&D investments that showed that ACIAR's work has been an exceptionally high pay-off investment in development assistance;

- a stocktake and review of our own corporate governance practices by Professor Stephen Bartos, an acknowledged expert in public sector governance matters; and finally
- a new Risk Management Plan that the Board will use to monitor ACIAR's key operations in 2006–07 and beyond.

Policy Advisory Council

In 2005–06, the ACIAR Policy Advisory Council (PAC) enjoyed an active year. The annual meeting of the PAC was held in Canberra in March 2006, resulting in formal dialogue between the Minister for Foreign Affairs and the PAC in its capacity of providing policy advice on ACIAR. All attending PAC members also participated in a meeting of the Board of Management and visited agricultural research facilities in New South Wales. Out of session, PAC members continued to provide valuable advice and support to ACIAR's in-country work and to strategic developments such as the design of the forthcoming survey of overseas stakeholders.

Looking Ahead

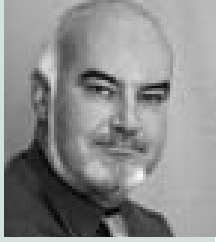
2005–06 has been a challenging year for the ACIAR Board and I am sure that 2006–07 will be no different. Modernising our governance will be a particular focus as will ensuring that our program directions are in line with the White Paper and that we maintain close working relations with all relevant partners, particularly AusAID.

Achieving alignment on program priorities is no easy task when partnerships are the delivery modality. Competing views can very quickly lead to a so called 'mission creep' that challenges our desire for an ACIAR program that is focused, targeted with high impacts. ACIAR cannot do everything and it must retain a very clear understanding of its comparative advantages and where it fits in the overall development effort. During 2006–07 the Board will continue to ask its management the difficult questions on how any specific research investment proposals link with the existing portfolio and with the efforts of others. In so doing, however, the Board will conduct its business in a manner that respects, empowers and supports the highly professional staff of ACIAR to pursue its mission.

In conclusion, I want to thank my fellow Board colleagues and the ACIAR staff for their support and excellent level of service to the work of ACIAR and of the Board over the past year. In particular my special thanks go to our partners, many of whom have worked in very difficult and, sometimes uncertain, circumstances so that others can gain the undoubted benefits of international agricultural research.

Dr Meryl J Williams
Chair
ACIAR Board of Management
September 2006

Research Program Managers at June 2006



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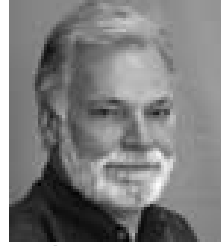

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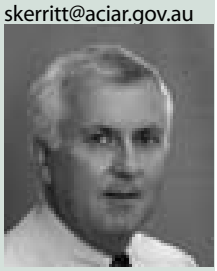

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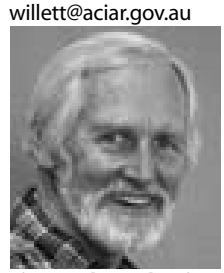

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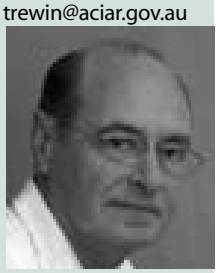

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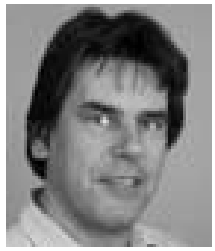

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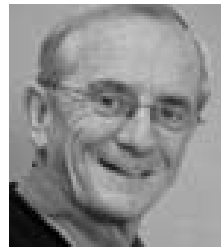

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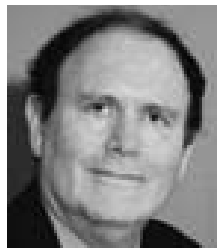

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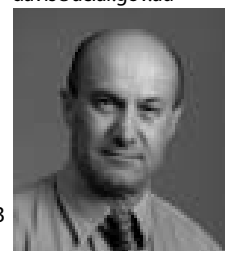

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The Director's review

Mr Peter Core, ACIAR Director

In some senses, 2005–06 has been a watershed year in the development dialogue. Two important characteristics are the much stronger focus on the importance of broad-based economic growth and on investing in people. Because it is only with longer term economic growth rates, significantly above population growth, that per capita incomes will increase and poverty levels will decline.

Putting sustained economic growth firmly on the aid agenda has meant that there is now a broad international consensus that agricultural growth is usually a precondition for rural development and a precondition for income growth and poverty reduction. There is agreement as well that appropriate technologies and therefore strong agricultural research programs are required if the objectives of agricultural development, and hence of economic and social development, are to be met in developing countries.

The Challenge Ahead

By its nature research is a long term enterprise and many of our most important research breakthroughs have been unforseen in their inception. It is the nature of the research endeavour. But there are some things that we can be more certain about as time unfolds:

- our current global population of around 6 billion people will reach 9 billion during this century
- the majority of the world's population will live in urban areas, many in mega cities
- the demand for food will double and diversify as incomes rise and consumers spend more on better, higher value foods
- this higher demand will put pressure on natural resources and accentuate water scarcity, soil degradation and biodiversity loss

Many of these issues confront us today and it will only be by concerted action that we will avoid being overwhelmed by them. Irrigated agriculture has been a big driver of higher output and key water basins in the region are now under significant pressure by users. When taken with the likelihood of increased climate variability, it is undoubtedly true that these demand pressures will put increasing pressure on our natural resource systems. It is not just the vital agenda of 'more crop per drop' but the rapidly growing demands for water from cities, industry and the environment.

Many of these issues are beyond the direct competencies of the agricultural research agenda. But agricultural research has a track record for reaping significant rewards from improved productivity, fostering cheaper, higher quality foods and fibres and producing a much better understanding of the best intervention points for public policy makers.

Two Specific Challenges

While the 'slow magic' of agricultural R&D is known, the global community continues to face very significant challenges. Two recent examples highlight this. The first is avian influenza. Much is being done by the Australian Government and regional partners to manage the disease and reduce the risks of transmission. As one of several ACIAR-funded projects on avian influenza, we are working with partners on the role of ducks as reservoirs of the virus and transmitters to chickens. The second is the emergence of a new virulent stem rust, UG99 that threatens wheat crops in South Asia. Our support for International Agricultural Research Centres such as CIMMYT and ICARDA is enabling them to intensify research to create UG99-resistant strains.

There are, of course, many other serious issues that require action. This is not the place to discuss them but all have a significant impact on the capacity of agriculture to contribute to broad-based economic growth.

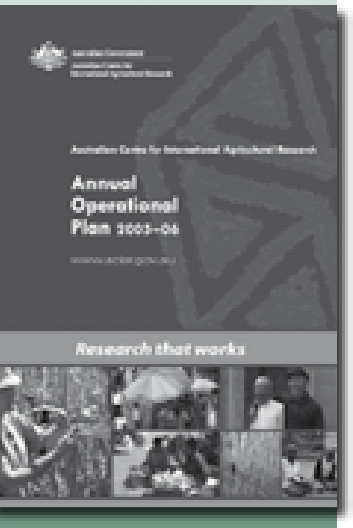
Generating Impacts – Greater Focus

ACIAR's programs are about improving livelihoods in partner countries and generating research outputs with strong adoption pathways. Our efforts in this journey continued to be advanced in 2005–06 around a central theme of greater focus. Our program managers now focus on a selected subset of countries in the Asia-Pacific region. The balance of new projects commissioned by ACIAR is being shifted more towards those with impacts in the shorter term and our country programs are being designed to work more closely with the rural development strategies of our partner countries, often supported by international donors, including AusAID.

In addition, 2005–06 saw a significant expansion in our ex poste project impact assessments. Actual expenditure on these assessments was $710,000 in 2005–06 compared with $410,000 in 2004–05. The results of these assessments are set out elsewhere in the Annual Report but the central message is that ACIAR programs continue to have a very high pay off. It is not always so, but provided our programs stay focused on high priority areas and integrate with the efforts of our partner countries and other donors, agricultural research will continue to be a significant, high pay off investment for rural development and economic growth.

Our evaluation program is managed by ACIAR but the actual evaluations are done by independent, expert third parties. All their reports are released publicly. These efforts are complemented by a rolling program of adoption studies of those projects that have been completed for three years. In 2005–06, these adoption studies reviewed 2001–02 completed projects and demonstrated the importance of project design in harvesting post project impacts and that these projects are making a significant post project contribution.

All of our evaluation efforts in 2005–06 will be provided to the newly established Office of Development Effectiveness in AusAID that the



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Minister announced when he released the Australian Government's White Paper on the Overseas Aid Program in April 2006.

Nurturing Science – Nurturing People

ACIAR's partnership modality is primarily about nurturing the science, the people and the institutions that do this vital work. Our work with Australian research partners, the International Agricultural Research Centres and partner countries is all about the quality of these partnerships. For it to be effective and lasting it must be built on mutual respect, mutual commitment, mutual understanding and mutual goals. As ACIAR's Director, in 2005–06 I have stressed the importance of all four facets to staff. It is not easy. Pushing a more focused, impact oriented agenda requires that commitment by all partners and this takes time, dialogue and trust.

It would be fair to say that this change in emphasis is a work in progress. Our developing country partners hold ACIAR in high stead, and generally would like us to work in more areas than is consistent with a policy of focusing on fewer high potential impact areas. The ongoing and critical dialogue is to identify these high potential areas and to tackle them in partnership. This change also has implications at home where we are extending our stakeholder consultations, aiming to identify partnerships where there is a strong alignment of the Australian and international objectives.

Our commitment to partnership is long term. With our program managers now focusing on selected countries in the region, there is now more scope for us to build an intimacy in our partnerships where the importance of local knowledge and conditions are truly recognised. This is not because scientific principles change from place to place, but because these principles require local knowledge for their effective application.

In 2005-06, ACIAR took important steps to help strengthen the agricultural research systems in our partner countries. Consistent with the White Paper and with the strong support of AusAID, we are now in the process of significantly expanding our training program for overseas partners. Over the next two years the number of postgraduate scholarships associated with our program will be doubled. My objective is that a majority of current projects will involve a postgraduate student from the partner country working here with the Australian partner and gaining tertiary qualifications.

Working for Australian Agriculture

As part of Australia's overseas aid program and being accountable to the Minister for Foreign Affairs, ACIAR's primary focus is towards partner countries in the region. But there have been, for many years, significant benefits to Australian agriculture from our efforts. Some are obvious like our work on pests and diseases and access to genetic material. Others come from productivity improvement from projects designed with a

Minister Downer meets with ACIAR John Dillon Memorial Fellowship awardee Dr Delia Catacutan, Philippines

specific Australian component. This is the case for many of our projects.

These flow-back benefits to Australian agriculture have been known to ACIAR for many years but not widely appreciated. To address this ACIAR commissioned the Centre for International Economics to examine and, where possible, quantify the benefits to Australia of ACIAR-funded research. This publication has now been released and demonstrated that the Australian benefits alone more than cover the full project costs of the 35 projects reviewed by the study.

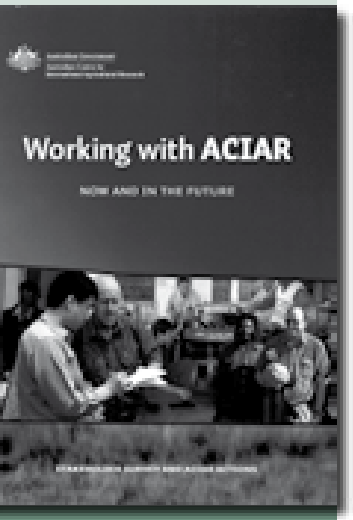
These benefits flow directly from improved productivity, reduced risk and stronger protection from disease and pest incursion and increased trade benefits, underlining the ongoing synergistic benefits flowing to Australia from ACIAR programs.

Working Together

By its nature, ACIAR's working framework is a diverse network of relationships – with Australian and International Agricultural Research Centres, partner countries, multilateral and national development agencies all the way to those who nurture and execute Australian's foreign policy interests. The demands on ACIAR staff associated with 'bringing government together' have never been higher than in 2005–06. Working across organisational barriers is a given for us.

In 2005–06, ACIAR redoubled its efforts on this 'Working Together' agenda. Our on-going relationships with AusAID continued to grow with new joint funded programs in Indonesia and East Timor. Our linkages to Australia's Embassies and High Commissions in the region remained very strong as they are with our Portfolio Department. We are now working much closer with other major development agencies like FAO and the World Bank.

We didn't fix the 'Working Together' agenda item in 2005–06 but we worked on it and will continue to do so. The reality is that this agenda is not about structures and organisational form. It is much more about culture and behaviour. And that is as much about leadership that supports, models, understands and aspires to whole-of-government solutions. It is for others to judge but I hope that I have helped foster cooperation and collegiality in the way that ACIAR operated with others in 2005–06 and will in the future.



ACIAR Staff – Meeting the Challenge

The tasks facing ACIAR staff are formidable and require us to be constantly recreating ourselves to address the challenges. As set out in this Annual Report, we have much to be proud of in 2005–06. In response to the Uhrig Review, ACIAR's governance structures are being modernised. Our programs now have stronger focus. We are building stronger partnerships not just across the research continuum but with our development partners and in a 'whole-of-government' context in Australia. ACIAR's funding base is expanding, while still retaining a sharp focus on our own

cost-effectiveness. Our efforts to strengthen our partnerships with key stakeholders are being redoubled. The pieces are starting to lock into place.

We could not have achieved any of this without the overriding commitment of ACIAR staff in Canberra and in our regional offices have to their job. It is first rate and I want to thank all of them for their efforts. This is as much their Annual Report to the Minister, the Australian Parliament and key stakeholders as it is the Board or its Director. It reflects ACIAR's ongoing commitment to transparency, accountability, efficiency and impacts.

Peter Core
Director
September 2006

Regional achievements

The ACIAR Board defines target ranges for research expenditure across the regions in which projects operate. The target ranges reflect regional and country research priorities, the overall aims of Australia's aid program, and ability to deliver results through effective projects across the Asia-Pacific region and beyond. The ranges also allow more flexibility—in project development, implementation timelines and in resource allocation between regions.

Region	Board target*
Papua New Guinea and the Pacific Islands	>20%
Southeast Asia	>45%
North Asia	<15%
South Asia	<15%
Southern Africa	<5%

The year in review

ACIAR international program support staff

Villagers in Papua New Guinea are very proud of ACIAR's work which has led to better pesticide application methods and high level of crop protection

Pest and disease control helps for a better life

Taro is a major crop and staple food throughout much of the South Pacific. It is culturally and economically important (worth almost $1.5 billion) and is considered vital to food security. Pests and diseases cause significant losses and if left unchecked will devastate crops. The **taro beetle** is one example. Project work in both PNG and Fiji has led to better pesticide application methods that reduce considerably the damage caused to taro corms by the beetle. The breakthrough that led to a high level of protection is to administer a second pesticide application after three months.

Information on disease and pest management and control options for pests and diseases of taro are available but not easily accessible. This in turn creates difficulties in containing outbreaks and managing quarantine. The development of a CD-ROM package, **TaroPest**, providing information about pest and diseases of taro in the South Pacific is under way, assisted by SPC's Plant Protection Service and regional quarantine experts.

Papua New Guinea and the Pacific

Financial year	Regional expenditure	Percentage of total bilateral expenditure	Board target as percentage of expenditure
2005–06	$6,863,591	22.4	>20%
2004–05	$6,332,358	22.5	>20%
2003–04	$5,067,418	19.8	10–20%

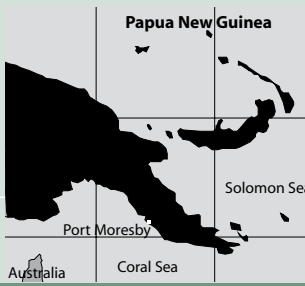
ACIAR's programs cover five regions. Papua New Guinea and the Pacific Islands are grouped as one region. Outlays for the region have been rising in recent years to meet the priorities placed on the region by the Australian aid program. For the region, the Board and Minister have set an expenditure target of more than 20 per cent of our overall, annual bilateral research expenditure.

Papua New Guinea

Active projects in 2005–06	54
AOP budgeted expenditure in 2005–06	$4,490,000
Actual bilateral country expenditure in 2005–06	$4,704,653
Bilateral country expenditure in 2004–05	$4,226,822
Bilateral country expenditure in 2003–04	$3,346,297

Dr Jacqui Wright, ACIAR Country Manager, PNG and Solomon Islands

Key performance indicators	Performance 2005–06
• Enhanced focus in project portfolio on improving the processing quality of commodities	Two projects initiated that emphasised coffee processing quality: ASEM/2004/017 *Assessment and improvement of quality management during postharvest processing and storage of coffee in Papua New Guinea* and ASEM/2004/042 *Assessing and extending schemes to enhance the profitability of the PNG coffee industry via price premiums for quality*.
• Linkages between at least three ACIAR projects and three AusAID-funded PNG Agricultural Innovations Grant Facility (AIGF) projects established	ASEM/2004/042 is linked with AIGF1015 *Coffee growers/farmers production and marketing groups*; CP/2003/029 is linked with AIGF 1125 *Management of potato late blight in PNG*; ASEM/2001/037 is linked with AIGF1072 *Enhancing the capacity of village extension workers and contact farmers in the Wagih Valley of WHP and selected EHP to improve income from production and marketing of horticultural crops*.
• Greater involvement of PNG University of Technology in ACIAR's program, including linkages to other PNG research institutions	An ACIAR scholarship scheme has been implemented to allow PNG nationals to undertake postgraduate training in-country while linking to ACIAR projects. UNITECH is also now directly involved in four ACIAR projects: ASEM/2004/047, ASEM/2001/037, LPS/2005/094, ASEM/2000/162
• Assistance with the institutionalisation of participatory action research (to focus research on smallholder needs)	PNG agricultural research institutions have traditionally been confined to on-station research. Through embodying participatory action research within most (9) of the projects commenced during 2005–06 projects and through delivery of two training courses, ACIAR has helped to change the philosophy of those institutions.
• Increased emphasis on sweet potato research and development in ACIAR portfolio, commensurate with its importance as a staple food	CP/2004/071 *Reducing pest and disease impact on yield in selected PNG sweet potato production systems* will commence in June 2006. Two other active projects involving sweet potatoes are SMCN/2005/043 *Analysis of biophysical and socio-economic constraints to soil fertility management in the PNG Highlands* and ASEM/2005/126 *Sweet potato workshop*. A detailed design was completed for another project, CP/2005/134 *Improving informal seed systems for sustainable sweet potato production under resource-poor farming conditions in PNG and the Solomon Islands*, for commencement in late 2006.
• Potential role of indigenous nuts in local economies defined	Promising outlook for the Galip nut clearly defined in the final report of project FST/2002/010 *Domestication and commercialisation of multi-purpose indigenous trees and shrubs for food and other products*. A new project FST/2004/055 *Domestication and commercialisation of Canarium indicum in Papua New Guinea* was initiated as a result, and is now under way.



Key performance indicators	Performance 2005–06
• Extent and severity of nutritional disorders in oil palms and impact on yields quantified and suitable amendments identified	The industry has quantified the extent and severity of nutritional disorders of oil palm in the country. Nitrogen is the main yield-limiting nutrient throughout PNG, while potassium and magnesium deficiencies also limit yields in many areas. Suitable nitrogen-containing amendments or improved nitrogen-management practices have been identified. Suitable magnesium- and potassium-containing amendments and improved magnesium and potassium management practices are currently being assessed in field trials.
• Fingerling production and supply to inland fish farmers significantly improved in quantity and quality	Total fingerling production from the PNG Highlands Aquaculture Development and Extension Centre increased from under 45,000 in 2004 to approximately 100,000 in 2005. Quality also improved. Continued improvements in quantity and quality are expected in 2006.
• 40% of new projects designed to have significant farmer or policy-maker impacts within five years of completion	Five out of the nine new projects assessed by members of the In-House Review Committee to be designed to have significant impacts within five years of completion (projects CP/2003/042, ASEM/2004/041, FST/2004/055, FIS/2005/096 and LPS/2005/094).

Position

Papua New Guinea (PNG) is ACIAR'S second largest partner, and ACIAR's investment and commitment in PNG reflect the deep, long-term relationship between the two countries. ACIAR's program in PNG has increased significantly in recent years, based on a strategy of support for applied research to enhance smallholders' income. Based on the outcomes of a PNG-ACIAR consultation held in late 2004, in its research program for PNG for 2005–06, ACIAR has clustered projects under four programmatic themes:

- Applied research aimed to **maintain and enhance smallholder incomes**, with an emphasis on root, plantation, agroforestry and horticultural crops and aquaculture. The social and economic context of the research is emphasised, particularly with respect to involvement of women farmers
- **Sustainable management** of land, forestry and fisheries resources
- **Biosecurity**
- **Institutional capacity-building, socioeconomics and project assessment**, through development of human and physical resources

The PNG program has a strong emphasis on capacity-building. Project designs include schedules for training and also package research results to facilitate uptake by farmers.

In 1998 ACIAR and AusAID resolved to develop and fund a set of projects of mutual interest, and this partnership continues today. In 2003 AusAID established the PNG Agricultural Innovations Grant Facility (AIGF), which supports small projects in PNG agricultural research and extension institutions. Many AIGF projects have connection with previous or current ACIAR-funded projects at these institutions.

ACIAR focusses on socioeconomic aspects of village life in many of its agricultural R&D projects

Achievements

A project to find ways to improve yield, quality and/or economic viability of **peanut production** has assessed the status of the PNG peanut industry, studying postharvest storage, utilisation, marketing systems and the extent of aflatoxin contamination in peanuts. Researchers found widespread aflatoxin contamination in PNG peanuts and the data they collected will form the basis of solutions to remedy this serious problem. A survey in four major peanut growing regions revealed that peanuts ranked amongst the top five income-generating crops across all regions.

Trials of lines of peanut from ICRISAT in India have identified promising varieties with major yield advantage over local lines. These lines are now being evaluated/disseminated by the farmers themselves via the concept of a 'seed village' in various locations. The scientists successfully tested the APSIM (Agricultural Production Systems sIMulator) peanut model and this will aid future assessment of the peanut production potential and climatic constraints for yield and quality (aflatoxin risk) in target environments.

A **sweet potato** evaluation and multiplication project is in progress in six lowland areas of Madang province in the search for better sweet potato varieties for the farming sector along the PNG's north coast. Sixteen different varieties, selected with assistance from the National Agricultural Research Institute (NARI), are being trialled in around 72 sites during both wet and dry seasons. As well, four sequential trials will determine optimum harvesting time for all varieties. Around 250 farmers will also test the varieties and help to develop a list of high-yielding sweet potatoes appropriate for individual lowland conditions. In keeping with the importance of sweet potato as the major food crop in PNG, during 2005–06 a cluster of sweet potato protects was developed addressing major production, pest management and postharvest issues.

In studies to determine how to enhance the **profitability of the PNG coffee industry** researchers identified eight stand-out collaborative schemes for collecting, pricing and processing coffee. An analysis of marketing margins indicated that coffee growers in PNG receive between 68 and 80 per cent of the gross free-on-board (FOB) price (in Lae) for 'green bean' coffee, indicating that the processing/exporting sector is relatively efficient and that growers are receiving reasonable prices. But such margins are available only to growers in close proximity to the traders and processors. For growers located in more remote areas, transport costs may consume most of the margin.

To improve quality control coffee growers are being actively encouraged to sell cherry rather than parchment (where the flesh has been removed). By having control of the entire process – pulping, fermenting, washing and drying – the processors gain a finished product with very similar characteristics to plantation-style coffees. Thus opportunities are emerging for PNG coffee to enter the specialty market.

The program to enhance PNG smallholder cocoa production through greater adoption of disease control practices took a hands-on '**cocoa in**

ACIAR is in search of the best sweet potato varieties to feed the world

ACIAR's researchers are working to help farmers enhance the profitability of the PNG coffee industry

A lead farmer Paul Gemohore and wife in PNG have implemented new management options on their block to control crop diseases

the classroom' approach. Trained farmers shared their knowledge with other farmers in their village in an 'apostle–disciple' system. At Tinputz on Bougainville, the training received by Joseph Toumo, a lead farmer, has enabled him to implement new management options in his cocoa block and to guide a group of at least 12 farmers who regularly come together to discuss their cocoa block management. Neighbouring farmers have introduced new techniques to reduce diseases on their own blocks, based on what they have learnt from Joseph.

Sugarcane has a centre of genetic diversity in PNG and West Papua Province of Indonesia, and this germplasm is a valuable breeding resource for the sugarcane industries of the world. Pest and disease surveys have collected data from which to determine the potential threats to this germplasm as well as threats to sugar cropping industries in Indonesia, PNG and northern Australia. Much more is now known about the distribution of many fungal, bacterial and viral diseases of sugarcane as well as the distribution of insect pests in the region. Ramu stunt, a disease unique to PNG, was widespread in that country and the insect transmitting the stunt has been found throughout PNG, on most Torres Strait Islands and on the Australian mainland at Bamaga. The diseases smut and leaf scald were found to have spread east from Java towards Australia and PNG. Another concern was the discovery of unknown types of sugarcane mosaic virus in Indonesia and PNG.

Selling pest-free taro bundles at the market

The **red banded mango caterpillar** has emerged as a pest of crops in recent years, and surveys have determined that where the caterpillar has established in PNG it has caused significant loss of fruit. Control by conventional chemicals, though effective, will be difficult and likely irrelevant to local communities. Trials of various pesticides also damaged green ant populations, and it may well be that spraying in the past has killed off these ant predators and contributed to the emergence of the caterpillar as a pest. The project has succeeded in developing a potential pheromone lure that will be of long-term benefit to Australia and PNG for pest monitoring purposes, with potential for its use in a 'lure and kill' strategy.

Work continued on approaches for the management of Oribius weevils, another major pest of horticultural crops in PNG. The information gained from collections has enabled an initial systematic revision of the genus Oribius and clarified which are pest species in the highlands. Researchers have shown that even modest insecticide control can yield substantial benefits (to citrus, capsicum, cabbage, coffee, strawberry and avocado yields) – both in terms of quantity and quality—for the local farming community. Posters in English and pamphlets in Tok Pisin, helping to identify the weevils and giving details of how to limit their damage, have been produced and distributed.

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A concerted effort has been made in recent years to improve productivity in the country's cocoa, coconut and oil palm industries and to find ways in which younger people and women can participate. The schemes introduced into the **oil palm industry** have led to a significant increase in oil palm production and brought considerable benefit to participants (see associated box for more details). In studies of **magnesium deficiency** in volcanic soils, the research team now has clear evidence that magnesium is indeed a limiting nutrient on young volcanic ash soils and is well into developing an improved diagnostic system that better reflects magnesium deficiency in oil palms. Also data are becoming available that will be of great value in determining the best locations and strategies for applying magnesium fertilisers.

Work continued in the project to improve the marketing system for **fresh produce** in the highlands of PNG. There was a shift in emphasis from the physical aspects of the marketing system to the human aspects of the system—buyer-seller relationships, farmer-to-farmer relationships, the marketing skills of farmers and access of women and young people to the fresh produce marketing system. Highlights of the year included shipping trials of perishable fresh produce by air from farmer groups in the Eastern Highlands Province to a wholesaler in Port Moresby, and development of a postharvest training manual for farmers.

Researchers studying **sago contamination** assessed the impact of collection and storage techniques on the fermentation events in the sago starch. They compiled a composite flow chart of sago production, and used it along with sociological data they gathered to list critical points for minimising microbial contamination—trunk storage, pith removal, starch extraction and storage and food preparation. The major contributor to sago starch contamination during harvesting and extraction appeared to be poor quality wash water.

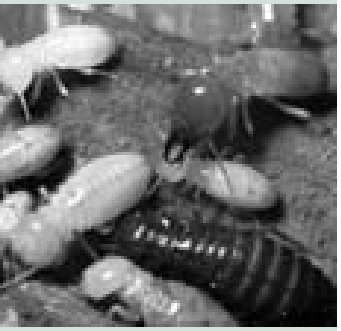
Inland aquaculture research continued at Aiyura in Eastern Highlands Province. Good progress was made in increasing the supply of fingerlings available to smallholder farmers throughout PNG. Ms Hopa Simon, one of the project's Technical Officers, determined that high mortalities of genetically improved farmed tilapia (GIFT) fingerlings during transport were largely due to use of rainwater from tanks at Aiyura. By adding tiny amounts of salt to the rainwater, or using reservoir water, mortalities dropped significantly.

The taro beetle causes major losses and ACIAR's work has led to better control methods that provide a high level of protection

Tilapia cages in Yonki Dam; fish provide a valuable source of income as well as dietary protein

Researchers have reviewed existing growth models for potential application to PNG forests

The canarium nut can be sustainably exploited for both food and medicinal purposes



Mastotermes, a termite that causes massive damage to timber structures in northern Australia, has also been found in PNG

Trials have been under way to find ways to reduce the cost of **feeding chickens** in the local broiler industry. Researchers have been trialling a concentrate feed mixed with local feed sources, like sweet potato. This is a departure from earlier trials to find entirely local feed sources for the commercial feed sector.

In **forestry**, initial studies of a range of indigenous fruit and nut species in PNG (East New Britain), Solomon Islands and Australia have led to a project to test the feasibility of domesticating and commercialising the canarium nut (*Canarium indicum*). The nut is a popular food and supply falls well below demand. Selecting cultivars that produce nuts regularly and fruit heavily will close this gap. The aim is to establish robust nursery propagation techniques suitable for community and village uptake. A more regular supply of high-quality fresh nuts can generate opportunities for smallholder farmers and underpin the development of a marketing network.

In the search for sustainable management of **timber stocks** in PNG's forests, researchers have undertaken a comprehensive review of current methods for strategic and operational forest inventories in PNG. They have also reviewed existing growth models for potential application to PNG forests. Improvements of PERSYST, a database system for the management of permanent sample plot data, will enable them to develop and maintain a high quality, reliable database of permanent sample plot data for PNG. The project has the potential to enhance the scientific understanding of stand dynamics, growth and yield, and many other issues in forest planning of tropical rainforests, both in PNG and elsewhere.

Mastotermes, a termite that causes massive damage to timber structures in northern Australia, has also been found in PNG. Attempts to eradicate infestations around Lae in the 1970s seemed successful but large nests have more recently been found around the Angau hospital and another site in Lae. ACIAR funded a study that mapped the extent of the infestations. The scientists determined that 1.4 km^2 was affected in total, far larger than the earlier infestations, but concluded that the wetness of the soil and position of some major drains seemed to impede the termites' spread. The investigators believe that the sites can be effectively treated with fipronil, a slow-acting termiticide carried by the termites through the colonies to a distance of 50 metres. Fipronil was not available during the earlier eradication attempt.

Progress has continued in establishing **science communication** proficiency in PNG. The SciCom course now has comprehensive workbooks and facilitators' guides for all modules. Accreditation of the SciCom course as the Graduate Certificate in Communication of Science and Technology through the Department of Language and Communication Studies (LCS) at Unitech is an important step towards sustainability.

Mobile card is on the move

In West New Britain, out-growers, those who independently grow oil palms outside of the company plantations and who sell fresh fruit bunches (FFBs) to companies, are an integral part of the oil palm scheme. Settlers commonly farm around 6 hectares—4 hectares planted with oil palm and 2 hectares of food gardens. In addition, village groups and individuals grow oil palms on their own customary land. Oil palm is the crop of choice, due to its robust yields and economic returns.

ACIAR funding has helped to increase women's participation in the oil palm industry in the province through the refinement of ownership and labour payment arrangements. In the Lus Frut Mama Scheme women were paid to collect fallen palm fruit that would otherwise have gone to waste. A feature of the scheme was the introduction of a 'Mama card' as 'currency' to manage payments more fairly and efficiently.

The success of this pilot scheme led researchers to extend its principles. Thus in 2002 began a trial of a new payment initiative, the Mobile Card, based on the Mama card and designed to facilitate family and caretaker labour participation and to promote mobility of hired labour between blocks by guaranteeing payment of the workers. But rather than being paid in cash by the blockholder, the worker is paid a proportion of the FFBs recorded on the Mobile Card. This payment system is now integral to the fruit payment system in New Britain Palm Oil (the largest buyer/processor) and is currently being implemented by Hargy Oil Palm, Bialla.

An ACIAR's project aimed to improve oil palms' productivity brought considerable benefit to young people in PNG

For the Mobile Card trial the researchers targeted 'problem' blocks with a history of low production and/or disruptive family conflict. The likelihood of success of the trial on such problem blocks was not great, so researchers were gratified when in many cases the Mobile Card overcame conflict and payment problems. An example of the Card's success concerns Elizabeth, a widowed leaseholder whose adult sons had moved away. After the death of her husband around 1990, Elizabeth and her young children were harassed on the block by local youths and petty thieves. She decided to leave the block and moved to an adjoining one where they were better protected. The condition of her block deteriorated, and the marketing of garden foods and betel nut became the family's primary income source.

In October 2002, when Elizabeth first employed a Mobile Card worker, her block was infested with weeds, creepers and small shrubby trees. Most of the palms planted in 1985 had not been pruned or managed for almost a decade. Production was extremely low—from January to September 2002 it was only 1.19 tonnes, an average of 0.13 tonnes per month. The employment of workers through the introduction of the Card has enabled her to bring the block back into production—by contrast, production from October 2002 to September 2003 was 32.3 tonnes, of which 57 per cent was weighed on the Mobile Card. Monthly production average rose to 2.7 tonnes. Areas that had fallen into disuse were being made ready for replanting and by August 2003 all her outstanding debt had been repaid.

For Elizabeth, the benefits of the Mobile Card have been substantial. Her monthly income has improved greatly and she now feels she has greater long-term income security and will no longer need to rely on her neighbours. Her goal, to build a permanent house on her block, is now attainable.

ACIAR Director, Peter Core with the Prime Minister of Tonga, the Hon. Dr.Feleti Vaka'uta Sevele

Pacific Island countries

Active projects in 2005–06	36
AOP budgeted expenditure in 2005–06	$2,518,000
Actual bilateral country expenditure in 2005–06	$2,158,938
Bilateral country expenditure in 2004–05	$2,105,536
Bilateral country expenditure in 2003–04	$1,721,121

Key performance indicators	Performance 2005–06
• Integration of at least two ACIAR project activities with farmer participatory research-extension activities supported under the SPC-Development of Sustainable Agriculture in the Pacific (DSAP) program	Linkages formed with active projects SFS/2003/047 (*plant protection, Solomon Islands*) and HORT/2004/063 (*Brassica IPM, Fiji and Samoa*) and in two Solomon Islands pipeline projects (CP 2005/134 and HORT/2005/077). ACIAR participated with SPC-DSAP and others to support the Pacific Regional Seminar on Participatory Agricultural Research and Extension.
• Research leading to short-term improvement of export crops emphasised in at least two projects	HORT/2003/046 (*Tonga squash*) and HORT/2004/049 (*Fiji ginger*), SFS/2001/023 (*Samoa horticulture industry development*) designed/commenced, with emphasis on quality improvement of product for export.
• Costs and benefits of alternative management approaches for migratory tuna stocks identified	Bio-economic model progressed under SFS/2001/036 (*Maximising the economic benefits to Pacific Island Nations from management of migratory tuna stocks*) with technical issues updated under the harvest function. Recommendations on balance of harvesting effects on tuna stocks re-examined.
• Chemical and biocontrol options for taro beetle successfully trialled	A combination of chemical and biological controls investigated to develop an integrated control measure in project CP/2000/044.
• Policy and technical environments for the growth of aquaculture significantly improved in at least two countries	Fiji has benefited from participation in a sub-regional seaweed marketing study. Solomon Islands, Kiribati, Vanuatu and Fiji benefited through the development of cost-effective tilapia diets derived from local ingredients. A Pearl Industry Management Plan was finalised in Kiribati to guide the development of a profitable and sustainable industry.
• Major forest health threats to Pacific plantations documented	An output of project FST/2001/045 was a major report *Forest pests in the South Pacific Region: a review of the major causal agents of tree disorders*, which documented the major threats to Pacific plantations. A further ACIAR project to establish forest pest detection systems in South Pacific countries has commenced.
• 40% of new projects designed to have significant farmer or policy-maker impacts within five years of completion	Two of the four projects designed in 2005–06 structured to have significant impacts anticipated within five years of finish date FIS/2005/108 (*freshwater prawn aquaculture*) and HORT/2004/063 (*Brassica pests and production*).

Position

ACIAR's program with the Pacific has grown in recent years, in line with Australian official development assistance priorities. Some of the factors constraining development of Pacific Island countries are small size, physical isolation, limited natural resource base and inadequate communications infrastructure. As such Pacific Islands are facing serious challenges—including widespread unemployment—that are fuelling poverty and social instability. Combined with these are deteriorating health problems, environmental challenges and rapid urbanisation. Many economies have a culture of aid or remittance dependence, with limited opportunities for commodity exports and a lack of competitiveness and market advantage for their agricultural products in an increasingly global trade environment.

Demographic factors include high population growth rates in some countries, and there are difficulties with retention of well-trained personnel. Within the main themes of the Australian Pacific Regional Aid Strategy (2004–09) and the recently released Pacific 2020 Report, both of which are designed to promote stronger broad-based growth, ACIAR's Pacific program aims particularly to provide income generation and employment opportunities and promote sustainable management of the environment. This entails securing the production of major crops and fishery products as well as encouraging potential new niche farm, fisheries and forestry products. Foreign-vessel access fees to fishing grounds within their respective exclusive economic zones provide substantial income for many countries.

ACIAR encourages the involvement of international centres in the region and supports some regional collaborations.

Achievements

The Pacific Island countries involved in ACIAR research include Fiji, Solomon Islands, Vanuatu, Kiribati, Tonga and Samoa. In many instances the Pacific countries share problems in common and research results can be adapted and applied in countries throughout the region.

ACIAR-funded research supports Australian expertise to help Pacific nations address a wide range of pests and diseases. This is exemplified in taro, after a significant outbreak of **taro leaf blight** devastated the crop in Samoa in the 1990s. Efforts were undertaken to set up a bank of blight-resistant taro varieties that could be grown instead of the susceptible varieties, but these were hampered by the presence of viruses known to be lethal to taro. A multinational research effort has made substantial progress in characterising viruses and developing reliable detection tests. The work was also an opportunity to map the entire genetic diversity of taro from Fiji, Samoa, Tonga, Niue, Palau and the Cook Islands, along with large collections from PNG, Solomon Islands, Vanuatu and New Caledonia. This knowledge bank, together with efforts in association with SPC to develop a broader diagnostic tool for the full spectrum of taro diseases, is

ACIAR is helping farmers to lift the production of yams by restoring soil fertility

Taro leaf blight can devastate crops

now enabling the transportation of high-yielding disease-free lines of taro around the region.

The **taro beetle** is another significant pest that has grown worse with the intensification of agriculture due to rising human populations. The project work to combat the beetle entailed a combination of insecticide application and biological control. In December 2005 the project team initiated some participatory farmer field trials and on-farm demonstrations. Special efforts are under way to ensure that the insecticides employed leave no undesirable residues in the plants or the environment.

In Fiji **ginger** is another significant crop under threat, in this case from soil-borne diseases, and production is declining and affecting rhizomes—the horizontal stems producing roots. Production systems rely on these for new plants. Evidence suggests that increasing the microbial diversity found in root zones of plants can ameliorate soil-borne pathogen damage, and a new project is using this knowledge to test and develop recommendations for appropriate control strategies.

In Tonga, efforts are in progress to test a range of 'soft' fungicides to **combat powdery mildew**. Work in Australia developed a powdery mildew screening procedure, using a scanning program to assess percentage severity of the disease. Six cultivars of squash screened for resistance to powdery mildew were found susceptible, with no evidence of partial resistance. This led to glasshouse trials of several fungicide treatments, and from these the most effective fungicides were selected for further testing in a field trial in late 2005.

Production of **brassica species**—mainly head cabbage, Chinese cabbage and watercress—has increased in Fiji and Samoa, but along with increased production has come an upsurge in the incidence of the pest **diamondback moth**. Integrated pest management (IPM) approaches that limit insecticide use while maintaining control of the moth are in use elsewhere, and research is now adapting successful IPM programs developed in Southeast Asia to the conditions found in Fiji and Samoa.

Yams play an important traditional role in the Pacific Island countries

Yams, a food of great traditional and ceremonial importance in Pacific island life, are being slowly replaced by cheaper foods. An ACIAR project aims to lift production and help return this vegetable to its rightful place by identifying and ameliorating some nutrient deficiencies. In Vanuatu fertiliser trials produced very little response until studies of the feeder roots revealed they had spread horizontally up to five metres and to depths around 40 cm. This led to trials that placed the fertiliser in a ring some distance from the plant, making it more available for plant growth than previously when it had been placed under the seed tuber.

A survey involving young professionals from the University of the South Pacific gathered information about **levels of contamination by animal**

manure around several villages in four collaborating countries (Fiji, Tonga, Tuvalu and Kiribati). They determined current manure management practices and cultural attitudes towards manure. The data affirmed that livestock numbers are increasing and that the pig in particular tends to be a significant contributor to water pollution in many communities. One village relocated the access point for the supply of drinking water further upstream. As well, around 20 farmers in Fiji have changed their free-range extensive system, where pigs roam free in the village and on nearby land, to a semi-intensive production system with pigs housed at all times.

The **spread of zoonoses** (diseases capable of transmission from livestock to humans) and pollution implications of increasing livestock numbers in close proximity to human populations have been the subjects of a project involving Fiji, Kiribati and PNG. Researchers focused on three diseases—*Leptospirosis, Trichinellosis* and *Angiostrongylosis*. The scientists developed a reliable serological diagnosis for the first two diseases, along with a specific test for pathogenic *Leptospira* species. The project has now been extended to initiate community education about disease transmission and how to reduce its incidence, to investigate the potential of vaccination to control bovine *leptospirosis* in commercial and smallholder cattle herds in PNG, and to undertake a survey in Kiribati for Trichinella, Leptospira and some enteric protozoa in livestock.

AusAID

Solomon Islands girl wearing pearls

Also in Kiribati, surveys of **black-lip pearl oysters** found that very few occur naturally, but the country now has a highly productive hatchery—achieving 50 per cent survival, well above the 20 per cent considered exceptional elsewhere. Some of the oysters have produced a salmon pink to bronze nacre that has real market attraction. Kiribati now has plenty of young black-lip oysters and is moving into production of full-sized spherical pearls.

Highly productive oyster hatchery in Kiribati

Assessing **groundwater resources** on Kiribati has brought together a combination of local and overseas expert knowledge on groundwater and water supply. The result is a model of the hydrology and salinity dynamics—AtollScape. A role-playing game, AtollGame has helped local officials explore different scenarios to develop equitable water management options. The study found that a 30 per cent increase in sustainable freshwater extraction was possible for the capital, South Tarawa – a significant increase in a country with less than 30 litres/capita/day of reticulated fresh water. But when allowances for El Niño-related droughts were factored in it became evident that additional groundwater sources would be needed for South Tarawa by 2010. The government has now initiated investigations for these additional sources.

In Vanuatu **native sandalwood** is harvested for valuable aromatic oils, but natural resources are declining. A project is providing vital genetic information to ensure that replanting can be undertaken with fast-growing trees that produce excellent wood and high quality oil. Island surveys have identified high-performing oil-yielding varieties in

many locations, and the project is now developing participatory tree domestication strategies to prepare the best performers for growing in plantations. Sandalwood is known as a hemi-parasite, and must grow in association with other tree species. Thus the research also involves establishing associations between the sandalwood and compatible species. Complementary research is under way in northern Australia.

In Samoa, a project is helping to boost **horticulture enterprises**. In interviews, the main issues raised by taro growers were identification of new varieties and pest and disease management without the excessive use of chemical pesticides. Papaya growers wanted more information on growing, husbandry, harvesting and grading, and would like help to identify export markets and price, while agro-processors were concerned about issues of packaging and labelling. Roadside vendors were most concerned about overnight storage of produce and maintaining its quality and shelf-life. The project team is now mapping the 'information supply chain' of each target group to identify key information sources, providers and repositories and to investigate importance of the relationships in the dissemination and use of information.

ACIAR assists poultry farmers in the identification of more nutritious feed sources aimed to increase the number of eggs produced by village hens

Efforts are also in place to help **smallholder farmers in Solomon Islands**. Pests and diseases threaten many of the country's major food root crops, and a project seeks to identify these pests and diseases and to promote sustainable cropping with fewer pesticides. Another project aims to increase the number of eggs produced by village hens, by helping village poultry farmers identify more nutritious poultry feed sources in their own gardens. As part of the project, a poultry production research facility is being established to test and identify suitable local feed resources.

The **impacts of trade liberalisation in Fiji's agriculture sector**, which is important both economically and as a food producer, are not yet fully understood. The country's ecosystem is fragile, easily converted to agricultural uses and vulnerable to climate change. A project has as its primary objective to evaluate the environmental effects of agricultural trade liberalisation, together with the agricultural production and trade effects of environmental change, in order to devise supportive policies to enhance the process of sustainable development in Fiji. So far, researchers have completed the update of the Fiji Input-Output database, developed an environmental module and collected data for the environmental analysis aspect of the project.

Southeast Asia

Financial year	Regional expenditure	Percentage of total bilateral expenditure	Board target as per centage of expenditure
2005–06	$15,885,543	51.7	>45%
2004–05	$13,030,037	46.3	>45%
2003–04	$11,103,304	43.5	50–60%

Southeast Asia is the largest of the five regions in which ACIAR conducts research activities, with nine countries involved. Indonesia is, and will remain, our largest partner, both within the region and of all partner countries. For the region, the Board and Minister have set an expenditure target of more than 45 per cent of our overall bilateral research expenditure.

Ms Chiraporn Sunpakit, ACIAR Regional Manager, Burma

Burma

Active projects in 2005–06	3
AOP budgeted expenditure in 2005–06	$60,663
Actual bilateral country expenditure in 2005–06	$208,998*
Bilateral country expenditure in 2004–05	$249,412
Bilateral country expenditure in 2003–04	$356,093

**Increased expenditure associated with extension to a key project on* Control of Newcastle disease and identification of major constraints in village chicken production systems in Burma

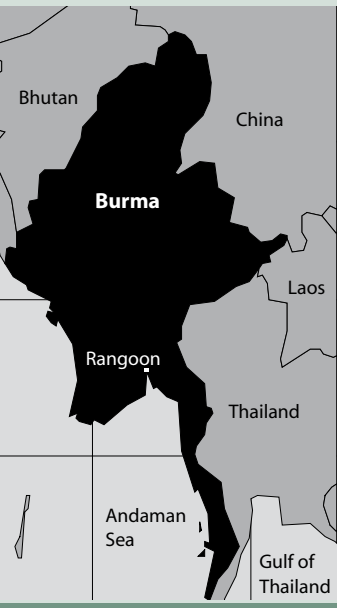
Key performance indicators	Performance 2005–06
• Farmer groups scaling out rodent management systems for rice production	A survey of the knowledge, attitudes and practices of farmers was conducted to understand how and why farmers make decisions about rodent control. Two workshops were held with farmers and extension staff which respectively generated a list of recommended rodent management practices and later assessed the results of village-level community actions. This led to high priority actions being agreed based on ecologically sensitive systems for future use.
• Widespread distribution of Newcastle disease vaccines	Approximately 50 million doses of the 'I-2' Newcastle disease vaccine have been distributed from the government-owned vaccine plant to all parts of Burma. The ACIAR-funded poultry production project has been an important tool to deliver extension advice on a wide range of issues including this infectious disease.

Position

Although there has been rather limited international development cooperation in agriculture with Burma since 1988, several trained researchers and basic facilities are present to allow effective cooperation.

Achievements

Research over several years has focused on **food security and nutrition of villagers** in Burma by addressing the major constraints to productivity of scavenging village chickens. Chicken-keeping is ranked as the country's second most important wealth producing activity after crop production, but mortality in young chicks and deaths from **Newcastle disease** have been two major constraints to chicken production in villages. These issues were addressed in a 12-month intervention study, which demonstrated a significant increase in number of birds sold after a period of six months by the group of farmers who introduced changes to their management of young chicks. The number of households consuming home-produced chicken meat also increased in this group.



There was lower mortality due to disease in the chickens of farmers using Newcastle disease vaccination, but this was offset by deaths due to other causes. A series of meetings was held to explain to farmers the production benefits of introducing chick management changes and Newcastle disease vaccination. Training in vaccine production and quality control, and the purchase of items of equipment for vaccine production laboratories facilitated the continued production of a high quality I-2 Newcastle disease vaccine in Burma. In addition, isolates of Newcastle disease virus were genetically characterised to allow better understanding of the nature of the field viruses circulating among village chickens in Burma. The project has been extended to support the achievements to date and strengthen Burmese capacity to deliver effective poultry health and production systems and respond more effectively to disease outbreaks.

Cambodia

Ms Chiraporn Sunpakit, ACIAR Regional Manager, Cambodia

Active projects in 2005–06	13
AOP budgeted expenditure in 2005–06	$1,615,000
Actual bilateral country expenditure in 2005–06	$1,435,960
Bilateral country expenditure in 2004–05	$1,212,879
Bilateral country expenditure in 2003–04	$997,832

Key performance indicators	Performance 2005–06
• Opportunities explored to link with the new AusAID rural development program approach in Cambodia	Detailed design and implementation of the program have been delayed until 2006–07 and 2007–08. However, ACIAR has been closely involved in input to and review of preliminary designs
• Better linkages established between Cambodian research and extension organisations in ACIAR projects	Formal involvement of provincial extension organisations and/or extension-oriented NGOs in many R&D projects, including ASEM 2003/007 (*CARF*), ASEM 2000/109 (*farming systems diversification*), AH/2002/099 (*Fasciolosis control*), HORT/2003/045 (*vegetable production*) and SFS/2000/007 (*rodent management*).
• Outputs of Cambodian Agricultural Research Fund projects communicated in symposia and the technical literature	Outputs communicated in national and institutional symposia, in technical publications (including *Cambodian Journal of Agriculture*) and to NGOs and extension organisations
• Improved description of land systems for diversification of crops from rice	Project LWR/2001/051 has provided and disseminated improved descriptions of land in relation to crop diversification in the provinces of Kampong Cham, Battambang and Takeo.
• Market systems for soybeans and maize characterised and improvements suggested	ASEM/2003/012 characterised market systems for soybean and maize. Suggested improvements include facilitation of credit flows (by overcoming bureaucratic obstacles to existing schemes) and setting up a special agricultural development zone.
• Program approach to assistance in horticultural R&D developed	In collaboration with the Asian Vegetable R&D Center, the Cambodian Agricultural Research and Development Institute, the Department of Agronomy and Agricultural Land Improvement and several local NGOs, the team for ACIAR project HORT/2003/045 adopted a program approach to horticultural development which utilises 'whole of supply chain' mapping, analysis, and quality improvement strategies.
• Completion of initial aquaculture feeds trials	Initial problems with project communications in Cambodia have now been addressed and progress with diet ingredient surveys and on-farm monitoring is back on schedule. An Australian Volunteer was appointed to improve communication and project monitoring.

Search for quality: CARDI research assistant Then Rothmuny oversees rice seed being planted as part of a breeding program to lift the quality of Cambodian rice

Cambodian farmer ploughing a rice field – livestock are a valuable resource for poor farmers throughout asia

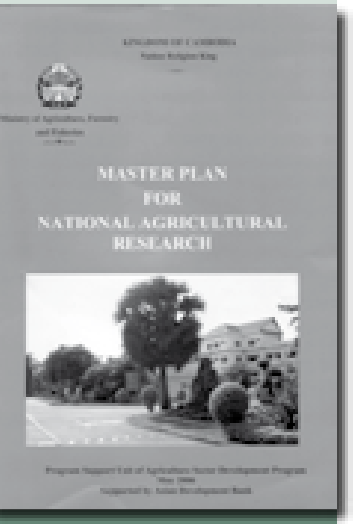
Position

Cambodia is a relatively new partner country for ACIAR. Australia has pledged to provide significant development assistance over the medium term. ACIAR has established links through several of its projects to concluding and new AusAID-supported extension, community and market development initiatives. During 2005–06 there was a consolidation of earlier research after significant increases in the ACIAR program size over the last three years.

Cambodia has a very low per capita GDP and a predominance of rice-based farming systems on infertile soils, leading to low agricultural productivity relative to both its labour force and land-area parameters. The suite of current, pipeline and completed projects targets research to improve rice productivity, assess land suitability for a second rice crop, and develop options for production and marketing of non-rice crops. ACIAR continues to support selected initiatives in animal health and production as well as fisheries. A group of Australian-trained Cambodian researchers now have skills to help them contribute significantly to the development of Cambodian agriculture. Several other donor programs in Cambodia have an agricultural and rural development focus, and where possible ACIAR establishes linkages with these programs.

Achievements

ACIAR manages and co-funds the **Cambodian Agricultural Research Fund** (CARF), established as a component of the AusAID-funded 'Cambodian Agricultural Research and Development Institute Assistance Project'. CARF was established in 2002 to provide Cambodian scientists with an opportunity to compete for agricultural research funds. In 2005, there were 20 successful project grants. The grants are for up to three years, and cover a wide range of subjects including rice production, aquaculture, pest control, minimising after-harvest damage of mangoes, reduction of rice damage due to rats and insect pests, and banana improvement. Some of the CARF projects have linkages with larger ACIAR projects.



A major thrust of ACIAR-funded research involves **opportunities for crop diversification**. In July 2005, members of the Cambodian and Australian project team visited Vietnam. Afterwards they recommended that short-duration (90 days or less) varieties of upland crops from Vietnam should be evaluated in Cambodia as a strategy to reduce the risk of crop failure due to climate variability and drought. The trip also highlighted the need to develop integrated pest management for management of weeds, disease and insect pests in upland cropping systems in both Vietnam and Cambodia. Another decision was to investigate and promote the value of reduced/zero-tillage, mulching crop residues and growing green manure crops – to improve soil sustainability, reduce the risk of crop failure and improve the income security of the farmers.

Land suitability assessment is a way of identifying **prospective areas for crop diversification**. A project has made assessments for three districts, one in each of the provinces of Battambang, Kampong Cham and Takeo. Now a one-year extension will complete land capability classification for basaltic and sandy terrain, broaden the application of the land capability classification already developed and produce land suitability assessments. As well the researchers will broaden the use of the land resources database as a Khmer resource, and study the implications of including upland soils in the Cambodian Agronomic Soil Classification System.

The second thrust relates to sustaining rice production systems. Little is known about the distribution, **prevalence or impacts of rice diseases** such as brown spot, rice blast, false smut, bakanae and kernel smut in Cambodia. Local plant pathology expertise is very limited, thus a project is training Cambodian researchers in basic plant pathology techniques. Two Cambodian scientists have visited Charles Sturt University, Wagga Wagga for training in plant pathology principles and methods specially tailored to needs of Cambodia. They also visited the Agricultural Scientific Collection Unit at Orange to spend time at the plant pathology herbarium and see demonstrations in plant bacteriology techniques. They spent time at a new plant pathology laboratory at Wagga Agricultural Institute learning the principles of laboratory design and work flow. There followed two days for planning the laboratory setup and workflow for the CARDI plant pathology laboratory.

In Kampong Cham Province researchers investigated factors affecting the adoption of the **community trap barrier system** (TBS) to control rodents. They concluded that the adoption of the technology was limited because the effort of establishing and maintaining the community TBS is only justified if rodent damage to crops is high. However, in those areas where it was justified, the number of participating farmers, and the quality of TBS construction and maintenance did not decline over the project period, indicating that the community TBS is sustainable. In another trial a group of farmers tested zinc phosphide bait (an affordable technology for rice farmers) and found that bait uptake and palatability was improved by replacing maize with rice as the bait base. They also learnt to manufacture wax block bait, which is weather-resistant and unpalatable to non-target species such as chickens and dogs. The participating farmers improved both the TBS and zinc phosphide baiting technologies, and in workshops helped to teach other farmers.

In developing a model for the **control of fasciolosis** (tropical liver fluke infection) **in cattle and buffaloes** in rice-based farming systems, researchers made significant progress in predicting the prevalence of the disease in different regions. As well a model package was developed to ensure quality extension to farmers. Now the project has been extended to ensure that the farmers actually maintain the control methods they have been taught. A survey has been carried out to assess what methods of control are still in place 6 and 12 months after the extension has finished. The survey will also ensure that any problems such as poor access to anthelmintic medication are addressed.

Harvesting rice free of diseases linked to ACIAR's project to sustain rice production systems in Cambodia

The trap barrier system to control rodents in rice crops is being adapted for Cambodian conditions

East Timor

Active projects in 2005–06	8
AOP budgeted expenditure in 2005–06	$558,000
Actual bilateral country expenditure in 2005–06	$1,870,139*
Bilateral country expenditure in 2004–05	$522,340
Bilateral country expenditure in 2003–04	$285,402

**Increased expenditure associated with a new major project with AusAID: Seeds of Life 2*

Key performance indicators	Performance 2005–06
• Implementation arrangements for scaled up 'Seeds of Life' program successfully undertaken	The implementation and commencement of the new program, involving the Ministry of Agriculture Forestry and Fisheries, in collaboration with University of Timor Lorosae and NGOs in East Timor, has been successful. Main achievements in 2005–06 have been planning for the research, planting and harvesting of a large number of on-farm demonstration trials along with the training of the new East Timorese.
• New small projects facility established to support leading agricultural researchers	Project LPS/2003/004 *Building agricultural knowledge and R&D capacity in Timor Leste: a small projects facility* designed with an initial set of three small projects involving staff from the National University and the Ministry of Agriculture, Forestry and Fisheries. Implementation delayed due to civil unrest in May–June 2006.
• Initial successful production of weed biocontrol insects in East Timor	A population of the stem gall fly *Cecidochares connexa* has been established in permanent plots in East Timor, and wider releases from this colony are planned for the 2006–07 wet season.

Position

Agriculture provides the livelihoods for over 80 per cent of East Timorese. Australia has a comparative advantage in East Timorese agriculture in several ways, including proximity, similarity of climatic systems to Australia's semi-arid and humid tropics, and relevant experience of Australian agricultural scientists in nearby regions.

Two projects—*Improved crop production through introduction, testing and distribution of improved planting material of major staple crops, and Rehabilitation of the agriculture faculty at East Timor University*—commenced in early 2001. ACIAR has built on these initial investments, and a major collaborative effort with AusAID, extending the work on planting material of major crops, is under way. New projects on Siam weed control and cassava production have commenced.

East Timor Minister Da Silva and Dr Tony Fischer, ACIAR at the launch of the new ACIAR project Seeds of Life in January 2006

Achievements

ACIAR's initial Seeds of Life (SOL) project trialled varieties of maize, groundnut, cassava, sweet potato and irrigated rice, identifying those that were better adapted to local conditions and tolerant of biotic (pests, diseases) and abiotic (drought, fertility) stresses. The project also began establishing, within the Ministry of Agriculture, Forestry and Fisheries (MAFF) a small scientific and extension base for cropping. Now

a **scaling-up project, SOL 2**, undertaken in conjunction with AusAID and implemented as a major program in MAFF, is building on the earlier work by continuing to test new lines to find those most suitable for local farming systems. Over 600 on farm demonstration trials were planted in 2005-06 and results (maize only) indicated a 50 per cent increase in farmers' yields with the improved varieties. The on-farm trials are ensuring that farmers have input into the development and adaptation of farming systems to support new varieties. This work dovetails with activities designed to strengthen seed production, storage and distribution. Medium-scale seed production is being undertaken to support dissemination, with 10 per cent of farmers in selected districts expected to receive seed by the end of the project.

Progress continued in efforts to restore the **Agriculture Faculty at the University of East Timor**. Timorese and Australians together are conducting mini-projects, involving university staff, MAFF and the NGO sector, with Australians as mentors to individual mini-projects. The project is also sponsoring an annual R&D workshop to showcase work from this project and from other donors. Much effort is going into solving some major production and marketing constraints and finding innovative ways to lift the capacity of the East Timorese through involvement in the mini projects.

Rice cleaning station run by Siledian Order

Another project also draws on findings of the earlier work in the SOL project. The project seeks to enhance the **adoption of improved cassava** production and utilisation systems in both East Timor and Indonesia, aided by the International Centre for Tropical Agriculture (CIAT) which has been involved with cassava selection and improvement for developing countries since the mid-1970s. The main barriers to farmer adoption – poor linkages between research and extension organisations – are being addressed through farmer participatory research (FPR) and extension. Farmers are already conducting some FPR variety trials on their own fields. These approaches are promoting new varieties as well as improvement to production technologies, reduced soil erosion and improved fertility maintenance. It is hoped that the farmers, seeing how well these new varieties and improved production practices perform on their own farms, will adopt them and reap the benefits of increased yields and incomes.

Land use practices in East Timor have led to the **incursion of many common tropical weeds**, the most common and problematic being *Chromolaena odorata* and Mimosa diplotricha. Biological control is the only practical solution to the problem. ACIAR is supporting, through MAFF, the introduction of the gall fly (*Cecidochares connexa*) and psyllid (*Heterpsylla spinulosa*) for this purpose given that they have been successful in controlling Chromolaena and Mimosa, respectively, in other similar tropical regions. One year after release the establishment of gall fly at the release sites ranges from very good to modest, with fire playing a major role in the persistence of the fly over the dry season. The successful sites will be used as a source of gall fly for future releases. The psyllid program has been delayed as security issues prohibited the establishment of a psyllid colony, but staff has been trained and infrastructure is in place.

ACIAR's scientist Alex Dalley is discussing with farmer Carlos the varieties of maize, cassava and sweet potato that are better adapted to local conditions

Indonesia

Active projects in 2005–06	62
AOP budgeted expenditure in 2005–06	$5,183,000
Actual bilateral country expenditure in 2004-05	$5,450,605
Bilateral country expenditure in 2004–05	$4,433,281
Bilateral country expenditure in 2003–04	$3,689,481

Mr John Murray, ACIAR Country Manager, Indonesia.

Key performance indicators	Performance 2005–06
• At least three targeted projects developed in collaboration with Indonesian government counterparts to respond to the December 2004 tsumani disaster	Three new projects designed during 2005–06 (FIS 2005/009 – *brackishwater aquaculture*; LWR 2005/118 – *restoration of annual cropping* and CP 2005/075 – *vegetable production*) to build upon four activities initiated in early 2005.
• 40% of new projects designed to have significant farmer or policy-maker impacts within five years of completion	46% of new Indonesia projects assessed by members of the In-House Review Committee are designed to have significant impacts within five years of completion (projects CP/2005/074, FIS/2005/009, CP/2005/167, AH/2004/074, AH/2004/040, SFS/2003/060).
• At least two supported projects involve Australian volunteers	Volunteers in country on a livestock project in Lombok and a vegetable production project in Central Java.
• Counterparts agree that the joint policy research project portfolio addresses issues of high priority for Indonesia	Positive feedback on existing projects. An initiative that reflects this is support for the newly established Centre for Agricultural Socio-Economics and Policy Studies to develop policy briefs based on previous ACIAR collaborative projects. Development of other initiatives slower than planned, although positive responses received on the pipeline of policy research proposals.
• Catch monitoring and assessment data systems significantly improved for fisheries of high common interest	Catch monitoring programs that were established for each of three key tuna landing ports during an earlier project (FIS/2001/079), in cooperation with Japan's Overseas Fisheries Cooperation Foundation and the Indian Ocean Fisheries Commission were effectively maintained over the last year. Joint stock assessment workshops for common interest shark and snapper fisheries have significantly improved knowledge on the status of these fisheries.

Key performance indicators	Performance 2005–06
• A significantly greater number of small shrimp farmers achieving reliable harvests through the facilitated extension of improved on-farm disease control and management practices	Significant production and economic impacts were recorded in the farmer groups who had been directly associated with successful pilot validation and demonstration ponds. A further 100 farmers in Gresik, Central Java have adopted improved husbandry and disease management practices with resultant production benefits. Broader adoption in Central Java and South Sulawesi will occur in a project that is due to start late 2006.
• Information on commercially relevant fruit fly species distributions updated and crops most significantly affected by fruit flies are identified	Information gathered using a network of fruit fly traps in ten provinces, fruit sampling analysed and a comprehensive report compiled and disseminated by Indonesian project staff.
• Extension of herd management strategies to increase Bali cattle production to additional villages in Lombok	A large extension activity was designed to build on the success of previous activities, but implementation was delated due to the changes in the scope of the AIPRD SADI program.
• Systems for ongoing production of vaccines for cattle (Jembrana) and poultry (Gumboro) diseases implemented	A new project to assist in scale-up production of Jembana disease vaccine developed, to link researchers and the GOI (currently the main purchaser of vaccine) with a commercial vaccine manufacturer. Assessment of efficacy and safety of the Gumboro vaccine completed and data finalised to allow evaluation by vaccine manufacturers. The Indonesian Directorate General of Livestock Services will soon make a decision as to where the vaccine will be manufactured.
• Gains in productivity of forest trees through breeding sustained through commencement of new work on nutrient and disease management	Two new projects addressing these issues are under way: FST/2004/058 (*Realising genetic gains in Indonesian and Australian plantations through water and nutrient management*), and FST/2003/048 (*Management of fungal root rot in plantation acacias in Indonesia*).

Position

Indonesia's proximity and strategic importance to Australia, and the large proportion of its population in poverty, mean that its status as ACIAR's largest partner (by a significant margin) will continue. A key challenge for ACIAR and its partner agencies in Indonesia is to translate their considerable research investment into practical outcomes for farming communities, agribusiness and policymakers.

ACIAR's program in Indonesia promotes economic growth of the agricultural, fisheries and forestry sectors, with R&D cooperation particularly supporting the themes of private sector development, rural productivity and human resource development. The regional balance of investment and the locations of projects within Indonesia are influenced by Australian expertise and alignment with the overall Australian aid program. Eastern Indonesia is the highest priority, although continued collaboration with research and development providers and policymakers in Java, Bali and parts of Sumatra is important. ACIAR is commissioning projects in Aceh in response to the December 2004 tsunami.

A goal for ACIAR is to strengthen linkages at the project level between the research agencies in agriculture, forestry and fisheries, and the policy/implementation directorate-generals in the same ministries where appropriate. Another significant focus is support for linkages between those institutions in Java with research capacity and the adaptive research agencies and planning authorities of eastern Indonesia and Aceh.

Achievements

ACIAR continued its commitment to helping Aceh rebuild its agriculture and fisheries after the **Boxing Day 2004 tsunami**. Program developments are described in the adjacent box.

In the horticultural sector a project is aiming to reduce the **destructive effects of fruit flies** in Indonesia with the same degree of success now emerging in Vietnam. Project staff members have conducted training on fruit fly surveillance techniques, identification to species level, field pest management and techniques for training farmers. Participants in training came from 18 provinces in Sumatera, Java and Kalimantan. Following the workshop, field staff from Department of Horticulture Protection and the Agency for Agricultural Quarantine established a trapping network in ten provinces. Major fruits and vegetables of economic importance such as mango, citrus, guava, mangosteen, chilli, tomato and gourds have also been collected to determine the infesting fruit fly species.

A lack of satisfactory disease control measures is devastating Indonesia's **banana crops**. *Fusarium* wilt fungal disease and bacterial blood disease are wiping out major production areas. Until now there has been no control for these diseases, and two ACIAR projects are endeavouring to learn more about the pathogenic organisms responsible. A major objective is to gain improved understanding of the epidemiology and biology of the two diseases. The project team has made rapid progress in implementing diagnostic technologies and this advance will enable

A major ACIAR objective is to gain improved understanding of the biology of Fusarium *wilt fungal disease which is devastating banana crops*

ACIAR is helping this region to rebuild its agriculture after the destructive effects of the tsunami

detection of specific lines of the blood disease bacterium and *Fusarium* fungus. Varieties with known tolerance or resistance to either disease have been nominated for propagation for field studies, and draft recommendations for management of banana wilt diseases have been produced by the team and communicated to the Indonesian Banana Wilt Task Force.

A project to improve soil management on **rainfed heavy clay (vertisol) soils** in Nusa Tenggara has developed alternatives to the tillage system traditionally used in Lombok, which relies on time-consuming, strenuous heavy tillage. The project demonstrated the concept of growing high-value vegetable crops on raised beds in both the wet and dry seasons, and this has inspired the introduction of high-value vegetable seed crop production on rainfed vertisols. Now 85 farmers are beginning to grow valuable vegetable crops, helped by collaboration and informal partnerships involving researchers from University of Mataram and the central government Assessment Institute for Agricultural Technology.

Bali cattle are used as draught animals and marketed for food use

In Eastern Indonesia **Bali cattle** are used as draught animals and marketed for food use. But poor use of available feed resources and a lack of understanding of opportunities to improve reproduction have significantly constrained the income from cattle. Now farmers stand to benefit from an approach designed to change the existing farming systems and enhance marketing opportunities. An 'Integrated Assessment Tool' developed by the project team is being tested with a large number of farmers. These 'demonstration farmers' are charged with providing other members of their local group with information on production. This tool helps farmers to assess their resources, plans, risk taking and other factors, and guides them to develop their own strategies to achieve their goals. This process is proving a powerful instrument for lifting farm performance.

Outbreaks of **avian influenza** in Indonesia over the past year have killed many birds and also taken human lives. The Australian Government has initiated a coordinated regional response involving the Australian Quarantine and Inspection Service, the Department of Agriculture, Fisheries and Forestry, AusAID and ACIAR. ACIAR's role is to help build the knowledge base about this newly emergent, virulent strain of the virus, and to provide training to lift the level of expertise to combat the disease in Southeast Asia. Efforts are under way to discover the susceptibility of ducks to the disease and whether they act as a reservoir to infect other animals, also how the virus is transmitted from poultry to humans (all human fatalities have had some direct linkage to birds). In Indonesia there is also a study under way to assess the real costs of controlling the disease and the implications for the wider economy.

Infectious bursal disease (known locally as Gumboro) has caused significant economic losses in small rural poultry holdings in Indonesia—

in particular, strains of very virulent infectious bursal disease viruses. ACIAR has supported research to develop an economical vaccine suitable for dispensing to farmers with small flocks. Recent trials have successfully tested several candidate vaccines. Two of these have proven safe and highly effective in protecting the flocks, with no recorded effects on growth performance and no deaths recorded.

Cage culturing of fish is a widespread practice in Indonesia

Indonesia accounts for about 15 per cent of **all tuna caught each year** in the Indian Ocean, but in recent years both the average size of fish and the numbers caught have declined. In the search for more sustainable management of the fishery, a project aims to improve and extend Indonesia's national systems and capabilities for the collection, compilation and analysis of data for Indian Ocean tuna longline fisheries. The Indonesian Research Centre of Capture Fisheries and CSIRO developed data log-sheets for the Indonesian longline situation and a database into which observers could enter all information collected. As well, a detailed survey of tuna fishing activities and data collection methods in the ports of Jayapura, Sorong, and Biak led to a Government review of tuna fisheries operating in Indonesia's eastern region. A related ACIAR project undertook a major data gathering program to learn more about the sharks and rays in the region's waters. A major project achievement was the development of a national action plan for shark and ray fisheries.

Cage culturing of **captured fish of inland reservoirs** has become a widespread practice in parts of Indonesia. While this provides a valuable income source it is increasingly at the expense of wild fisheries in the same waters. A project has determined optimal levels of caging and levels of wild stocks and developed management plans for both wild and caged fish in Cirata, Saguling and Jatiluhur reservoirs in Java. The need to modify fish farming practices if the systems are to be sustained has been discussed in stakeholder forums, and participants have expressed their willingness to accept the recommendations of the project.

Tapping into the **commercial forestry industry** could bring big benefits to small farmers in eastern Indonesia. This is the hope of the project studying the prospects for community partnerships in plantation forestry. Two case studies are under way—one in Sumbawa, West Nusa Tenggara province, the other in Bulukumba, South Sulawesi province. Researchers are ascertaining the status of existing forestry partnerships in both regions. Armed with this information they then intend to explain the nature of commercial silviculture to communities and raise options on how they could become more involved.

An ACIAR project has studied the impacts of fire for its rational use to clear land

Fire can be both friend and foe to Indonesia's subsistence farmers. They use it to clear and prepare land for the new season's crop, but wildfire can have catastrophic consequences. A project has studied the impacts of fire and its use for sustainable land and forest management in western and eastern Indonesia, as well as northern Australia. Outputs of the project include creation of fire scar and land-use/cover maps for the study regions and the development of GIS packages of information for these areas. Current patterns of burning have been analysed for the study sites, and the research team has assessed the socio-economic and biophysical causes and impacts of fires in western and eastern Indonesia.

Crop production (rice and other crops) can fluctuate markedly from season to season due to **high climate variability** associated with the El Niño Southern Oscillation (ENSO) phenomenon. Analysis of stream flow and cropping data suggests that consulting ENSO-based seasonal climate forecasts (SCF) ahead of the growing season can lift yields of irrigated rice in favourable seasons and reduce the risk of crop loss in dry years. Using IQQM (a computer simulation model developed in NSW) the project has simulated river flow, flow routings, water allocation and water use at a catchment scale for the river-irrigation system in Lombok. The Indonesian team has collected and digitised meteorological, stream-flow, cropping and other data. Model verification and configuration has progressed well in conjunction with the Australian team. Progress continues in developing programs that will optimise choice of crop for given climate, land, water, and system constraints.

A project that examined **contract farming in Indonesia** has helped clarify the role it plays in developing the agribusiness sector and also the effect of government policies on contract farming. Contract farmers undertake ventures such as raising chickens or pigs for larger enterprises. The message from the study was that the future of contract farming in Indonesia depends on improvements to factors such as banking regulation, farm credit arrangements, regulation of foreign direct investment regulations, competition policy, agricultural research and extension, export policy, together with taxation policy for multinational corporations and export firms.

Tsunami recovery assistance gains momentum

ACIAR responded quickly to the Boxing Day 2004 tsunami with ACIAR managers and Indonesian and Australian project scientists visiting the affected region several times in early 2005 to undertake surveys and determine what could be done to bring practical assistance. The three major thrusts decided upon were soil-crop interaction, aquaculture and fisheries in Aceh Province. Management of soil fertility, restoration of annual field cropping and finding ways to improve vegetable crop management were identified as the most urgent areas requiring research. As the state of soils and levels of crop productivity were well below optimum before the tsunami, the disaster has offered an opportunity to alleviate some of the damage by teaching farmers how to gain some real improvements to their farming practices.

Sea-water travelled up to seven km inland along almost 2000 km of coastline, leaving a layer of sediment of about 30 cm deep. These salt laden sediments, were a mixture of sand, clay and all else in between. The high rainfall in Aceh has helped remove much of the salt in many places, but the sediment is mostly too thick to remove. It was evident that one of the major tasks for the scientists was to attempt to return the areas to some sort of productivity by learning to grow crops in the sediment.

Thus ACIAR projects were developed to conduct an assessment of the constraints to re-establishment of crop production, and begin research to help re-establish cropping. The first project took the form of a series of scoping studies to determine the likely outcomes of farming on the sediments, with particular emphasis on sediment–soil interactions. Nutrient deficiencies were identified and addressed. A second project, to restore annual cropping, is focusing on short-term capacity-building and training, with special emphasis on getting information to farmers and involving them as much as possible in the uptake of useful technologies.

Fisheries and aquaculture enterprises were also very hard hit. For instance, Aceh's coastal fishing communities employ 16 per cent of the population and provide half of dietary protein intake through fish. The tsunami destroyed a large part of the fishing fleet and its associated infrastructure, and drastically reduced fishing earning, previously worth $225 million annually. ACIAR has funded a study of the social, economic and resource issues that constrain fisher incomes, combined with a survey of the status of fisheries, as its contribution to restoring the fishing industry and ensuring long-term sustainability of coastal communities. Evidence of unsustainable fishing practices and overfishing threatening fisheries had already been evident pre-tsunami.

The tsunami destroyed more than 20,000 hectares of brackish water ponds used for aquaculture. A project is contributing to the rehabilitation of the Regional Brackishwater Aquaculture Development Centre (RBADC) at Ujung Batee, which is the technology development and extension centre for aquaculture in northern Sumatra. As well, scientists are advising farmers on rebuilding their ponds and bringing them back into production. The scientists are also assessing medium- and longer-term needs to ensure redevelopment of the aquaculture industry is sustainable.

ACIAR is commited to help reclaim this degraded region after the Boxing Day tsunami

Ms Chiraporn Sunpakit, ACIAR Regional Manager, Laos

Laos

Active projects in 2005–06	14
AOP budgeted expenditure in 2005–06	$832,000
Actual bilateral country expenditure in 2005–06	$770,466
Bilateral country expenditure in 2004–05	$824,152
Bilateral country expenditure in 2003–04	$714,519

Key performance indicators	Performance 2005–06
• Through consultation with Lao PDR partners and international donors, continue to develop a new strategy for ACIAR's investment in Laos for the 2005–2008 period	New strategy document developed, and thrusts endorsed by ACIAR Board and key Lao PDR stakeholders during July 2006 Board visit to Laos.
• Better identification of research and extension interventions which may help to reduce the extent and impacts of shifting cultivation	Priorities for investment in agroforestry for upland communities determined and scoping study on livestock investments for these communities under way. Extension activity on scaling up of adoption of new technologies in shifting cultivation areas not yet designed.
• Scaling out of low-chill fruit production to community groups	In project CP/2001/027, *new field sites of peach, plum, nectarine and persimmon* have been established on the Plain of Jars and the Kang Pho Research Station and a fruit nursery has been established at Ponsavan. Scaling up of low-chill fruit production by community groups has commenced, particularly of nectarines which Lao consumers prefer to peaches.
• Increased recognition by local and national governments of the salinity hazards of irrigation expansion and catchment clearance	The Department of Irrigation and Suvannakhet provincial government have been briefed and now recognise the salinity hazards of expanded irrigation developments.
• Design of new forestry projects targeting improvements in smallholder timber and non-timber forest product production	A scoping study, FST/2005/180 on teak/non-timber forest products agroforestry, is complete and being used to finalise the design of a large project in Laos. A second project, aimed at improving timber processing in Laos, FST/2005/100 (*Value adding to Lao plantation timber products*) is at an advanced stage of development.

Position

ACIAR's program in the Lao People's Democratic Republic (Lao PDR) began in 1992, coinciding with the period of expansion of Australia's aid program to the Mekong countries. Distinguishing features of this landlocked country are low population density, high ethnic diversity, poor infrastructure, and geographical dispersion of people. Agriculture employs over 80 per cent of the population and forms 53 per cent of GDP.

A major emphasis of past ACIAR work has been the establishment in Vientiane of an animal diseases laboratory to service Laos. Other successes include the introduction and selection of cold- and drought-tolerant rice varieties, identification of the major rodent pests affecting rice farming, capacity-building in forestry research and agricultural extension

approaches, management of indigenous fisheries, and provision of training, including in scientific data analysis and scientific writing in English.

ACIAR recently supported a small grants scheme to enable Lao researchers to develop skills in the design and management of agricultural research projects.

Achievements

A project in Laos, Cambodia and Australia studying **rice breeding strategies** for rainfed lowlands has developed a direct-seeding technology for rice that has now been tested and adapted in Laos and Cambodia. Farmers are now adopting the technology, in association with short-season rice cultivars from previous work elsewhere. Direct sowing is an important variation of cropping practice that enables successful double cropping in the variably short rainfed season. Farmers have responded favourably to the introduction of simple plastic-dome technology, adapted from Japan, to protect seedlings from low temperatures in northern areas of Laos and enable a second in this case irrigated dry-season crop in their production system. The project has developed techniques to screen germplasm for drought resistance and low-temperature tolerance, and has identified germplasm that is 3°c more cold-tolerant than current Australian cultivars.

In collaboration with World Vision, another project has sought to facilitate farmer uptake of ACIAR project results relating to **improving crop yields** for farmers in rainfed rice-based systems in Savannakhet. The project has trained and mobilised district extension workers who have then formed farmer groups in 32 villages (involving 157 farmers), encouraging them to undertake on-farm variety/fertiliser trials. The trials have successfully demonstrated the yield advantage of improved varieties and improved fertiliser practice. Now the farmer groups have the knowledge to identify further improvements in crop management.

Development of a systems approach to **rodent management** in the Lao upland environment is proceeding well. Core project sites have been identified and established in Luang Namtha and Luang Prabang with the valuable assistance of World Vision. Focus group discussions in conjunction with a social mapping and wealth analysis exercise have given solid background data for each site. The researchers also conducted a survey of the knowledge, attitudes and practices (KAPs) of farmers from each site. Preliminary results show that 97 per cent of farmers considered rodents their main pest problem. Four key farmers identified in each village are assisting with collection of data and implementation of research activities. Trapping protocols were established to monitor the breeding activity of the main pests, with monthly samples collected from key habitats.

Disease is the major problem for pig farmers in Laos. **Classical Swine Fever** (CSF) is endemic and many outbreaks are reported annually. A

ACIAR is conducting research on Classical Swine fever vaccination in the pig production systems

project is conducting research on the implementation and impact of CSF vaccination in the village pig production systems. Development of a simple diagnostic test is now well advanced and available as an easily read immuno-magnetic bead (IMB) ELISA. Concerns remain about the routine use of locally produced vaccine in the villages to prevent CSF outbreaks, because of the relative instability of the vaccine and the difficulty of maintaining the proper storage conditions out in the provincial centres.

In a project designed to accelerate the **impacts of participatory research and extension** on shifting cultivation farming systems, researchers tested three methods of introducing potentially useful technologies to 53 villages. They held classes using photos and system sketches and undertook cross visits to villages that had already adopted the impacts, also visits to 'champion' farmers. Interviews conducted with farmers and district staff several months after the case study trials revealed that farmers found the cross visits the most effective means of gaining an informed awareness and confidence in trialling forages. Cross visits were also the preferred learning method for most farmers interviewed, because they could see the technology in use and interact with the host farmers. They could immediately apply what they had learnt due to the practical knowledge (and in many cases planting material) they had acquired.

ACIAR's researchers encourage the participation of villagers in project adoption

Philippines

Active projects in 2005–06	33
AOP budgeted expenditure in 2005–06	$2,581,000
Actual bilateral country expenditure in 2005–06	$2,829,547
Bilateral country expenditure in 2004–05	$2,295,395
Bilateral country expenditure in 2003–04	**$1,852,285**

Ms Cecilia Honrado, ACIAR Country Manager, Philippines

Key performance indicators	Key performance indicators
• Significant involvement of farmer groups and local government in participatory research and extension in ACIAR projects	ACIAR projects ASEM/2002/051, ASEM/2003/009, ASEM/2005/062, LWR/2001/003 and SMCN/2000/114 have the involvement of local government and farmer groups in participatory research and extension.
• Systematic analysis of opportunities to extend the results of past ACIAR-funded research completed	Systematic analysis completed in preparation for March 2006 ACIAR–Philippines consultation, and opportunities discussed with Philippines counterparts. New Community Agricultural Technology Program initiated to build upon past ACIAR-funded research.
• Policy papers delivered to key ministry planning groups on options for enhancing delivery of extension services in the Philippines	Project ASEM/2001/108 presented extension policy papers to forums of high-level policy-makers. The Department of Agriculture is currently undergoing a major restructuring and the outputs of the project are being considered in these deliberations, most directly via members of the project steering committee.
• Routine use of ruminant performance improvement systems by the dairy industry	An integrated pedigree/performance database for carabao and dairy buffalo was transferred to the Philippines Carabao Centre. Its staff received additional training in the operation of this database and prepared and presented a workshop relating to data collection and interpretation of 'estimated breeding values' (EBVs) for carabao and dairy buffalo raisers. A strategy for the Philippine carabao milk evaluation system has been developed and testing of the data structure commenced during 2005–06.
• Community adoption of better watershed management practices in Bohol	Government and NGO agencies in the watershed are aware of project's recommendations and have incorporated them into their planning; there is limited implementation on-the-ground. ACIAR support has three years to run.
• Initial assessment of the sustainable use of shallow groundwater for intensification of cropping in northern Luzon	Volumes of sustainable yield from shallow groundwater sources have been estimated in northern Luzon for the first time.
• Initial on-farm trials established for improved mango integrated pest and disease management approaches	Integrated mango pest management on-farm trial sites (HORT/2003/071) established on two farms in each of the provinces of Guimaras, Davao de Norte and Davao de Sur. Several on-farm trial sites were also estabished to improve control of mango pre- and post- harvest diseases using natural defence promoters, a range of 'soft' chemicals and modified plant nutrition practices.

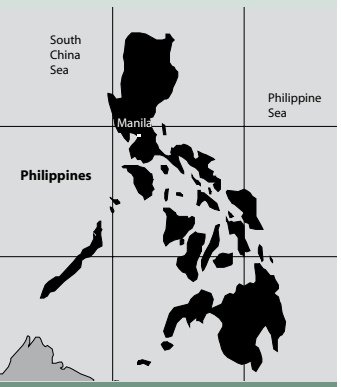
Key performance indicators	Key performance indicators
• Description of the significance of migration and/or off-farm employment on roles of women and appropriate technologies in Philippine mixed farming systems	A progress report summarising the results of a major survey on the significance of migration/off farm employment published by IRRI. It highlighted significant differences between Thailand, Vietnam and the Philippines. Differences particularly centre on migrant work options for Philippine women and in-country options in the other two countries.
• 40% of new projects designed to have significant farmer or policy-maker impacts within five years of completion	Two of three new Philippines projects assessed by members of the In-House Review Committee designed to have significant impacts within five years of completion (Projects: LWR/2004/078, ASEM/2003/053).

Position

An ACIAR–Philippines country consultation held in March 2006 established new priorities and sought to continue to invest in opportunities to enhance farmer uptake of the results of current and past ACIAR-funded projects. ACIAR and its Philippines partners have increased the emphasis on better understanding of extension processes and involving farmer and community groups in projects.

It was agreed that the overarching issue of ACIAR cooperation was to increase the productivity, marketability and international competitiveness for Philippine agricultural products, taking into account the impacts of trade liberalisation. Underlying this competitiveness is the need to improve agricultural productivity, to raise rural incomes through more effective extension of research results, and to respond to market opportunities with higher quality commodities produced at a competitive cost. There is an ongoing shift of project locations into particular provinces within Mindanao and the Visayas (along with a limited number of provinces in Luzon), while maintaining strong links to research and development expertise in Manila and Los Baños.

ACIAR and AusAID have initiated some jointly funded activities in the areas of mango pest management and postharvest technology, and have cooperated to scale up the Landcare approach to farmer-driven natural resource management. A program of small activities that link ACIAR-generated technologies with non-government organisations involved in the AusAID-funded Philippines–Australia Community Assistance Program has also been initiated.



Achievements

The Philippines program continued to support projects that develop technologies to increase farmers' productivity and incomes. There also remained a strong focus on improving market chains and facilitating market access for poorer farmers. One such project has helped to improve production efficiency, quality and marketability of the produce of **vegetable growers in Mindanao**. The box below gives details of this successful initiative.

The community based Landcare movement is helping farmers to conserve their soil, meaning that they can maintain the farming activities they know well while adopting new practices to improve their livelihoods. Researchers working with community groups achieved successes in Mindanao, and the ideas and practices of Landcare spread from Claveria in the north to Lantapan in the centre and Ned in the south. Now an ACIAR-AusAID project is strengthening the work in Mindanao and extending the outcomes to other parts of the Philippines. Adapting the criteria developed by former ACIAR John Allwright Fellow Dr Delia Catacutan to determine the best sites for promoting Landcare, the project team has identified new sites in Mindanao, Agusan del Sur and Bohol.

In another community-based project on the island of Bohol, researchers have found ways to **better manage the catchment area of the Inabanga River**. National-level management agencies, local government, NGOs and farmer groups are putting to use the knowledge gathered at both local and watershed scale about soil erosion and runoff, water quality, crop production and water management. Planned demonstration farms and learning centres, linked with ACIAR Landcare activities within Bohol, are anticipated to further strengthen soil and water management.

ACIAR-funded researchers have found ways to manage the catchment area of the Inabanga River

A project to enhance agricultural production by sustainable **use of shallow groundwater** has focused on two pilot sites within neighbouring municipalities of the province of Ilocos Norte in the north-western tip of Luzon. Researchers have now assessed groundwater supply and demand at these two sites and measured water quality. Topographic surveys of the study area have been completed, and the locations of all existing shallow tube wells and dug wells have been mapped. Extensive monitoring equipment is in place to establish the volume of fresh water within the aquifers, assess groundwater recharge and determine sustainable levels of groundwater use. The project team is also studying the problems of saline intrusion into the aquifers. As well, a socioeconomic survey involving around 120 respondents has been undertaken; the survey also provided information about the areas currently planted to various crops. A soil survey of the region, now complete, will assist in defining land suitability for expansion of current areas of cropping.

Another project aims to ensure a more secure financial future for existing and intending **smallholder tree farmers in the Visayas**. Smallholders had been encouraged to enter the industry and planted trees 8–10 years earlier, but they were now discouraged by the lack of markets or, if a market was found, by very low prices. Paradoxically, saw millers claimed they could not get supplies. Project strategy is to assist the Department of Environment and Natural Resources (DENR) to streamline tree registration and log transport, to assist smallholder tree growers to satisfy market requirements and improve productivity, and to identify and promote livelihood systems and policies for forestry enterprises more attuned to smallholders. Already a project-published manual on tree registration, harvesting, transport and marketing policies in private lands has been officially endorsed by DENR and is being widely distributed. The project

An ACIAR project is under way to exploit the potential of bamboo

Land management

is helping to improve the silvicultural skills of farmers. Tours have taken farmers to demonstration sites to learn more of the key information about silviculture. Another initiative is a pilot program testing cost-effective ways to link buyers and sellers of timber.

Work is under way to harness the **potential of bamboo** by optimising its cultivation and the management of plantings to produce more shoots (used in Asian cooking) and stronger poles (an excellent timber substitute for construction). There is also a need to find new uses for this versatile plant. Project scientists have spent the past four years working with farmers in Mindanao to rejuvenate old and abandoned plantations while testing an extensive range of techniques for optimising productivity and maintenance. Results indicate that the quality of bamboo culms and shoot harvests can be significantly improved. The project has facilitated establishment of businesses using project-grown bamboo to make floor tiles.

The reliance of rice farming on **herbicides to control weeds** has resulted in herbicide resistance building up in some weed species. An ACIAR project introduced an integrated weed management package to lower herbicide applications. Trials in farmers' fields have been so successful that the project has had difficulty maintaining controls—the farmers, having seen the benefit, want to treat all fields in the same way. Researchers therefore established comparison trials in fields outside the project area—these can be compared with the project controls as a way of detecting when management practices digress from the project schedule.

The **mango industry** in the Philippines is affected by numerous pests. Control measures to date have been largely unsuccessful, and unregulated use of pesticides has affected the mango export industry. A project with funding from ACIAR and AusAID is testing integrated field management practices, including improved monitoring, control and detection of pests and introduction of integrated pest management regimes. A survey is collecting information on farmers' practice and proposed management intervention at pre-bearing stage. Data are also being obtained on yield and production costs. When it was realised that those monitoring the pests needed help to perform the task effectively, the team undertook to develop a pest monitoring kit.

The project will contribute expertise to investigate the problems caused by two destructive pests, mango pulp weevil and seed weevil, and to test control strategies using chemical and particle films. As well, poor packaging and handling practices have been identified as major causes of quality loss in mangoes. Changing practices requires some parts of the industry to adopt significant changes, and the project is developing strategies to facilitate this process.

Papaya ringspot virus (PRSV) has caused large papaya production losses in the Philippines and elsewhere in Asia. There is no inherent

resistance known in cultivated crops and research efforts over the past decade have attempted to introduce resistance from related species. This has been achieved, and further work is now attempting to produce commercially useful resistant lines by backcrossing the interspecies lines with known high-yielding cultivars. One backcrossed line, the first conventionally bred PRSV-resistant backcross in the Philippines, is considered a significant breakthrough.

In the Philippines infestations of **bacterial wilt** on vegetable crops were so bad that farmers resorted to bleach and cement to combat them. An ACIAR project has determined that the **biofumigation** properties of brassica species (isothiocyanate chemicals released as the plants decompose) help to suppress outbreaks. There are many different brassicas, and varieties differ considerably in the level of disease-suppressing chemicals they produce. The project has identified some of the standout performers, and also determined the most effective means of extracting the chemicals from the plant. The most promising treatments (using radish, mustard and broccoli) have reduced bacterial wilt by 50–60 per cent. This approach is now being utilised more widely with Mindanao farmers who are participants in the Landcare program.

ACIAR is helping poor growers to improve the market chain including transport difficulties from farm to trading post

Improving farmer access to markets

Farmers growing vegetables on the slopes of Mount Apo near Davao in Southern Mindanao struggled to receive a fair price for their produce. Their efforts to make a living from their enterprises were hampered by weaknesses in the supply chain that included transportation difficulties and high postharvest losses. A project involving Curtin University of Technology in Western Australia in partnership with the University of the Philippines in Mindanao set out to improve the efficiency and quality of the supply chain, undertaking rapid appraisal, analysing case studies and recording personal interviews with farmers, rural traders, wholesalers and retailers.

The team conducted research and extension activities along the entire supply chain, from investigating the soils to consumer preferences, and also determined the institutional changes needed to ensure the new approaches would be successful. They found that farmers were unlikely to improve their incomes by just focusing on the highly competitive 'wet' markets, as these markets did not provide sufficient premium for quality. They also recognised that cooperatives were unlikely to be competitive in supplying the wet market because the existing system was working efficiently. The research team initiated trials designed to develop long-term buyer–seller relationships that would improve the efficiency of the supply chain and assist the flow of timely market information.

A key component of the project was the encouragement and support it provided to farmer groups and cooperatives. The results can be seen in the improved operations of the Vegetable Industry Council of Southern Mindanao (VICSMIN), the KALIDECO Cooperative (which at the beginning of the project was the only remaining cooperative in the district and on the verge of collapse) and the establishment of Maharlika Farmer's Cooperative and Kapatagan Upland Farmers' Development Cooperative.

'The positive impacts of the project are apparent at both the farm-household, institutional and community levels,' says Australian project leader Dr Roy Murray-Prior. 'Farm households are changing their agronomic and marketing practices because they realise this is the way to lift incomes.'

The good news is that farmers who were members of cooperatives or participated in workshops now have higher incomes than the farmers without direct involvement in the project. Maharlika Cooperative has lifted prices paid to farmers and improved their growing practices. Farmers involved have also learnt about better pest control and soil testing.

ACIAR is helping vegetable growers improve their access to markets

Thailand

Ms Chiraporn Sunpakit, ACIAR Regional Manager, Thailand

Active projects in 2005–06	19
AOP budgeted expenditure in 2005–06	$375,000
Actual bilateral country expenditure in 2005–06	$501,180
Bilateral country expenditure in 2004–05	$522,291
Bilateral country expenditure in 2003–04	$1,102,630

Key performance indicators	Performance 2005–06
• Improved implementation and measurement of results of earlier ACIAR projects	Not achieved. However, funding has now been received from the Australia-Thailand Institute to conduct a joint forum on this subject in October–November 2006.
• NGOs building on ACIAR-funded pilot projects using their own resources; & • Evidence of increased farmer involvement in projects on soil fertility management, crop production and fisheries	The main mechanism has been through World Vision and its partners continuing to invest their own resources in scaling up the pilot activities supported by ACIAR. This, together with farmers investing their own time and resources has led to increased farmer involvement. Khon Kaen University has also been active with a number of farmer groups in scaling up earlier ACIAR work on soil fertility management.
• Policy briefs on technical changes resulting from research interventions used for planning by Thai research managers	Dissemination workshops held with government research managers of the impacts on poverty of technology change, as a component for setting priorities on the basis of research impacts. Policy analysis from ACIAR-funded Sanitary and Phytosanitary project was utilised by several Thai food companies; it is important in managing standards to assist them in international arrangements for accessing overseas markets.
• Acceptance by government departments responsible for pollution control of recommendations on maximum concentrations of key heavy metals in soils and crops	Government agency in Thailand has incorporated standards developed by the ACIAR project for maximum concentrations of key heavy metals in both soils and crops.

Position

Thailand was an early and large ACIAR collaborator, but as its own economic and research capacity has increased, its involvement in ACIAR projects has diminished. Successful outcomes include techniques to ensure longer shelf life that have enabled the expansion of tropical fruit exports, the development of cooler climate fruits for the hilly regions of northern Thailand, and fruit fly identification and control. New fish feed made from cheap, locally available ingredients has helped thousands of Thai fish farmers. A substantial investment in diagnosis and control of foot-and-mouth disease has made Thailand the accepted regional centre of expertise in Southeast Asia. The use of software developed under ACIAR support to assist in selection in cattle breeding programs has been recognised through national awards. Over 10,000 hectares of suitable fast-growing Australian trees are planted each year as a result of ACIAR-funded research.

Australian investment in projects will continue to decrease and ACIAR has adopted a highly selective approach to project investment, seeking

to focus on implementation of earlier ACIAR project results. This includes research and trade policy and how it can ultimately benefit very poor farming communities. In some cases there are spillovers that bring less developed countries the benefits of research outcomes arising from development experiences in Thailand.

Achievements

Legumes are commonly used in farming systems to improve soil fertility, yet in some instances their use with inappropriate management practices has led to problems **of soil acidity and nutrient depletion**. This was the situation near Khon Kaen in Thailand where *Stylosanthes* has been introduced into pasture production systems. A project has demonstrated that heavy applications of amendments such as termite mound material and bentonite can reduce acidity and restore fertility to the area's degraded sandy soils.

Fisheries in the Mekong River Basin are under threat from development taking place in the region. Better management of fish stocks is needed, but the complexity and diversity of approximately 1700 species require management based around discrete groups. A project is using molecular genetic techniques to identify gene pools and hence discrete groups within the various species. Four member countries of the Mekong River Commission MRC (Vietnam, Cambodia, Laos PDR and Thailand) have provided samples for genetic analysis at the Queensland University of Technology. As well, workshops are extending information to member countries on the conceptual basis of population genetic approaches to fish stock identification. Researchers now understand patterns of genetic variation in the Mekong basin for one of the target species (*Henichorynchus siamensis*), and analyses are now complete for all *Henichorynchus* spp. samples except those collected in Lao PDR.

ACIAR has helped farmers from the hilly regions of northern Thailand to expand their fruit exports

During the past decade, recurrent disease outbreaks, particularly viral diseases, have caused catastrophic losses in **farmed marine shrimp** throughout the Asia-Pacific region. Many smallholders, who comprise the vast majority of shrimp farmers in Asia, have suffered significant hardship and incurred heavy debts—often leading to abandonment of the farm. Researchers involved with intensive pond production systems in Thailand and Australia (as well as semi-intensive systems in Indonesia and extensive in India) have sought to develop and validate farm-level disease control programs for smallholders. All countries have cooperated to produce a pool of best management practices from which each partner can then formulate an adaptation best suited to its own situation. Significant gains in terms of increased successes, production and profitability were recorded for groups associated with successful validation and demonstration ponds. Other significant impacts were in improved food safety and certification.

A **new disease** of *Penaeus monodon* shrimp production in Thailand, termed 'monodon slow growth syndrome' (MSGS), has led to losses in

2004 estimated around 40 million baht. Work at Centex Shrimp in Thailand has suggested that the disease is infectious. Examination of shrimp with signs of the disease has identified three infectious agents – a yellow head virus genotype, a new shrimp virus (named Laem Singh virus) and a microsporidium protozoan. Further work is under way to determine which, if any, of these agents is the primary cause of MSGS.

Earlier research to improve **hatchery and grow-out technology** for marine finfish in the Asia-Pacific region made substantial improvements to the sustainability of the region's marine finfish aquaculture. Further research has focused on improving survival of hatchery-reared high-value marine finfish larvae, and increasing the reliability of hatchery production. The Thai-based Asia-Pacific Marine Finfish Aquaculture Network has been strengthened and it is now undertaking or coordinating a broad range of research, extension and communication activities.

Thailand is one of five countries (the others are Australia, Malaysia, Philippines and Vietnam) involved in a project to **conserve the genetic resources of selected tropical fruits** and related species by developing new conservation methods and regeneration strategies. IPGRI is the regional project coordinator. Scientists in each country have focused on two or three species of major economic importance (examples are *Citrus* species, litchi, longan, mango, papaya and persimmon) and also studied the wild relatives of these species. Significant advances were made for papaya, citrus and mango but, given the number of species involved across five countries, making substantial gains will only occur in the long term.

Scientists studied watersheds at Mae Chaem (northern Thailand) and Sumber jaya (Lampung, Indonesia) to determine how current **trends in land-use are affecting water quantity and sediment load in rivers**, then using this data to project future trends. They use participatory resource mapping and dynamic modelling at plot scale to establish water and sediment flows. Then they test soil and water movement in landscape mosaics at catchment scale, establishing trade-off between watershed functions and profitability of land use for current and future purposes. They have undertaken the work using the 'catchment modelling toolkit' developed within the Cooperative Research Centre for Catchment Hydrology. In the Mae Chaem catchment a study of riparian (riverbank) vegetation has given scientists the ability to delineate the 'hot spot' areas of sediment delivery.

ACIAR is funding a project to test soil and water movement

Ms Misha Coleman, ACIAR Country Manager, Vietnam

Vietnam

Active projects in 2005–06	44
AOP budgeted expenditure in 2005–06	$3,042,000
Actual bilateral country expenditure in 2005–06	$2,818,648
Bilateral country expenditure in 2004–05	$2,983,069
Bilateral country expenditure in 2003–04	**$2,069,638**

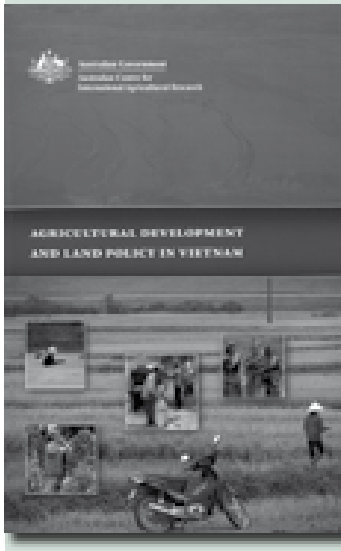
Key performance indicators	Performance 2005–06
• Linkages between ACIAR-funded research and AusAID-funded development established in at least four Collaboration for Agriculture and Rural Development (CARD) projects	Seven CARD projects approved in the 2005 round directly build on current (or recent) ACIAR projects – project 002 (*aquaculture*), 013 (*cocoa*), 014 (*mud crabs*), 025 (*agricultural economics capacity building*), 016 (*rice postharvest technology*), 029 (*weaver ants*) and 032 (*acacia plantations*).
• More efficient project approval procedures negotiated with Vietnamese partners	New approval processes have been successfully negotiated with our Vietnamese partners. However, they have not yet been tested in practice .
• NGO linkages established in at least one additional project	ACIAR is providing additional support to the World Vision Area Development Plan in Dong Giang District (Quang Nam Province) to improve the capacity of extension staff and local people in applying suitable technologies to improve cattle productivity.
• Initial trials on low-cost pig feeds completed	Project schedule required revision to take account of the serious illness of the Australian project leader and the diversion of the Vietnamese personnel to support work on the avian influenza outbreak.
• Acceptance by government standards agencies of recommendations on maximum concentrations of key heavy metals in soils and crops	Government agencies in Vietnam (through formal decree) have incorporated the project's standards for maximum concentrations of key heavy metals in both soils and plants.
• Trials on appropriate aquaculture species combinations for production in reservoirs completed and outcomes from the economics and fisheries technical projects shared	Knowledge of the best-practice approach to culture-based fisheries in Vietnam, including optimal harvesting strategies and marketing chains to assist farmers to obtain the maximum returns have been developed and actively disseminated to other provinces in North Vietnam, through workshops aimed at farming communities. The Government of Vietnam adopted a new policy which includes incorporation of reservoir fisheries as a strategy to increase food production and income levels of fishers and farmers. They also increased research funding for reservoir fisheries. Linkage and sharing across the technical and economics projects are effective and ongoing.
• Market information systems established for at least one commodity	The market information systems for three fruits (plum, longan, chayote) were analysed in detail and information systems established through the Government of Vietnam Centre for Information and Policy Studies in Agricultural R&D.
• 40% of new projects designed to have significant farmer or policy-maker impacts within five years of completion	Two new projects out of five have been deemed to have this category of impacts: AH/2004/040 *The epidemiology, pathogenesis and control of highly pathogenic avian influenza (HPAI) in ducks* and CP/2005/053 *Diagnostics manual for crop diseases*.

Position

ACIAR's involvement in Vietnam commenced in 1993, and has led to a significant program. Training remains important, but has moved from a predominant emphasis on capacity-building to focus on practical farmer and policy impact.

Some successes include improvements to rice–shrimp farming, integration of mangrove forestry and shrimp production, improvements to inland pond and small reservoir culture fisheries, introduction and dissemination of improved pig breeds and non-chemical rodent control in rice crops. Other developments include planting of fast-growing acacias, introduction of improved leucaena as animal fodder, better irrigation management, improved soil fertility management and better control of citrus pests. While most of ACIAR's program has historically been based in greater Ho Chi Minh City or Hanoi (due to the location of research institutes and policy-makers and the national relevance of much of the portfolio), the 2004 country consultation agreed to increase emphasis towards central Vietnam, particularly central coastal regions. Significant effort has therefore gone into establishing new projects both in the central highlands and lowlands.

ACIAR is encouraging greater involvement of the private sector and NGOs in projects, linkages with other R&D activities and donors, and development of closer ties with Vietnamese research and extension organisations. It is already working well with AusAID-funded programs (Collaboration for Agriculture and Rural Development (CARD) and the Quang Ngai Rural Development program).



Achievements

ACIAR has paid particular attention to **agricultural policy development** in Vietnam. One project aimed to develop economic models suitable for analysing agricultural policy reforms to enable assessment of the impacts of alternative agricultural policies. Training and capacity-building have been a major focus of the project, and have provided many academics and government officials with new perspectives on quantitative policy analysis, enhanced computer skills and upgraded analytical capacities. A substantial amount of the training course material on quantitative policy analysis was translated into Vietnamese. A monograph on agricultural development and land policy has been produced by ACIAR and is being translated into Vietnamese.

Animal health has been an ongoing focus in Southeast Asia. In the past year there has been mounting concern about the outbreaks of **avian influenza** in the region, and ACIAR has responded to this with a new project involving both Vietnam and Indonesia. Control of the disease in poultry is hampered by the lack of understanding of ducks as transmitters of the virus to chickens and to humans, and a newly commissioned project aims to determine the epidemiological and transmission characteristics for avian flu virus in intensive and smallholder duck

ACIAR supported research on reservoir fishery development and management with a positive impact on farmers

production systems. Project results will aid the development of national vaccination campaigns in both countries.

ACIAR-supported research on **reservoir fishery** development and management in Vietnam's northern mid-highland region has led to further research on farmer-managed reservoirs, seeking to develop the best management practices. Researchers have undertaken a comparison to determine the economics of raising fish fry to fingerlings in cages versus ponds, and also surveyed four reservoirs to determine whether there are previously unrecognised fish species suitable for culture. The most significant outcome is a policy adoption by the Government of Vietnam, which includes the incorporation of reservoir fisheries as a strategy to increase fish food production and increase income levels of fishers and farmers. Authorities plan to lift reservoir production from the current 20,000 tonnes to around 250,000 tonnes by 2010.

Significant progress was made in collecting data on the supply, cost and variability in a range of **raw materials for feeding fish** in northern and southern Vietnam and Cambodia. Similar surveys have also been completed on the nature of Pangasius catfish farming practices in each of the regions. In addition to this, methods for determining the nutritional value of a range of raw materials when fed to catfish have now been developed. This included a focus on the assessment of the nutritional value of rice bran and the local bait-fish supplies. Studies have been completed in both northern and southern Vietnam on the determination of energy demand by the catfish. This will be used in the coming year to complete a bio-energetic model that will enable prediction of feed design and feed management strategies for the fast-growing catfish industry.

The small **temperate fruit industry** in the northern Vietnamese uplands is being helped to lift its productivity and profitability through improved postharvest fruit handling and effective disease controls. Researchers are identifying postharvest disease problems associated with production and distribution practices while improving the knowledge and skills of orchardists. See the adjacent box for the full story. Funding from ACIAR has helped the development of a highly successful **fruit fly control** technology, using spent brewery waste as an attractant. Foster's Vietnam is a collaborating partner in the commercialisation of this product, along with a Vietnamese pesticide distribution company. A partnership agreement was formalised in May 2006 at Foster's Tien Giang Brewery. The brewery will provide 50,000 litres of protein bait each year which, diluted with water and with the addition of a tiny amount of insecticide, can increase farmer yields of undamaged fruit by 400 per cent.

Farmers' party to celebrate the successful fruit fly control technolgy that will increase farmers' yields of undamaged fruit by 400 per cent

In both Vietnam and Thailand, treatment of orchards with **weaver ants** along with application of environmentally friendly soft chemicals (WPS) gave similar or higher yield and quality of fruit to those where chemical insecticides were used. Although weaver ants have a mutual relationship

with scales and mealy bugs, soft chemicals (safe for weaver ants) such as white oil and neem oil were effective in reducing the populations of these pests. To stabilise weaver ant populations in mango orchards, it was essential to isolate the ant colonies, transplant colonies with queens and mix mango trees with other tree crops such as citrus. If mango orchards are monocultured, extra ant food must be provided when trees are in dormancy. Two types of integrated pest management, for both organic and conventional growers, have been successfully developed for mango growers in Vietnam, Thailand and Australia.

In a study of **upland soils**, researchers have determined that in some instances greater productivity can be attained by increasing the soil water-holding capacity rather than by supplying extra nutrients. They also concluded that soil management regimes may need to be tailored to different soil types. Detection of soils with minimal surface charge, similar to some in tropical Australia, presents a challenge to nutrient management because they do not retain cation and anion nutrients for plant growth.

There are many contaminants in agricultural inputs such as fertilisers, manures, composts and pesticides. In Vietnam laboratory facilities at the University of Agriculture and Forestry have been updated for the study of **soil and crop contamination**, with help from Australian laboratory staff. The project now has a database of background concentrations of toxic metals in Vietnamese agricultural soils and identified critical concentrations of heavy metals and metalloids in subtropical and tropical soils with regard to toxicity and transfers in the food chain. These new scientific criteria and guidelines will help to rank wastes as suitable or unsuitable for use in peri-urban agricultural systems.

In the search for more profitable **beef production** a project is linking with the AusAID Quang Ngai Rural Development Program to provide better feeding options for cattle owned by farmers associated with the program. Researchers have assembled information on the availability and quality of local feeds and are now commencing animal house experiments. The project includes social science studies being undertaken by Hue University.

ACIAR has had a long-term commitment to improving the value of plantation-grown eucalypts in Vietnam and elsewhere. Problems such as splitting of logs during processing, which limit their use as sawn timber, are being addressed through two new projects. The first aims for improvements through better genetic selection and silvicultural practices; the second seeks a better product through changes in the sawing and drying processes.

Vietnam is a beneficiary of long-term ACIAR-funded research into **clonal propagation of coconuts**. At the Oil Plant Institute (OPI) the success rate of acclimatisation of coconut plantlets in the nursery is an impressive 80

Vietnamese boy at a durian market in the Mekong Delta, south of Ho Chi Minh City

Mud crab aquaculture is a growing industry

per cent and the survival rate on the field is 100 per cent of the planted seedlings (previously it was zero). From this dramatically improved situation 1.4 hectares of Makapuno and aromatic seedlings, derived through embryo culture, have now been established in the field at OPI's Trang Bang Station, and there are sufficient embryo-derived seedlings to enlarge this field planting area to 4.5 hectares. These plantings will form the basis of supply to farmers, helping to greatly lift their farm productivity.

Orchards at Lao Cai increase their harvest

'Of course I will get fewer plums when I participate in the project and let them cut my trees, but I agreed because I hope that it will improve their quality,' said Sen Van Cuong, a member of the Nung ethnic minority in Bac Ha district of Vietnam's Lao Cai Province. Cuong and his family are participating in an ACIAR-funded project involving the Ministry of Agriculture and Rural Development (MARD), NSW Department of Primary Industries and Qld Department of Primary Industries and Fisheries.

The region is known for its Tam Hoa plums. The farmers are learning that they can improve the productivity and profitability of their trees by radically changing how they are pruned and managed. Heavily pruned trees quickly regenerate to produce fresh, young fruiting wood, which in turn reduces numbers of fruit produced per tree and results in larger fruit of better quality. Previously, these trees produced 30–40 small, low value plums per kg; as a result of this project, in the future, the trees should produce about 15–20 large, high value plums per kg.

Another project objective is to establish orchards that showcase newly introduced cultivars and demonstrate the benefits of pruning, pest control, fertiliser use and irrigation. After observing results in demonstration trials the farmers are willing to try the new methods.

'This project is training farmers to grow trees that yield at different times so the farmers can harvest plums in different seasons,' says Dang Vu Thi Thanh of MARD's National Institute of Plant Protection. 'In the past farmers had to tolerate low prices because their fruit ripened all at once, and had to be sold when prices were low. When farmers sell in the main season they receive only about VND500–1000, but if their fruit can ripen two weeks later they can receive up to VND4000 per kg.'

The orchard farmers in Bac Ha district are being taught to prune their trees, to apply the fertiliser and water them at the right time in order to improve the quality of the plums. About 2000 households stand to benefit from these improvements. To assist the industry, the Lao Cai Province is planning to set up processing facilities, including a cannery.

Funding from ACIAR has helped Vietnam to develop a high successful technology to control the fruit fly and assist farmers with a sustainable production

North Asia

Financial year	Regional expenditure	Per centage of total bilateral expenditure	Board target as per centage of expenditure
2005–06	$3,857,431	12.5	<15%
2004–05	$4,233,310	15.1	<15%
2003–04	$4,616,136	18.1	10-20%

ACIAR's program in North Asia concentrates on China and where appropriate, small program targeting food security in the Democratic Peoples' Republic of Korea. For the region, the Board and Minister have set an expenditure target of less than 15 per cent of our overall bilateral research expenditure.

Ms Catriona Murray
ACIAR Country Manager, China

China

Active projects in 2005–06	34
AOP budgeted expenditure in 2005–06	$3,684,000
Actual bilateral country expenditure in 2005–06	$3,733,227
Bilateral country expenditure in 2004–05	$3,926,454
Bilateral country expenditure in 2003–04	**$4,231,678**

Key performance indicators	Performance 2005–06
• Significant co-investment by Chinese partners in all new projects	Chinese investment in ACIAR projects is substantial, and exceeds the investment by ACIAR in some projects, but there is no evidence that there has been a change since this KPI was introduced.
• New priorities for cooperation agreed at 2005 China–ACIAR country consultation	A large, formal consultation meeting was not held in 2005–06. Instead it was agreed that priorities for the ACIAR program be discussed in individual meetings between senior ACIAR staff and senior representatives of Chinese Ministries (including the Chinese member of the ACIAR Policy Advisory Council).
• Closer integration between teams working on ACIAR-funded projects with CGIAR centres (multilateral projects) and bilateral projects	A workshop to formalise linkages between multilateral and bilateral natural resource management projects held with Chinese, CGIAR and Australian teams in September 2005. Seven ACIAR projects and three CGIAR centres participated, and a comprehensive overview of ACIAR's work on water in China has been published.
• Policy options for improved allocation and management of water from the Yellow River communicated to and acknowledged by senior decision-makers	Policy options for improved allocation and management of water developed and communicated to senior decision-makers, with a number of combined workshops involving other ACIAR projects, donors and international agencies. Value of this work recognised as it directly led to initiatives funded through AusAID and USDA.
• Further adoption of alternative irrigation methods to reduce water use by rice growers in eastern China	Adoption of alternative wetting and drying water saving irrigation for rice growing is continuing at Zhanghe, Hubei province. Where water supplies to the irrigation system have been further reduced farmers have been able to maintain rice production by further expanding the area using alternative wetting and drying irrigation techniques
• Initial assessment of regional impacts of revegetation on water resources of the Loess Plateau completed	A program of on-farm research to compare conservation tillage (stubble retention and no-tillage) with conventional farmer practice begun in 2005 at Dingxi and Xifeng. However it is too early to assess success of conservation tillage as trial results have not been completely assessed.
• Initial trials on double cereal–legume cropping feasibility completed in relevant parts of the Tibet Autonomous Region	The results from the initial trials indicate that it is technically possible to introduce a legume in the existing cropping system in Tibet without impacting on the yield of the existing cereal crops. More detailed trials are planned to optimise the system and quantify the potential benefits.
• 40% of new projects designed to have significant farmer or policy-maker impacts within five years of completion	Of the five projects designed or commenced in 2005–06, three (LWR/2002/094 – *raised cropping beds* and FST/1999/095 and FST/2001/021 – *wood products*) were assessed as being designed for significant impacts within five years of completion.

Position

ACIAR has funded and managed a program with China since 1984. Major areas of research support have included management of water for agriculture, selection of Australian trees suited to Chinese forestry, improvements through integrated pest management in brassica crops, studies of livestock production and diseases with a focus on sheep and wool, quality management in stored grains and citrus improvement. Adoption of conservation tillage in some central western provinces has been recognised as part of the solution to improve crop management and reduce wind-blown dust in Beijing. Reduced use of excessive nitrogen fertilisers has been widely adopted in the North China Plain, with financial savings to farmers and reduced risk of nitrate contamination of groundwater.

ACIAR's objective is to raise farmers' income from research studies on rice production

The focus of ACIAR's program has shifted towards western China. Important issues are the need to raise farmers' incomes, better management of scarce water resources, producing better quality agricultural products, and uptake of opportunities arising from previous research. In view of the significant human and financial resources available within the Chinese national agricultural research system and the strong mutual benefits to Australia, ACIAR requires that projects have significant sharing of costs with Chinese and Australian research providers. Projects chosen must address the highest priority of Chinese partners and also embody an emphasis on poverty reduction in western China through institutional reform and environmentally sustainable rural development.

ACIAR also funds small investments that foster collaborative linkages between activities primarily funded from other Australian and Chinese sources. In 2005–06 the program also continued to emphasise benefits for resource-poor farmers in the Tibet Autonomous Region, based on a suite of four activities initiated in 2003–2004.

Achievements

A comprehensive study has been under way to understand the implications of **China's accession to the World Trade Organization (WTO)** in terms of the country's food security. More is now understood about the Chinese economy following the development of a general equilibrium model that separates the economy into regional dimensions based on the 44-sector input–output tables of 28 provinces. The model aggregated this information into three regions – eastern, central and western – and could distinguish between rural and urban households.

While China's incomes have grown over the past decade, much of this increase has been focused on eastern China. There are growing income disparities between the eastern coastal region and the other parts of China which is accelerating the rate of labour migration out of agriculture. These broad shifts underpinning the economic transformation of China are issues for policy makers in that country.

ACIAR is helping the Chinese government to convert cropland to forests. Land degradation puts the future of agricultural production at risk

Chinese scientists are working in a collaborative ACIAR funded-project on water quality and alternative water allocations

China is poorly resourced with water, and this too is a major threat to long-term food security. In a study of the Yellow River Basin researchers are working with Chinese policy makers to develop an integrated model that simulates the economic impact of **alternative water allocations** and is exploring water trading in the basin. This model is enabling the researchers to explore the effectiveness of different water trading schemes as well as other policy instruments on the efficiency of water use and the reliability of supplies to different regions and industries in the Yellow River Basin. Project members reported on progress with the model at the 2nd International Yellow River Forum on 'Keeping the Healthy Life of the River and Modern River Basin Management', held in October 2005.

In 1999 the Chinese Government implemented a program in China's northwest provinces to **convert cropland to forests** (the 'Grain for Green Program' – GFGP), spurred by the extent of land and water resource degradation that has put the future of agricultural production in the region at risk. ACIAR has funded a financial and socio-economic assessment of the GFGP, involving a livelihood impact analysis of its introduction across four counties in two provinces in northwest China. Researchers concluded that the GFGP has enhanced farm incomes, and that even if subsidy payments were withdrawn the changes in land-use have improved farm income.

On the hilly parts of the Loess Plateau large-scale revegetation is under way using perennial plants (grasses, shrubs and trees), with the intention of red**ucing soil erosion** and thus improving **water quality** of the Yellow River. A project has developed spatially distributed models to help target revegetation activities for the most appropriate places. Databases have been developed to include monthly climate and stream flow from 1980 to 2005, soil parameters, land use and topography for the target regions. GIS-based software developed for the region can help predict the impacts of various levels of revegetation on annual stream/river flows.

Major efforts have been directed to improving the productivity and sustainability of farming systems. In the western Loess Plateau of Gansu Province, **advances in conservation tillage** have been enthusiastically embraced by farmers in Dingxi and Xifeng. A program of On-Farm Research (OFR) begun in 2005 at both locations is continuing, with studies of comparisons between the system of conservation tillage (stubble retention and no-tillage) and conventional farmer practice. Two Australian Youth Ambassadors have worked with the farmers during 2005.

Efforts to improve productivity of **peas and faba beans** in the drier parts of China involve a focus on common interests by breeders, pathologists and genetic resource specialists. Their major goal is to develop cultivars with multiple resistances to disease and abiotic stress (such as drought). Extensive collecting expeditions have been under way in Qinghai (spring sown) and Yunnan (autumn sown) provinces for landraces of pea and faba bean traditionally grown by the farmers. Germplasm exchange continued – Australia has sent elite breeding material to China, and in return received collections of landraces and a core collection of peas.

Another project seeks to improve the **productivity of oilseed brassica** cultivars in China, India and Australia, through germplasm exchange, crossing and selection. Significant progress was made during 2005 to identify variability for key agronomic, quality and disease-resistance characters, using screening protocols established earlier in the project. The first exchange of germplasm of Brassica napus and B. juncea between India, China and Australia was completed by mid 2005 and field trials were planted in the 2005–06 season.

Further progress took place in developing a toolkit that will aid the take-up of integrated pest management for **brassica crop production**. In Zhejiang, following an extensive needs analysis conducted in early 2004, the project team has developed two tools – a decision-support and training multimedia system targeted mainly at extension officers, and a field guide to integrated management of vegetable brassicas targeting mainly farmers.

Work with **sugarcane germplasm** from China and other parts of the world has found that the Chinese representatives of the species *Erianthus arundinaceus* are genetically diverse compared with material in the Australian collection – the latter material being mostly sourced from Indonesia. Characterisation of clones of non-Chinese *Saccharum spontaneum* (wild sugarcane) – from Australian, USA and Brazillian collections – is complete, and work continues to characterise the Chinese *S. spontaneum*. The scientists are using these analyses to establish small core sets of clones from both species that constitute a broad representation of genetic diversity for Chinese and Australian collections.

ACIAR has embarked on several projects to help advance agriculture in the **Autonomous Region of Tibet**. One project aims to optimise the use of resources to produce both food-grain and fodder crops, through careful matching of crop types to the agro-climatic environment. The scientists are testing the feasibility of growing two crops in one year in the relatively short growing season and harsh climate. Results to date indicate a definite opportunity to introduce a fodder option, possibly vetch or lucerne, in conjunction with cereal crops.

Advancing agriculture in AR Tibet

A study has provided the first evidence of the **mineral status of livestock** in Tibet. Deficiencies of sodium and phosphorus seem widespread, with micro-nutrients selenium, copper and zinc marginal in some soils and deficiencies notable in some species. The success of this work has stimulated a follow-up project to determine the level of response to these apparent deficiencies. Also in Tibet, scientists are seeking to **increase milk production**. A survey has found that milk yields are around 4–5 litres per day at the best, falling to less than 1 litre per day at the end of lactation. Inter-calving intervals are also long, at 18–24 months. The market is strong for milk, so there is plenty of incentive for improvement.

A fourth project in Tibet has tested the premise that damage to livestock production due to the increased abundance of **plateau pikas** (small grassland mammals) can be reversed by improved management of grazing pressure on alpine meadows. The work has shown that poisoning has only short-term benefits, with numbers back to former strength the following summer. The team has developed a more rigorous technique for estimating pika numbers, which is now being used by other Chinese and international agencies.

Animal production in some of China's challenging environments should receive a boost from the development of **advanced breeding lines of lucerne** with high levels of tolerance to adverse factors such as salt, acid/aluminium soils, waterlogging or drought. In other research, the forage species selected in earlier ACIAR research for China's red soil region are now being taken up by smallholder enterprises in Hunan and Jianxi (see adjacent box).

Severe erosion has contributed to massive flooding and excessive sedimentation in the upper catchment of the Yangtze River in Sichuan. *Pinus radiata*, a conifer widely used in Australia in commercial plantation, holds promise for revegetating the area. Australian and Chinese forest scientists are investigating the potential for a better range of *P. radiata* germplasm in the Yangtze catchment. They have already identified some general and specific health risks to the long-term success of *P. radiata* introduction, particularly the possible presence of pine pitch canker. Climate modelling has help to identify areas suitable for *P. radiata*. An experiment testing five natural *P. radiata* provenances (Monterey, Año Nuevo, Cambria, Guadalupe and Cedros) is now established at three sites.

About 80 per cent of farmer income in the northern central and north-west provinces of China is derived from melon sales. An ACIAR project sought to improve **postharvest disease control, handling and market quality of melons** to improve returns to growers. The project fulfilled all its objectives, and now a two-year extension intends to boost the efficiency of supply chains to help the farmers to market their produce more effectively.

Peri-urban vegetable production has become a popular means of increasing the availability and diversity of fresh vegetables in the growing urban centres. But the system suffers from high levels of spoilage and contamination, and a project is seeking to improve the situation. Already Chinese and Australian partners have conducted process audits of four fresh vegetable supply chains in the Beijing area, examining the flow from production to retail and identifying human and plant health hazards. Next researchers undertook a microbiological contamination audit on pak choi, carrots and tomato from these supply chains. They sampled vegetables at harvest, during washing and at retail, and also tested five environmental sources – soil, organic fertiliser, irrigation water, wash water before use and used wash water.

Assessing cabbage crop

Patience rewarded in China's red soils region

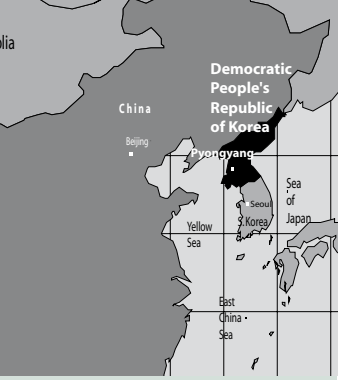
The red soils region of central southern China covers an area the size of Western Australia (2.6 million km2) to the south of the Yangtze River. The region characteristically has high, soil-erosive rainfall in spring, high evaporation rates in summer, and cold winters. Almost half the area has suffered serious erosion through excessive deforestation.

The impetus to develop these soils for agricultural production comes from population pressure and continued economic growth. Three previous ACIAR projects have delivered technologies for establishment and persistence of pasture forages to help control erosion. The challenge for a more recent project was to convert these adapted forages into economic benefits for farmers, by developing a forage-based ruminant production system that integrates well with other activities of smallholder farmers.

In China the team gathered and collated data about farmers' animals – reproductive efficiency, growth rates, mortality, herd structure, age and weight at sale – from around 240 households in three counties in Jiangxi and 300 in three counties in Hunan. These data became the benchmarks for later assessment of productivity gains. The team also completed an inventory of available feed resources, identifying suitable local feedstuffs and by-products such as straws derived from rice, peanut, sweet potato or soybean, together with corn stalks.
A list of recommended perennial summer-growing grass species was drawn up for commercial use by smallholder farmers. Research showed that these species are advantageous in this environment, due to their superior dry matter production, over-wintering capabilities and a growth habit suited to harvesting in a cut-and-carry system. Annual grass species were successfully integrated into rice-growing with beef production. The majority of the legumes tested showed marginal suitability for beef production. Ammonia treatment of rice straw was successful, and in some areas this may be a preferred alternative to silage for winter feed.

Findings from 14 cattle growth experiments have led to recommendations for year-round feeding of beef cattle that deliver annual liveweight gains of 100–200 kg. The team produced seasonal calendars on CD-ROM, describing land requirements, fodder production and dietary alternatives for cattle production. As well, a household economic model, incorporating data from the village surveys along with forage evaluation and animal-feeding studies conducted in China, was developed for a smallholder crop-forage-livestock system.

ACIAR research has developed spatially distributed models to help reduce soil erosion



Democratic People's Republic of Korea

Active projects in 2005–06	2
AOP budgeted expenditure in 2005–06	$124,000
Actual bilateral country expenditure in 2005–06	$124,204
Bilateral country expenditure in 2004–05	$306,856
Bilateral country expenditure in 2003–04	$382,458

Key performance indicators	Performance 2005–06
• Improved cereal yields consistently obtained following introduction of legume rotations into the farming system	In short-term crop rotation studies, hairy vetch (*Vicia villosa*) green manure crops have increased lowland rice yields by 15% averaged across two seasons and two cooperative farms. In upland maize, inclusion of the hairy vetch increased maize yield by an average of 27%. In addition, changing the system of maize production from one of establishing the crop on ridges in cultivated, stubble-free soil, to directly drilling the seed into flat beds protected by maize and vetch stubble, has reduced summer rainfall run-off and soil loss.
• Implementation of integrated pest management strategies for Brassica vegetable production on collective farms	As a result of HORT/2002/062, which concludes in June 2006, integrated pest management strategies for summer white cabbage and autumn Chinese cabbage have been implemented on the Oryu, Tae Sung and Ssang Un cooperative farms. In addition, farmers and teams not associated directly with this project have been actively seeking information on integrated pest management techniques and materials such as *Bacillus thuringiensis* (Bt), although wider implementation of the approach is constrained by limited availability of biological insecticides in DPRK.

Position

Less than 20 per cent of the land area of the Democratic People's Republic of Korea (DPRK) is arable. Food shortages have been severe since the mid-1990s. Staple crops are low in productivity, in major part due to low soil fertility. Most agriculture is conducted by farmer cooperatives (80 per cent) or state-owned farms (20 per cent).

In mid-2000 ACIAR initiated a collaborative research program to address DPRK's pressing problems of food insecurity. After four training courses during 2001, ACIAR commenced its first project in DPRK, titled 'Legumes and reduced tillage for rice- and maize-based cropping', in early 2002. A project on integrated pest management for Brassica crops commenced in 2003. **At present there are no plans to initiate new projects that involve DPRK**.

Achievements

Rice and maize, the country's main crops, yield at least 50 per cent below potential in parts of the country. A project has introduced new technologies to improve input use efficiency and crop yield, identifying and **testing legumes** for green manuring and soil conservation – in rotation with rice on flat lands, and maize on sloping lands. The soil fertility project has a focus on legumes for providing the basis for fertiliser replacement in the DPRK.

Trials to demonstrate the principles of **integrated pest management** (IPM) have been performed in crops of summer white cabbage (*Brassica oleracea*) and autumn Chinese cabbage. The scientists identified the major pests of both crops and where appropriate initiated IPM strategies based on applications of *Bacillus thuringiensis*. Yields in summer white cabbage crops were significantly higher when managed by the IPM strategy than by standard cooperative farm practice. At all three trial sites members of work teams not involved with the project expressed a desire to become involved, and requested supplies of *B. thuringiensis* to treat their *Brassica* crops.

Dr Philip Eberbach, project scientist, Charles Sturt University, assessing reduced tillage trials with a Korean colleague

South Asia

Financial year	Regional expenditure	Per centage of total bilateral expenditure	Board target as per centage of expenditure
2004–06	$3,504,178	11.4	<15%
2004–05	$3,787,994	13.5	<15%
2003–04	$4,018,897	15.7	10-20%

ACIAR's South Asia program operates in two groups of countries. The first, India, Pakistan and Bangladesh, where most population is centred, is emphasised in ACIAR programs. A small number of activities is under way in the second grouping comprising Nepal, Sri Lanka, Bhutan and Afghanistan. For the region, the Board and Minister have set an expenditure target of less than 15 per cent of our overall bilateral research expenditure.

Rice fields, typical of the Punjab and Haryana regions

ACIAR-funded scientists are mapping arid rangelands and will then apply better management techniques to boost sustainable production

Dr Kuhu Chatterjee, ACIAR Regional Manager, South Asia

India

Active projects in 2005–06	26
AOP budgeted expenditure in 2005–06	$2,415,000
Actual bilateral country expenditure in 2005–06	$2,018,915
Bilateral country expenditure in 2004–05	$2,601,365
Bilateral country expenditure in 2003–04	$2,482,097

Key performance indicators	Performance 2005–06
• Commencement of two projects on sustainable natural resource management involving poor communities in eastern India	One new project has been initiated (SMCN/2002/100: *Water harvesting and better cropping systems for the benefit of small farmers in watersheds of the East India Plateau*). The project has started work with several communities, and a plan for the implementation of improved cropping and water harvesting interventions in the next Kharif season have been agreed, with participation by the villagers. A second water harvesting project in Andhra Pradesh was due to be initiated in 2006 but was rejected at the ACIAR in-house review due to design flaws.
• Involvement of NGO groups in at least two new projects	The single new project initiated in 2005–06 (SMCN/2002/100) has the Indian team led by PRADAN, a major NGO.
• Extension of new low-salt hide processing technique to several tanneries in extended pilot phase	The project engaged with 20 tanners and the preliminary assessment of the procedures and approaches was conducted by a high profile tanner. Uptake by a wider group of tanners is still limited, although this should be facilitated by involvement at an industry workshop in mid 2006.
• Analysis of genotype by environment interaction in Indian national chickpea trials finalised, thereby permitting more efficient deployment of testing resources	The training of Indian scientists in the detailed analysis of the effects of genotype x environment (G x E) of on chickpea genotypes in their breeding programs has now been completed. The Indian scientists have now used new statistical analysis tools to improve the efficiency in selecting appropriate genotypes from the breeding programs.
• Confirmation of 'greening' as a major factor in citrus decline in Sikkim and adjacent regions, leading to more informed management of decline	Independent reviewers of project HORT/2002/030 found that a key achievement was confirmation of widespread greening in all mandarin production regions of Sikkim, and that this is a major limitation to production. This has resulted in recommendations for changes to management practices, including use of disease-free planting material and control of the disease vector. An indirect outcome of HORT/1997/101 in Bhutan has been an increasing awareness amongst growers of the occurrence of greening and the need for integrated control measures.
• 40% of new projects designed to have significant farmer or policy-maker impacts within five years of completion	The single project initiated in India in 2005–06 (SMCN/2002/100) has been designed to have significant farmer impacts within five years of completion.

Position

India faces huge problems in its rural sector even as the overall economy forges ahead—the greatest number of poor and undernourished in any country is found in India. The emphasis of ACIAR's India program is on sustainable smallholder production of crops through application of better management technologies, and analysis of policy constraints and options. Broad-scale land and water resource management work emphasises technical and policy research on water management. The program aims to underpin continued high production in favoured lands as well as boost sustainable production in more marginal lands.

India's large, well developed national agricultural research system centres around the Indian Council for Agricultural Research (ICAR), which has collaborated strongly in ACIAR projects. Also, during 2005–06 ACIAR has fostered partnerships with state agricultural universities and government research institutes, working together on projects that are led by Indian Independent Research Organisations (IROs) and NGOs. Projects increasingly emphasise achieving practical farmer-level and policy impacts, particularly in poorer regions of India. ACIAR engages mainly with centres in north and central India, where research projects are presently under way to manage scarce water and nutrient resources more efficiently, improve yield and quality of grains and legumes, and to diversify production and raise farm incomes.

ACIAR has demonstrated that good soil and water management is critical to boost sustainable production in Ghaziabad

Achievements

Transient water logging can occur during wheat production; it affects 4.5 million hectares in India (also 0.5 m hectares in south-western Australia) each year. Drainage systems, used in intensive agriculture, are not cost-effective in extensive broad-acre cropping systems, and breeding of waterlogging-tolerant wheat cultivars for India's resource-poor farmers is seen as the sustainable means of improving crop yields. A project has provided a new understanding of the complexity of the problems affecting the growth and productivity of **wheat under waterlogged conditions** in a range of specific environments in both countries. This new understanding has given a sound scientific basis for rapid advancement in developing highly tolerant cultivars.

Salinity and waterlogging, caused by rising watertables, bring water of variable quality to the surface in parts of India and Australia. If it contains too much salt it can render agricultural land unproductive. In such circumstances aquaculture is possible in holding ponds, using waters drawn from low aquifers. Good management is critical, and a project is addressing some of the constraints such as variability in concentration and composition of salts. The scientists are testing marine species with commercial potential – such as fish, crustaceans, shellfish and edible seaweed. The project will help to **integrate aquaculture into areas with degraded farmlands** and, by diverting the salt into aquaculture, also lift the capacity for agricultural activities.

Sikkim in northern India once had a thriving **mandarin industry**, and citrus remains the region's most important horticultural crop. Although there is a large and lucrative market, producers have been hampered by what was thought to be **huanglongbing** (HLB), a debilitating insect-transmitted citrus disease of the tropics and subtropics. A project to address these problems has determined that HLB is widespread in all mandarin-growing areas. One hundred resistant genotypes, both scion and rootstock, have been introduced for the mandarin industry, and a modern nursery in Linjok, Sikkim is now poised to distribute commercial numbers of high-health grafted mandarins to the industry. Capacity has developed in field surveillance and identification of disease, and sample preparation for laboratory testing. Farmers and industry practitioners have received training in modern citrus production techniques.

Plant breeders have traditionally paid little attention to the quality of crop residues, which are a major source of fodder for livestock. Now a project bringing together plant breeders (ICRISAT) and livestock nutritionists (ILRI) aims to improve animal productivity in crop–livestock systems in the driest rainfed parts of India, where pearl millet (*Pennisetum glaucum*) is the only reliably productive cereal. The researchers aim to use both marker-assisted and conventional plant breeding to genetically **increase the nutritive value of pearl millet** stover. Already the scientists have linked laboratory-quality traits for the stover with livestock-productivity measurements, an essential prerequisite for a program of genetic improvement.

The States of Andhra Pradesh, Karnataka and Maharashtra share the **water in India's Krishna River Basin**. Through IWMI, they are receiving assistance from an ACIAR project, which is helping to develop an integrated framework to formulate and evaluate water allocation strategies, based on historical and hydrological data. The project has integrated both biophysical and socioeconomic assessments to ascertain how to maintain quantity and quality of supply while allocating water to irrigation, urban and industrial uses for maximum economic benefit. The information being generated will also help the Krishna Basin Tribunal in its decision making.

These women clearly understand the importance of working on water allocation strategies for maximum economic benefits

For a decade ACIAR has invested in projects to increase sheep meat production in India through **improvements in efficiency of sheep rearing**. The work has identified a genetic basis for certain breeds of sheep that regularly produce twins, a trait highly prized by local shepherds. Two potentially prolific genotypes, *Fecund Deccani* and *NARI composite* are now being trialled in shepherds' flocks. The project has been extended to enable more complete analysis of performance of the new genotypes and to evaluate the socioeconomic benefit arising from wider distribution of the new genotypes.

Work is being completed on the development of **new technologies to lift milk production** in village cattle and buffaloes. Progress was made in improving ruminant digestion of fibre to gain maximum nutritional benefit from poor-quality roughage. Scientists have identified a fungus with superior qualities to the fungi that naturally colonise the rumen in breaking down the fibre. Inoculating the rumen with the better fungus, together with nutritional supplements that stimulate fungal efficiency should realise gains of up to 10 per cent in cattle productivity.

Environmental damage from effluents discharged by the **tanning industry** in Tamil Nadu in southern India has led to the closure of many tanneries. Now research has produced workable solutions that drastically reduce the amount of salt, chromium and other contaminants released. Researchers have shown that fresh skins can be treated with 20 per cent of the salt previously used, and chilling to preserve them until tanning (a widely used method in Australia) is a feasible option. Another breakthrough has been to show that two tanning products, pickle liquor and chrome liquor, can be re-used indefinitely instead of discarding after every treatment.

Pakistan

Active projects in 2005–06	7
AOP budgeted expenditure in 2005–06	$500,000
Actual bilateral country expenditure in 2005–06	$1,045,668*
Bilateral country expenditure in 2004–05	$506,033
Bilateral country expenditure in 2003–04	$697,496

**Increased expenditure associated with a new major project with AusAID: Australia–Pakistan Agriculture Sector Linkages Program (ASLP)*

Key performance indicators	Performance 2004–05
• Adoption of bed planting for maize and wheat by first two cluster groups of farmers in Mardan and meeting of machinery repayments	The two cluster groups have continued using bed planting, with consistently higher yields and irrigation water savings. Their support remains high, and repayments are on schedule, and an additional two cluster groups have been selected and are due to receive the first Pakistan-made bed machinery. Following the visit to project sites by the Federal Minister for Agriculture, the project team was asked to submit a proposal to the Government of Pakistan to establish a national raised beds dissemination program.
• Successful completion of initial trials on serial biological concentration of irrigation drainage water	Construction of both serial biological concentration sites was completed by June 2005. A maize crop was planted in August at both sites for summer 2005, and the crop and water monitoring protocols were implemented. Unfortunately, torrential rains at both sites ruined the initial crop, so despite reasonable establishment, no yield data were obtained. A high-yielding winter wheat crop was subsequently obtained at both sites.

Position

Pakistan has been an ACIAR partner country since 1984. The areas of major emphasis in the past have been management of irrigation and drainage and management of agriculture and forestry on saline soils, within a broader focus on overcoming biotic and abiotic constraints in broadacre crop production. There are also areas of common interest and comparative advantage in livestock production and health.

In 2005–06 ACIAR took responsibility (on behalf of AusAID) for implementing the Australia-Pakistan Agriculture Sector Linkages Program (ASLP), designed to transfer Australian knowledge and expertise to key sectors of Pakistan agribusiness to increase profitability and enhance export potential. Its objectives are poverty reduction for smallholder farmers through collaborative research and development and enhancing the capacity of the Pakistan research, development and extension system to deliver targeted and practical research outputs to agribusiness and farmers.

Achievements

A project to refine and adopt **permanent raised bed (PRB) technology** for the irrigated maize–wheat cropping system in Pakistan is continuing to make excellent progress. The two heads of the farmer cluster groups indicated that there are many farmers from outside the groups requesting the Australian-designed bed planters for use on their farms.

This farmer is making excellent progress by the adoption of permanent raised beds

The additional demand is presently surpassing the ability of the groups to supply. Following the successful proof-of-concept of the project, the Australian High Commissioner promoted the project as something worthy of Government of Pakistan investment. In August 2005, the Minister of Food, Agriculture and Livestock (MINFAL) inspected the project and his interactions with the cluster groups prompted MINFAL to ask the Pakistan project leader for a proposal to **develop an outreach program** to more broadly disseminate PRBs and the cluster group model to other provinces. MINFAL has agreed to the proposal and a roll-out of the project is scheduled for July 2006. A related activity is underpinning the sustainable development of PRB systems in Asia and Australia. That project is developing **criteria for optimising bed design** from analytical and numerical modelling of water and solute transport in permanent raised beds, also using models to design placement strategies that maximise fertiliser usage and minimise leaching to groundwater, as well as determining whether salinisation of the beds is likely under certain scenarios.

Scientists are identifying cropping options to use in a **serial biological concentration system** as a way of managing saline irrigation effluent, which normally goes directly into rivers. Part of the process is to trial fish and seaweed species suitable for cultivation in the effluent. Two serial biological concentration demonstration sites are now established in Punjab and Sindh provinces. In Australia, the scientists are developing a framework to assist in the selection of the best management system for each in a range of saline drainage effluents. The options for managing sub-surface drainage and implications for salt mobilisation have been grouped into four categories – reduce subsurface drainage, redistribute the effluent throughout the region, store locally or manage the export of salt to the river in stages.

One of the first activities undertaken as part of the Agricultural Sector Linkage Program (ASLP) (see box) was a Small Research Activity that brought together stakeholders involved in **mango RD&E** in Pakistan and Australia. Working with Pakistani counterparts, Australian mango R&D specialists and a mango farmer reviewed RD&E activities in the Pakistan mango industry, with the aim of identifying issues suitable for undertaking within the ASLP. A major focus was control of mango sudden death syndrome (MSDS) which is reducing productivity in some orchards by more than 20 per cent. Survey visits followed the workshop, and the findings are being incorporated into a new ACIAR project, *Development of integrated crop management practices to increase sustainable yield and quality of mangoes in Pakistan and Australia*.

New era of Australian–Pakistani agricultural cooperation

In June 2005 the Minister for Foreign Affairs, the Hon Alexander Downer MP, and the then Minister for Agriculture, Fisheries and Forestry, the Hon Warren Truss MP, announced a new program for cooperation on several fronts, including agriculture, between Pakistan and Australia. The scheme arose from discussions between Prime Minister John Howard and the President of Pakistan Pervez Musharraf during a visit to Australia by President Musharraf. ACIAR is managing the agricultural component, known as the **Australia–Pakistan Agriculture Sector Linkages Program (ASLP)**, and during 2005–06 the new initiatives gained momentum.

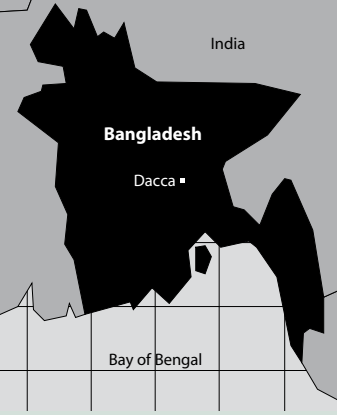
The main goals of ASLP are: to transfer Australian knowledge and expertise to key sectors of Pakistan agribusiness to increase profitability and enhance export potential; to contribute to poverty alleviation of smallholder farmers through collaborative research and development; to enhance the capacity of the Pakistan research, development and extension system to deliver targeted and practical research outputs to agribusiness and farmers.

Consultations between ACIAR and Pakistani stakeholders led to agreement to collaborate on two new thematic priorities—horticulture and dairy. The following research thrusts have priority: increasing mango and citrus production, through diagnosis and control of diseases and orchard management to increase productivity and reduce input costs; supply-chain enhancement, including value-adding and marketing for the mango and citrus industries; and increasing milk production from individual animals.

To meet the ASLP goals and to ensure the program delivers early impacts, the program is being configured into a flexible suite of activities, comprising: initial short-term scoping studies and constraints analysis; information exchange and exposure to agro-enterprises through visits to Australia; technical and scientific workshops; tailored training and capacity-building packages delivered in Pakistan and in Australia; technical intervention and research and development projects. New projects include significant components of capacity-building in participatory research and extension methodologies.

ACIAR's core program complements the ASLP through a broader focus on land and water resources, encompassing community-driven water allocation and drainage management as well as dryland and irrigated cereal production.

A small boy is taking care of the dairy cows – ASLP will focus on increasing milk production



Bangladesh

Active projects in 2005–06	3
AOP budgeted expenditure in 2005–06	$267,000
Actual bilateral country expenditure in 2005–06	$371,464
Bilateral country expenditure in 2004–05	$243,712
Bilateral country expenditure in 2003–04	$276,729

Key performance indicators	Performance 2005–06
• Opportunities for additional project investments explored and agreed in Bangladesh	A new project aimed at increasing livelihoods in NW Bangladesh by reinvigorating the production of winter legumes in rice-fallow systems (SMCN2005/001 *Addressing legume constraints in cereals-based cropping systems, with particular reference to poverty alleviation in north-western Bangladesh*) has been developed for commencement in late 2006. A second opportunity for intensification of rice-fallow systems by introducing winter wheat (this time in the hotter, southern areas of Bangladesh) was explored further through SMCN/2005/042 *Scoping study to assess the technical and economic feasibility of wheat production in southern Bangladesh*. The results were of sufficient promise to encourage systematic testing of the feasibility of wheat production.
• Adoption of integrated disease and pest control packages in over half the traditional chickpea-growing districts of the western region	100 demonstrations trials of the optimum ICM package for chickpea planned for the districts of Jessore, Jhenaidah, Magura, Rajbari and Faridpur. In each district yields of chickpea were competitive with other winter field crops, both dry-land and irrigated. However constraints due to collar rot, pod borer damage and rainfall near harvest occurred. More stable yields of chickpea will depend on adequate management of collar rot and pod borer, in addition to botrytis grey mould, especially in years with substantial rainfall during the growing period.

Position

Bangladesh has been a partner country since the mid-1990s. ACIAR's program is small, given Australia's relatively limited comparative advantage to deal with Bangladesh's rice-dominated agricultural problems.

ACIAR's strategy in Bangladesh is to focus on agronomic and biotic constraints to the production of broadacre grain crops, especially the rabi (winter season) crops. It does this through both bilateral and IARC-led projects that link to existing programs such as the CGIAR-coordinated Rice–Wheat Consortium.

Achievements

A four-year project involving ICRISAT focused on integrated management of Botrytis Grey Mould (BGM) of chickpea, which is a major constraint for production in Bangladesh. Its overall aim was to **optimise the cultivation of chickpea** in traditional chickpea-growing areas of Bangladesh, where

the area of crop sown has decreased significantly, primarily due to BGM. The project has contributed towards arresting the decline of chickpea production in Bangladesh, mainly by developing integrated management packages, raising awareness of farmers, and by on-farm and researcher training.

A related project involving ICARDA recognises the **importance of legumes in the crop cycle**. It is introducing plant health management packages for faba bean, chickpea and lentil, and seeking to improve resistance to certain diseases and stresses. Several additional new sources of resistance to major diseases affecting pulse crops were identified at ICARDA and will be shared among national breeding programs. Work undertaken at Horsham, with the Department of Primary Industry, Victoria to screen lentil and chickpea germplasm for resistance has revealed a wide range of reactions to BGM. Results were encouraging, and breeding lines with the Canadian cultivar 'Indianhead' as a parent appeared to be most resistant to infection by *Botrytis* species.

Bangladesh village street scene – Rajshani

Other countries

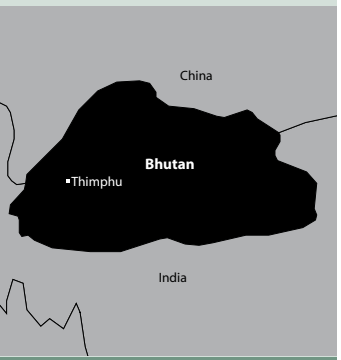
Active projects in 2005–06	6
AOP budgeted expenditure in 2005–06	$488,000*
Actual bilateral country expenditure in 2005–06	$68,131*#
Bilateral country expenditure in 2004–05	$436,885*
Bilateral country expenditure in 2003–04	$526,575*

**The Annual Operational Plan grouped Afghanistan, Bhutan, Nepal, Iraq and Sri Lanka together under Other South Asia, for budgeting and reporting purposes. Bilateral expenditure figures for these countries are grouped together in the table above. Similarly, key performance indicators for Other South Asia were grouped together and are reported against below.*

 # Actual expenditure is lower then forecast in the AOP due to difficulties associated with undertaking the horticulture project in Iraq.

Key performance indicators	Performance 2003-04
• Improvements in lentil yields confirmed in rice–legume rotations in Nepal	The results of on-farm trials have shown that the new genotypes have an average of 12% increase in yield over the local varieties that farmers use. This has led to the release of new higher-yielding varieties for the farmers in the region.
• Field control programs for citrus fruitfly established in Bhutan	Through project HORT/1997/101, a field control program for Chinese citrus fruit fly in Bhutan has been developed which reduced fruit damage to 2–5%. This program applies two carefully timed cover sprays of dimethoate and collects fallen fruit from the ground at 10 day intervals. This strategy has been promoted to growers through the 'National Citrus Campaign' under Government Executive Order.
• Successful trials of management strategies to reduce fungal disease incidence in mangoes in Sri Lanka	In project HORT/1997/094 pre- and post- harvest treatments of mango fruit with natural defence stimulators (Bion, salicylic acid, potassium silicate) and exposure to UV-C radiation reduced fungal diseases and increased fruit shelf life. Nitrogen fertilizer application to trees close to harvest increased the incidence of fruit diseases while potassium fertilizers had the reverse effect.
• Initiation of two projects in Iraq that address key food security and agricultural sustainability issues	Two projects that assist in improved production of food crops in Iraq are under way: CIM/2004/024, focusing on *crop germplasm and management for improved production of wheat, barley and forage legumes* and HORT/2004/101, aimed to improve management of a major insect pest of citrus and dates.

Bhutan



Position

ACIAR's small program with Bhutan began in 1998. Because of Australia's relatively low comparative advantage, the program remains very small. Earlier ACIAR research to develop Newcastle disease vaccine for village chickens was extended and adapted for the situation in Bhutan with the help of AusAID funding, and projects were initiated on the management of fruit flies, and on footrot management in ruminants.

Achievements

The major active project, a **survey of fruit flies** in Bhutan and a **field control program for the Chinese citrus fly**, was favourably reviewed. The Chinese fruit fly (*Bactrocera minax*) was confirmed as a devastating

pest of the mandarin industry in Bhutan, with estimated losses of up to 80 per cent and averaging around 20 per cent every year. B minax is unique among fruit flies in having only one life cycle per year. Eggs hatch in June–July and larvae emerge after fruit drop in late autumn; the pupae then overwinter in the soil before emergence next spring. Researchers found that the males did not respond to pheromone lures, as is the case with other flies, making it extremely difficult to control. Monitoring of this pest was only possible using liquid protein traps that are highly labour-intensive to maintain.

The research team collected hundreds of specimens comprising 26 fruit fly species, then identified them and established a referral collection at the National Plant Protection Centre, Bhutan. They discovered three species of economic importance and two new species of fruit fly. Based on the research findings, a field control strategy was developed integrating two-timed cover sprays with collection of fallen fruits every 10 days. This control strategy was promoted on a national scale through the National Citrus Campaign in 2005 following an Executive Order.

ACIAR has a major active project aimed at developing a strategy to control the fruit fly which produced losses of up to 80 per cent in the mandarin industry

Nepal

Position

Almost 85 per cent of Nepal's population of 24 million are rural and the majority of these are involved in agriculture. ACIAR has had a small program in Nepal, with an emphasis on the lowland Terai, which has more in common with Australian agricultural production environments than upland areas. The discipline focus for collaboration has emphasised crop production and management, and some aspects of animal health. New projects are not being considered at this time.

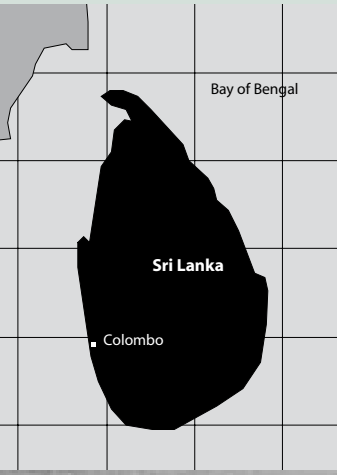
Achievements

Lentils and another legume called grasspea (*Lathyrus sativus*) are widely grown in the lower areas of Nepal. Work has continued to identify **better adapted germplasm** that can withstand both waterlogging and drought at different stages, as well as resisting fungal wilt. *Lathyrus* is potentially toxic, and varieties with a lower toxin concentration would be safer for livestock and human consumption. The project has selected and propagated improved varieties of both species.

Numerous trials involving promising lines or varieties of lentils have been conducted in a number of locations, particularly in the terai (where 95 per cent of the lentils are grown in Nepal). The work has resulted in many promising lines that can either be directly released to farmers as cultivars or used as parents in the breeding programs. The project has made impact on a considerable number of Nepali farmers. Some are already growing the improved lentil varieties and 1000 or so have taken up the promising line ILL7723. This should lead to significant economic benefits through sales of surpluses. The seed priming methods developed for

lentil grown following rice harvest are now being adopted by farmers; the Department of Agriculture (DOA) is making recommendations for their adoption more widely.

Currently, the project team is monitoring uptake and impact of the new technologies. Researchers aim to further improve the productivity and profitability of lentil production and also facilitate the improvement of Lathyrus, both as an animal feed and human food.



Sri Lanka

Position

Sri Lanka was one of ACIAR's original partners; the high quality of training of many Sri Lankan agricultural scientists facilitated development of the program. Most collaboration has been in animal sciences, especially animal health. Other areas have included fisheries, farming systems economics, agricultural development policy, crop sciences, forestry and crop postharvest technology.

Completed projects include an economic study into optimal land use, which developed policies to avoid land degradation in upland plantation areas, as well as a practical model that demonstrated the need to replant/rehabilitate tea plantations to avoid erosion. Some project outputs have been incorporated into new Asian Development Bank-funded projects. Other research topics have included economic and simulation modelling of rice-based cropping systems, and one that led to successful biological control of *Salvinia* waterweed. New projects are not being considered at this time.

Achievements

The only active project seeks to improve strategies for managing **postharvest diseases of subtropical and tropical fruit**. Current programs do not reliably control disease during retail marketing and export. Until recently little attention had been given to the powerful defence mechanisms that plants have evolved to limit and prevent disease on developing fruit. In this project Sri Lankan and Australian scientists have worked to characterise resistance mechanisms.

The scientists in Sri Lanka are assessing the role of constitutive and induced host defence mechanisms in extending the shelf-life of mango fruit. They are also developing treatments or practices that can be used in the management of the major postharvest diseases of banana, and seeking to improve current understanding of interaction between banana and the freckle pathogen (*Phyllosticta musarum*), culminating in enhanced resistance to the damaging disease anthracnose. Agriculturists have tested treatments and worked with farmers to enhance resistance and thus suppress disease development on mangoes during production and marketing.

ACIAR is working in Sri Lanka to support a project in fisheries that could provide alternative income-producing activities

Afghanistan

Position

Two decades of war coupled with the worst drought in 40 years have devastated Afghanistan's food-production capabilities and depleted critical seed stocks, leaving the nation heavily dependent on food aid from international donors.

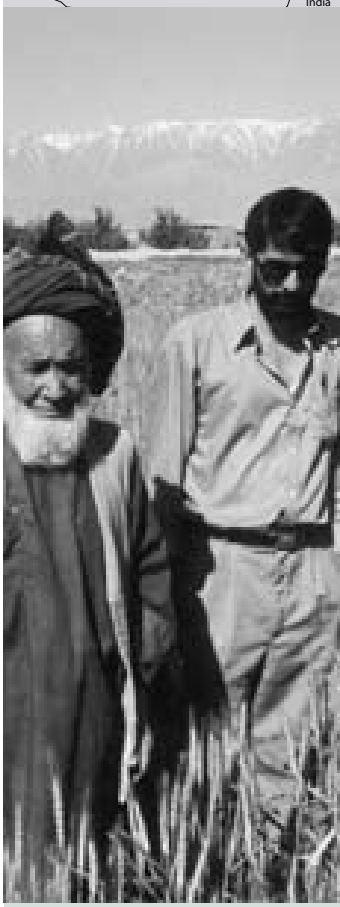
ACIAR's multilateral project work in Afghanistan provides short- to medium-term support to wheat and maize production – wheat being by far the most important crop and maize the third most important. This objective is being achieved principally by providing seed of suitable cultivars via import, establishing on-farm participatory testing of imported germplasm to identify better-adapted improved cultivars, followed by local multiplication and distribution of the chosen cultivars. Special attention is given **to yellow rust resistance in wheat** and to promoting **improved crop management** along with the **improved cultivars**. The projects are co-funded by AusAID and ACIAR, managed by ACIAR and executed by CIMMYT.

Achievements

In collaboration with the Agricultural Research Institute of Afghanistan (ARIA), the project obtained several screening nurseries and yield trials from International Agricultural Research Centres. These trials were composed of experimental and commercially available **maize and wheat germplasm** adapted to the Afghan agro-ecological conditions. After harvest and trial data analysis, project officers discussed the results with scientists from ARIA and collaborators from FAO. Twenty-seven promising wheat lines and a group of experimental subtropical maize cultivars have been identified for further testing. Of particular interest were CIMMYT wheat experimental materials selected in Iran in 2002 – one in particular gave early indication of excellent resistance to rust and superior yield compared with the local varieties.

Although results of informal seed **multiplication schemes** are difficult to obtain due to the security situation in the country, there is anecdotal evidence that farmers who planted some of the project's open-pollinated cultivars in 2003 had bartered and sold more then two tonnes of these varieties in 2004. The area under improved varieties was then multiplied by more then 10-fold as a result of this resilient farmer-to-farmer seed distribution system.

The project has built human capacity through **technical workshops** conducted nationally. They have covered topics such as potential and constraints to agricultural development in Daikundi, introduction and discussion of yellow rust and practical exercises for scoring in the field, and an introduction to CIMMYT's work, research methodologies and variety evaluation, together with a field day. Farmers, NGO workers and officers from research stations have attended these workshops.



ACIAR's work in Afghanistan has built farmers' capacity in wheat and maize production systems

Iraq

Position

High levels of input subsidies, guaranteed commodity prices and free food distribution have distorted agricultural markets in Iraq and left no incentive for innovation by farmers. In addition, scientists have had limited access to international developments in the agricultural sector for over two decades. In concert with other investments by AusAID, ACIAR has developed projects designed to assist the Iraqi Government in its quest to modernise agricultural production systems and markets.

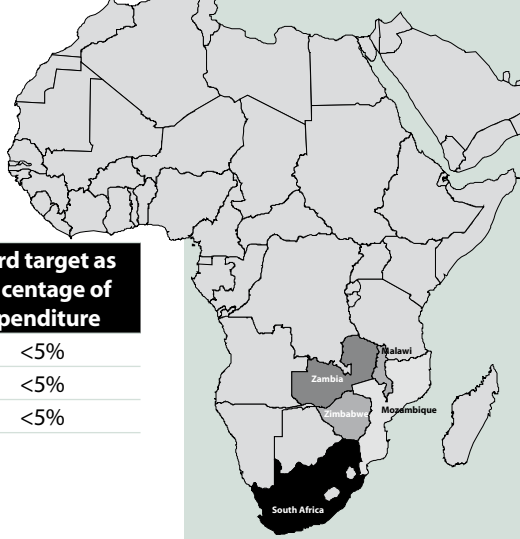
The projects have been shaped by the relevance of Australian expertise to Iraqi conditions and by the constraint of limited access to Iraq by Australian scientists. One project focuses on the enhancement of barley, wheat and grain legume production under dryland conditions in northern Iraq. In another project Australian scientists are helping Iraqi senior scientists to develop a National Strategy Plan for the control of jasmine whitefly affecting citrus production in central Iraq; as part of the Plan junior scientists are receiving training in Australia in integrated pest management practices that they can implement on return to Iraq.

Achievements

The first stage of the project to study **jasmine whitefly** that affects citrus production in Iraq involved a workshop held in Australia in August 2005. Participants at the workshop comprised six senior scientists from Iraq and nine from Australia. Together they developed a strategic framework for pest management in Iraq. The plan comprises a five-year schedule with critical success factors, indicators, and strategies and an implementation plan, with actions for each strategy. Short-term recommendations have been made for each critical success factor and are actions that can be taken independent of the situation in Iraq. It has been formally accepted by the Iraqi Government. More specifically they also developed a National Strategic Plan for the management of jasmine whitefly in citrus for the citrus/date systems in Iraq.

Work has begun in a project to improve production of **wheat and barley**, as well as **pulse and forage legumes** in Iraq. The research is focusing on assistance to farmers by identifying and disseminating suitable varieties from within Iraq, as well as varieties from collections at ICARDA and in Australia, emphasising farmer participation from northern Iraq's rainfed cropping regions. Iraqi scientists are also being supported to attend appropriate international workshops.

Southern Africa



Financial year	Regional expenditure	Per centage of total bilateral expenditure	Board target as per centage of expenditure
2005–06	$627,876	2.0	<5%
2004–05	$735,199	2.6	<5%
2003–04	$745,392	2.9	<5%

ACIAR's program operating in southern Africa concentrates on the Republic of South Africa. Some projects led by International Agricultural Research Centres in other countries are concluding. For the region, the Board and Minister have set an expenditure target of less than five per cent of our overall bilateral research expenditure.

Page

Southern Africa

Active projects in 2005–06	7
AOP budgeted expenditure in 2005–06	$671,000
Actual bilateral country expenditure in 2005–06	$627,876
Bilateral country expenditure in 2004–05	$735,199
Bilateral country expenditure in 2003–04	$611,352

Key performance indicators	Performance 2005–06
• Profitability of beef producers increased through higher prices for their stock	The Beef Profit Partnerships initiative now involves more than 250 farmer families in the North West and Limpopo Provinces. Their records indicate continued profitability and herd production improvements, with some groups instigating regular collective marketing days with the district municipality and the provincial department of agriculture networked to utilise the success of this approach. These village market days have created a hive of other economic activities, where villagers bring in goods to sell to the farmers.
• Linkages formed with the Integrated Livestock and Crop Farming Systems development program in the Eastern Cape Province to enhance the health and wool production of sheep	Project LPS/2004/022 *Pasture development for community livestock production in the Eastern Cape Province* developed to integrate Australian expertise into a major Agricultural Research Council, Eastern Cape Department of Agriculture and National Woolgrowers Association development program to improve the profitability of communities and the sustainability of their communal lands.
• Updated fertiliser recommendations for emerging farmers in the dry regions of Limpopo Province being adopted by lead farmer groups	Positive results from project SMCN/2000/173 led to Sasol and Progress Milling maintaining supply of small fertiliser packs for sale to emerging farmers. Fifteen extension officers were trained who in turn have each trained another five extension officers. These officers service 6000 farmers who have been trained in low-dose technology and improved agronomy. Sales of fertiliser packs to over 1000 farmers have taken place in 2005–06 and an estimated 6000 farmers have been exposed to low doses and improved agronomy. At R400/farmer, this translates to a potential economic impact of R2.4 million for smallholder farmers within the timeframe of the current project.
• 40% of new projects designed to have significant farmer or policy-maker impacts within 5 years of completion	Design work for only one project (LPS/2004/022, pasture development) was completed in 2005–06; it is planned to mainly have significant community impacts over a longer time frame.

Position

Since 1983, around 40 ACIAR projects have been completed in Africa. Benefits to date have included vaccines for Newcastle disease in chickens in several countries, a tick resistance diagnostic test and a tick fever vaccine, selection of Australian trees for difficult sites, identification of low fertiliser strategies for crops in risky environments, and demonstration that cattle breeds preferred by emerging farmers have equal growth potential to commercial breeds.

Currently, South Africa (RSA) is the sole focus of ACIAR's small bilateral investment program. It offers great similarity in production environment to much of temperate, Mediterranean and subtropical Australia. ACIAR's program is guided by the following principles: research partnerships must focus on delivery of benefits to emerging African farmers and ACIAR focuses on areas where Australian scientists can add significantly to the skill base by filling 'gaps' in the existing South African expertise. In doing so, ACIAR also looks at synergies in its program with those of other donors and for potential Australian benefits.

Achievements

Impressive progress continued in the project that is enabling individuals, groups and networks of **emerging beef farmers** to achieve continuous improvement and gain the same sort of price for their animals as those in the commercial sector. Other farmers seeing the benefits attained by those involved are pressing to join the project teams. Many of the farmer teams, having consolidated their marketing initiatives, are now focusing on production aspects and herd throughput, with significant improvements achieved in reproductive performance of the Beef Profit Partnership herds. Stock off-take rates have almost trebled. The project also evaluated a number of tropically adapted indigenous Southern African breeds and cattle from resource-poor farmer herds, and determined that they showed promise as replacements for a proportion of the 300,000 weaner steers or 35,000 tonnes of beef imported each year to satisfy South Africa's domestic demand.

Emerging beef farmers in South Africa market better animals as part of an ACIAR-Beef Profit Partnerships initiative

In Limpopo Province in South Africa's north, farmers face problems arising from **unsustainable farming practices** that lead to land degradation. Such constraints result in poor quality cattle and limited returns available to communities from the commercial beef market. Introducing legumes into grazing lands and into cropping sequences can redress both sets of problems. A project is building on earlier ACIAR work that evaluated legumes and educated farmers about the value of including them in the cropping cycle.

Related ACIAR-funded research by ICRISAT has addressed the **low soil fertility levels** that contribute to poor crop yields throughout southern Africa. Appropriate use of fertilisers can help increase yields, however few smallholder farmers apply them. Work undertaken by ICRISAT in Malawi and Zimbabwe has formed the basis of activities in South Africa's Limpopo Province. Through exposure to Australian-developed APSIM crop simulation modelling, along with on-farm trials, there has been widespread acceptance that low-dose fertiliser technology is viable. This is a change in paradigm and a crucial project impact. Moreover, one year into the project a new activity was introduced—the distribution of small packs of fertiliser. Project scientists have worked with commercial fertiliser suppliers to develop the small fertiliser packages and a distribution network. This has laid the foundations for very rapid uptake of the results, both in Limpopo and beyond.

RSA is a partner in a project to increase the **productivity of acacia plantations**. Acacias are amenable to genetic improvement and have shown large productivity increases through selection and breeding, however in certain regions they can be serious weeds. Triploids (plants with three sets of chromosomes instead of two) in agricultural and forestry crops are usually sterile and this can have the advantages of increased productivity, absence of seed to cause weed problems, and suitability for genetic modification without risk of genetic pollution through uncontrolled outcrossing to non-crop plants. Trials are well under way in two partner countries, Vietnam and Australia. RSA commenced work with the project in July 2005, and the team has now completed training in laboratory and field practices in preparation for trials of polyploid *Acacia mearnsii*.

Another forestry project has selected parent species to produce ***Eucalyptus* hybrids** to grow on marginal, dry sites in southern Africa and Australia. Outputs from the project include lists of suitable eucalypt hybrids for marginal lands. Hybrid production, testing and propagation have been largely successful. A great deal is now known about reproductive biology.

"Village Vaccine Day" for Newcastle disease in chickens

Multilateral program

Active projects in 2005–06	30
AOP budgeted expenditure in 2005–06	$9,896,000
Actual expenditure in 2005–06	$10,002,356
Expenditure in 2004–05	$9,984,197
Expenditure in 2003–04	$10,200,514
Proportion of total ACIAR expenditure 2005–06	**18.0%**

Key performance indicators	Performance 2005–06
• Alignment with the IARC funding strategy	ACIAR allocated 19.9% of its total appropriation in 2005–06 to the IARCs. Of this total IARC investment, 56% was allocated as unrestricted funding to centres with a comparative advantage in the Asia-Pacific region while another 43.1% was allocated to specific projects within the region. The remaining 0.9% was allocated to other multilateral activities. These percentages are consistent with the three-year IARC funding strategy announced at the beginning of 2005–06.

Position

ACIAR is responsible for administering, on behalf of the Australian Government, Australia's contribution to the international agricultural research centres (IARCs). The IARCs are internationally funded, independent, non-profit institutions that carry out research and related activities to help achieve sustainable food security and reduce poverty in developing countries. Research-related activities cover agriculture, forestry, fisheries, policy and environmental management.

The goal of ACIAR's multilateral program is to ensure the effectiveness of, and benefits to, developing countries and Australia from agricultural research conducted by the IARCs with funds provided by Australia.

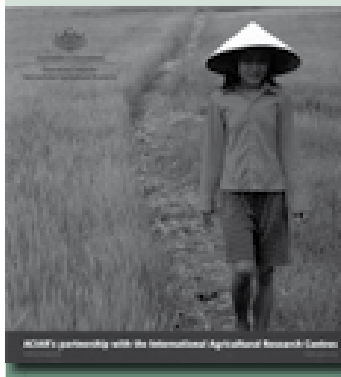
ACIAR's policy position for contributions to the IARCs involves:

- allocating around 20 per cent of ACIAR's total appropriation to the IARCs;
- allocating between one-third and half of ACIAR's annual IARC investment as project-specific funding, while half to two-thirds is allocated to core or unrestricted funding; and
- focusing the unrestricted funds on a reduced number of centres, based on comparative research advantages.

Disbursement of multilateral funds, 2005–06

In 2005–06 unrestricted contributions amounted to 56 per cent of funding allocated to IARCs. Project-specific funding accounted for 43.1 per cent, with the remaining 0.9 per cent of total multilateral research funding allocated to other multilateral activities.

Fourteen centres received project-specific funding through ACIAR this year. Twelve of the centres are associated with the Consultative Group on



International Agricultural Research (CGIAR) and two (AVRDC and CABI) work in an area of agricultural development of particular interest to Australia.

Project-specific research funding is designed to build tripartite research linkages, which allow scientists from IARCs, advanced research institutions in Australia and national agricultural research institutes in developing countries (particularly those that are ACIAR bilateral partners) to interact on specific issues. Projects developed under project-specific funding arrangements operate as part of ACIAR's 11 discipline-based research programs. IARC projects complement and add value to the bilateral programs run by the discipline areas. Six new activities were initiated and eight completed in 2005–06. A total of 30 projects, including these, were active in 2005–06.

ACIAR also supports relevant CGIAR system-wide initiatives. These are cross-centre programs that link research complementarities of different centres to address and resolve global and regional issues through strategic research approaches.

Allocations of core funding to centres will continue to focus on those with a mandate relating to, or a geographic emphasis on activities in, the Asia-Pacific region.

The allocation of project-specific funding to an IARC and, where appropriate, Challenge Programs of the CGIAR is considered annually on a competitive basis, where projects are selected based on the following criteria:

- relevance to the Asia-Pacific region;
- clear cut adoption pathway with the possibility of significant impacts. It must involve a national agricultural research system (NARS) and, where appropriate, an Australian research partner;
- consistency with ACIAR's Annual Operational Plan 2006–07; and
- consistency with the CGIAR Science Council Priorities 2005–2015 and be drawn from the centre's Medium Term Plan 2006–2008.

Other activities supported include the Asia-Pacific Association of Agricultural Research Institutions (APAARI) and the Crawford Memorial Lecture at the CGIAR Annual General Meeting.

Project examples

Some examples of project outcomes associated with the international centres have been separately reported in some country programs. The work under way in **Afghanistan** is undertaken by **CIMMYT**, while the program in **Iraq** is supported through **ICARDA**. And the work on adoption of **improved cassava production** and utilisation systems in both East Timor and Indonesia, aided by **CIAT**, is described in the East Timor country report. **IPGRI** is the regional project coordinator for a five-country project to **conserve the genetic resources** of selected tropical fruits.

In India, **IWMI** through an ACIAR project is providing guidance to help the **Krishna River Basin Tribunal** formulate and evaluate water allocation strategies. Another report from India highlights a project bringing together **plant breeders (ICRISAT) and livestock nutritionists (ILRI)** who are working together to improve animal productivity. **ICRISAT** work also underpins research on low soil fertility in southern Africa.

Turning to other projects, **CABI** has completed an **electronic, CD-ROM-based compendium** of information pertaining to aquaculture industries—supported by ACIAR and other organisations. The compendium, available by internet access or purchasing the CD-ROMs, provides the aquaculture industry with text, pictures, maps, databases, diagnostic information and taxonomic keys, along with statistics, allowing easy retrieval of a range of information.

ACIAR continued its support for the sustained research effort, led by the **International Rice Research Institute**, to develop apomictic hybrid rice. Apomixis is the naturally occurring ability of some plant species to reproduce asexually—plants growing from these seeds are identical to the mother plant. If new high-yielding hybrids could be reproduced asexually it would overcome the high cost and inflexibility of hybrid seed production. Scientists from IRRI and partner CSIRO have genetically manipulated rice and other species to express some of the characteristics essential for successful apomictic seeds, giving rise to optimism that they are on course to achieve the desired outcome.

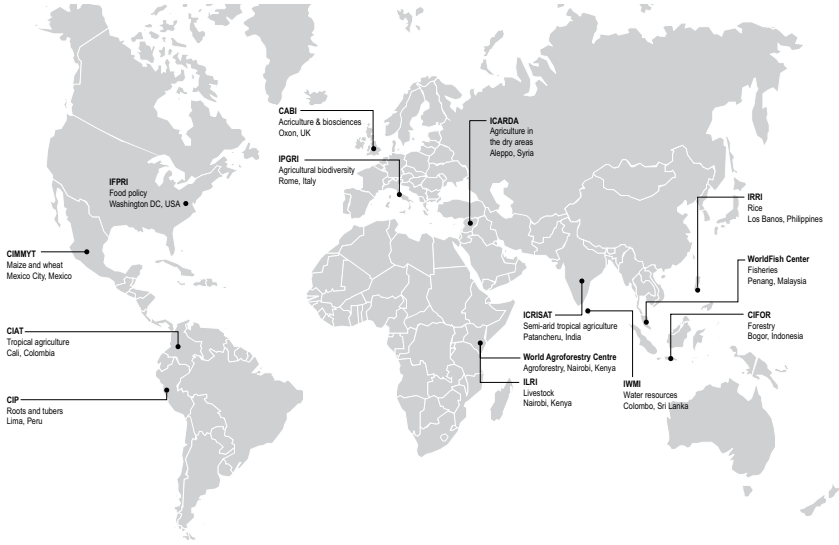
ACIAR and **WorldFish** have been partners in Pacific fisheries research for more than a decade. After some successful research outcomes, they are now working to achieve some genuine impacts. Civil unrest in Solomon Islands halted the sea cucumber culture work that had commenced at WorldFish Coastal Research Centre. The work then moved to New Caledonia. This entailed building a new hatchery and adapting to a new environment because, unlike in Solomon Islands, the sea cucumbers do not spawn year-round in New Caledonia. But these challenges have been surmounted and the team is now achieving very good results that will be valuable in restoring diminished wild stocks.

In association with this work, studies have been undertaken of the natural populations of sea cucumbers and the harvesting patterns of various communities. The work has revealed that in some areas cucumber populations are indeed in crisis. The outcome led to a nation-wide ban on their harvesting for a period in Solomon Islands. ACIAR, WorldFish and others are now working with national fisheries authorities to support a mosaic of projects that could provide alternative income-producing activities, in order to foster new enterprises that will help to protect vulnerable marine species.

ACIAR has supported the work of **IPGRI and SPC in establishing the Pacific Agricultural Plant Genetic Resources Network** (PAPGREN).

Members of the network are from Cook Islands, Fiji, Kiribati, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu. The task is to develop management strategies for agricultural plant genetic resources (PGR) in the Pacific, and promote the safe exchange of germplasm within and outside the region (ACIAR has supported many associated activities, especially in relation to coconut and taro). Scientists have established databases of country-specific information drawn from national collections, crop networks and international genebanks and they are now making the data more widely available to the region in different forms (CD-ROM, network web site, and hard copies).

Location of headquarters of International centres receiving core funding from ACIAR



Funding to IARCs for 2005–06

Acronym	Centre title and location	Core funding (A$)	Project-specific funding (A$)[1]	Total (A$)
Centres associated with CGIAR				
CIAT	International Center for Tropical Agriculture, Colombia	250,000	287,637	537,637
CIFOR	Center for International Forestry Research, Indonesia	250,000	62,335	312,335
CIMMYT	International Maize and Wheat Improvement Center, Mexico	750,000	533,010	1,283,010
CIP	International Potato Center, Peru	250,000	176,614	426,614
ICARDA	International Center for Agricultural Research in Dry Areas, Syria	250,000	448,469	698,469
ICRAF	World Agroforestry Centre, Kenya	250,000	169,478	419,478
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics, India	500,000	404,517	904,517
IFPRI	International Food Policy Research Institute, United States of America	500,000	434,663	934,663
ILRI	International Livestock Research Institute, Kenya	250,000	0	250,000
IPGRI	International Plant Genetic Resources Institute, Italy	250,000	468,868	718,868
IRRI	International Rice Research Institute, Philippines	750,000	330,841	1,080,841
IWMI	International Water Management Institute, Sri Lanka	500,000	387,293	887,293
WorldFish	WorldFish Center, Malaysia	500,000	300,410	800,410
Centres not associated with CGIAR				
AVRDC	The World Vegetable Center, Taiwan	0	199,529	199,529
CABI	CAB International, United Kingdom	250,000	213,692	463,692
Total funds to IARCs		**5,500,000**	**4,417,356**	**9,917,356**

[1] *Includes AusAID funding.*

Sharon Harvey, Education and Training Officer

Building research capacity

AOP budgeted expenditure in 2005–06	$2,563,000
Actual expenditure in 2005–06	$2,908,586*
Expenditure in 2004–05	$2,565,098
Expenditure in 2003–04	$2,465,634
Proportion of total ACIAR expenditure 2005–06	5.2%

** Increase expenditure associated with increases in university fees for John Allwright Fellowship program, an increase in the number of Fellowships awarded reflecting high quality pool of candidates and synchronisation of payments with AusAID*

Key performance indicators	Performance 2005–06
• At least six training courses on participatory action research, research management and experimental design and analysis successfully run	• Achieved. Ten short training courses involving seven different training providers were delivered in partner countries during 2005–06: – *International Course on participation in extension: farmer-led approaches* (Philippines). Seven Philippines project staff took part. – *Leadership for Asian women in Agricultural R&D* (Philippines) Participants included six project leaders from Cambodia, Laos, Indonesia and the Philippines. – *Participatory approaches to agricultural research and extension* (Philippines). Ten ACIAR scientists from Cambodia, India, Indonesia, the Philippines and Vietnam took part. – *Writing scientific papers in English* (Vietnam) – *Reinforcing the social and community dimensions of ACIAR projects to deliver livelihood impacts* (Lao PDR, Indonesia). Three workshops for 65 scientists held in Lao PDR and in Indonesia. – *Evaluation training for agricultural research projects* (Papua New Guinea), attended by 24 ACIAR project staff. – *Experimental design data analysis and interpretation* (Vietnam). The training was aimed at improving practical skills in data collection, presentation, analysis and interpretation. – *Commercialization of biotechnology crops in Asia* (Philippines). ACIAR sponsored six Vietnamese participants on this course.
• Analysis of the returnees Small Project scheme identifies at least eight former fellows whose ACIAR-funded small grants significantly benefited their institute	Achieved. Twelve of the 18 returnees surveyed used the funds for research within their country and to purchase equipment. This contributed to developing the research capacity of the institution and, in several cases, led to tangible scientific and community impacts.
• At least seven students successfully complete postgraduate awards, including two from the Pacific	Achieved. Twelve students have successfully completed postgraduate awards in 2005–06, including students from Vanuatu and the Solomon Islands.

Position

The central objective of ACIAR's training program is to build the research capacity of agricultural research institutions in key partner countries by providing both discipline-specific and some broader training opportunities.

Project-specific training

ACIAR only supports training that relates directly to its projects. The training program focuses on specialised training activities provided through its postgraduate and research management fellowships and short courses targeting specific issues. Training opportunities arising as a component of ACIAR-funded projects are not included in the budget figures shown above. The majority of training provided by ACIAR takes place within individual research projects through 'on-the-job' training, where either developing-country scientists visit Australia or Australian specialists visit partner countries to work together. At its inception, each ACIAR project is designed to include capacity-building through formal and informal training, to enable project personnel from partner countries to engage in the full range of activities. Formal courses may be built into the project. They may provide training in a particular research methodology or develop social science research skills. Often they develop essential skills in computing or scientific communication. Informal training varies according to the type of project, the ability of the project team and the opportunities that arise.

John Dillion Fellowship Recipients for 2006 at Parliament House, Canberra. From left Nyima Tashi (Tibet, PR China), Delia Catacutan (Philippines), Wen Shilin (PR China), Anju Gaur (India), Angelito Carpio (Philippines)

Achievements

Training managed and funded by the ACIAR training program falls into four categories: the first representing by far the main area of expenditure:

- postgraduate fellowships (John Allwright Fellowship Scheme);
- research management training (John Dillon Memorial Fellowship);
- short-term cross-discipline training courses for developing-country staff involved ACIAR projects; and
- training courses provided through the ATSE Crawford Fund for staff on ACIAR-funded projects.

Capacity-building is important for all of ACIAR's developing-country partners, but especially so for the newer, poorer, partner countries. There is a particular emphasis on training for ACIAR project scientists from Papua New Guinea, the Pacific Islands, poorer parts of Indonesia, East Timor, Cambodia, Vietnam and Laos. ACIAR's cross-program training courses are presented by both public- and private-sector providers.

Postgraduate fellowships

John Allwright Fellowships are awarded to developing-country project scientists who are actively involved in an ACIAR project. These Fellowships are awarded for study at Australian universities to undertake Postgraduate Diploma, Masters or PhD training, with the student's research project forming a discrete topic related to, but not part of, the existing ACIAR project. While individual awardees benefit from the scheme, partner-country institutions are the key targets. In 2006–07 fellowships will be available to scientists and economists from Papua New Guinea, ACIAR's six Pacific Island partners, East Timor, Indonesia, Vietnam, Cambodia, Laos, Philippines, India, Bangladesh, Pakistan, western China and the Republic of South Africa.

In 2005–06 $1.54 million was expended on the John Allwright Fellowship Scheme, with 57 active fellowships representing 14 countries. During this time 13 fellows successfully completed their studies and 15 new candidates – from Fiji, India, Indonesia, Laos, Papua New Guinea, the Philippines, Samoa, Solomon Islands, Vanuatu and Vietnam – commenced at eight universities in Australia. ACIAR, with co-investment from AusAID, has taken measures to increase the size of the John Allwright Fellowship Scheme, with the aim of maintaining over 60 active fellowships during 2006–07. A meeting of new Fellows is held annually at ACIAR headquarters and provides training in science communication and writing research papers while providing an opportunity for networking.

John Allwright Alumni Association

Former John Allwright Fellows, who have completed their studies in Australia, are an important part of the ACIAR network. Many play valuable roles after returning to their home countries in maintaining strong linkages between Australian and partner-country institutions. Several former Fellows now lead or play key roles in ACIAR projects and, in recent years, many have received returnee small project grants. ACIAR has formalised its relationships with its former Fellows through the establishment of a 'John Allwright Alumni Association'. Through the Association former fellows:

- receive an email newsletter with information on ACIAR programs, project and training activities, and other key ACIAR events including information on projects under development in their country. Two issues of the newsletter were published in 2005–06;
- receive by airmail, copies of relevant corporate publications such as the Annual Operational Plan, Country Profiles and the Annual Report, and information on new technical publications;
- provide assistance in the delivery of training courses for ACIAR project scientists in their home country;
- contribute to the quality of information and its analysis in the external impact assessments commissioned by ACIAR; and
- attend major ACIAR events held in partner countries.

John Dillon Memorial Fellowships

John Dillon Fellowships provide an opportunity for agricultural scientists and economists from ACIAR partner countries to develop leadership skills in the area of agricultural research management, agricultural policy and/or extension technologies. They achieve this through exposure to Australian agriculture across a range of best-practice organisations involved in research, extension and/or policy-making. The scheme is highly selective, and since the program's inception in 2002 there have been 19 Fellowships from approximately 150 applications. During February/March 2006 five John Dillon Fellows (from India, Philippines and China) each visited Australia for approximately five weeks. The Minister for Foreign Affairs, The Hon Alexander Downer MP again met with the Fellows at Parliament House.

Returnee small project awards

Small grants of up to $10,000 are available for successful John Allwright Fellows after they have completed postgraduate studies and returned to relevant employment in their home countries. The follow-on funding scheme provides for an activity which continues, or is related to, the research done within an ACIAR project associated with postgraduate work. These grants for former John Allwright Fellows are primarily aimed at developing small-scale research projects in the returnee's institution, which may catalyse longer-term support.

In 2005–06 four small projects totalling $33,498 were awarded. A survey of the Small Projects Grants Scheme was undertaken and resulted in a publication entitled *Building on the John Allwright Fellowship Scheme – a survey of the small grants scheme for former fellows*. Two-thirds of the returnees surveyed used the funds for research within their country and/or to purchase equipment. This contributed to developing the research capacity of the institution and, in several cases, led to tangible scientific and community impacts.

Australian Youth Ambassadors for Development

ACIAR continues to provide assignments for the AusAID-funded Australian Youth Ambassadors for Development scheme (AYADs), where young Australians spend a period of between three and 12 months assisting on a development activity in a partner country. During 2005–06 there were 11 Youth Ambassadors who gained international experience working in developing countries on ACIAR projects.

Six AYADs successfully completed assignments, which included work on smallholder forestry (Philippines), mixed species plantations for increased timber production (Vietnam), rainfed farming systems for the western Loess Plateau of Gansu Province in China, and dairy beef extension in Tibet AR, China.

At 30 June 2006 there were five active Youth Ambassadors involved in ACIAR projects in Laos, Western China, Indonesia and Vietnam.

ATSE Crawford Fund fellowships, training courses and master classes

In 2005–06, total funding to the ATSE Crawford Fund through ACIAR was $852,077, comprising management of an Australian Government allocation of $680,000 and $172,077 from ACIAR for joint training activities. The Crawford Fund also attracted contributions from State Governments and the private sector. In 2005–06 the Crawford Fund conducted several short-term training activities associated with ACIAR projects, including a Master Class in CGE (Economic Policy) Modelling with 32 participants from Cambodia, China, Laos, Thailand and Vietnam (held at Chulalongkorn University, Bangkok). Other training courses associated with ACIAR projects included:

- Postharvest Technology Workshop – Diseases of Fruit, Diseases of Vegetables, held in Sri Lanka, October 2005 (Queensland Department of Primary Industries and Fisheries);
- Modelling rice-wheat cropping systems of the Indo-Gangetic Plains, held in Nepal, December 2005 (CSIRO Land and Water);
- Integrated rural development in eastern Indonesia, held in Indonesia, April 2006 (Charles Darwin University);
- Success with Lucerne in China, held in Western China, June 2006 (South Australian Research and Development Institute).

These activities also helped ensure ACIAR research results were more widely applied in developing countries, since in some cases they gave ACIAR project leaders the opportunity to instruct scientists from countries other than those where their projects are situated. The Crawford Fund also sponsors short-term training fellowships. In 2005–06 the Fund sponsored 12 fellowships to enable members of ACIAR project teams to undertake training activities in Australia for up to three months.

Cross-program training

In 2005–06 ACIAR, in consultation with its partners, moved to a more focused and integrated program of activities for staff associated with active ACIAR projects, rather than running short courses in isolation. Themes included 'assisting in the development of a modern agricultural R&D system' (Laos and Cambodia), 'linking research to farmer application' (Indonesia and the Philippines) and 'participating in the international scientific community' (Vietnam). Courses that included participation of selected ACIAR project scientists in regionally delivered courses were also undertaken. Cross-program training courses (4–21 days in duration) undertaken in 2005–06 include:

- *International course on participation in extension: farmer-led approaches* (Philippines)
  ACIAR sponsored seven Philippines project staff on this course designed to advance rural development through improved agricultural extension practices. The course was delivered by the International Institute of Rural Reconstruction (IIRR), Silang, Cavite, Philippines and took place in September/October 2005.
- *Leadership for Asian women in agricultural R&D* (Philippines)
  This course took place at the International Rice Research Institute (IRRI), Los Baños, Philippines during November 2005 and participants included six female project leaders from Cambodia, Laos, Indonesia and the Philippines. The course was designed to develop their personal leadership skills and to make them more effective agents of change in the agriculture sector.
- *Participatory approaches to agricultural research and extension* (Philippines)
  A second course held by the International Rice Research Institute (IRRI), Los Baños, Philippines in November/December 2005 was attended by 10 scientists from Cambodia, India, Indonesia, the Philippines and Vietnam. The main objective of the training was to enhance participants' knowledge and skills in the effective application of participatory research and extension to accelerate the adoption of appropriate and improved rice-based technologies.
- *Writing scientific papers in English* (Vietnam)
  The second of two short courses in scientific communication for ACIAR project scientists took place in Vietnam in January/February 2006, with training delivered by the University of Western Sydney. The course aims to extend the English language and writing skills of Vietnamese scientists and assist them to publish in international journals.
- *Reinforcing the social and community dimensions of ACIAR projects to deliver livelihood impacts* (Lao PDR, Indonesia)
  Three workshops for 65 scientists involved in ACIAR projects were held in Lao PDR at Vientiane and in Indonesia in Java and Bali during January and June 2006. The training, conducted by Charles Sturt University, aimed to enhance the outcomes of ACIAR projects by reinforcing the social and community research knowledge and skills of key project staff.
- *Evaluation training for agricultural research projects* (Papua New Guinea)
  In May/June 2006 this 'hands-on' training course was held in Lae, Papua New Guinea. It was attended by 24 ACIAR project staff, who learnt how to create an evaluation plan for projects and use the evaluation findings.
- *Experimental design data analysis and interpretation* (Vietnam)
  A course in experimental design, data analysis and interpretation was conducted by the University of Queensland for Vietnam project scientists in late June 2006. The training aimed to improve practical skills in data collection, presentation, analysis and interpretation.
- *Commercialisation of biotechnology crops in Asia* (Philippines)
  A training course facilitated by Asian BioBusiness was conducted in Manila in June 2006. ACIAR sponsored six participants on this course to gain a comprehensive in-depth understanding of the principles, approach, regulatory requirements and stewardship requirements for commercialising a biotechnology seed product for widespread farmer adoption.

Communicating Research Outcomes

AOP Budgeted expenditure in 2005–06	$725,000
Actual expenditure in 2005–06	$689,749
Expenditure in 2004–05	$776,556
Expenditure in 2003–04	$742,721
Proportion of total ACIAR expenditure 2005–06	**1.2%**

Lisa Wright, Manager Communications and Secretariat Unit

Key performance indicators	Performance 2005–06
• Evidence of continuing demand for and appreciation of ACIAR publications	31,000 hard copies of publications were disseminated; 250 of these hard copies were sold, earning a net income of $12,600. ACIAR's Online bookshop, part of the Centre's website, remains one of the most popular site destinations. More than 236,000 separate visitors viewed ACIAR's website, with more than 7 million hits recorded; in 2005–06 website traffic almost doubled compared to 2004–05. Each month the ACIAR publication lists featured in the top ten most visited pages, with an average of more than 83,000 visits, or 22% of visitors downloading publications in 2005–06.
• Information on project achievements and impacts is widely available in print and web-based media	Project milestone reporting and summaries posted on the website; achievements and impacts captured in a suite of Impact Assessment publications, Adoption Studies and the Country Profiles publications.
• Successful trials of the use of NetMeeting and videoconferencing to enhance ACIAR project implementation	The project focusing on use of low-cost, low-bandwidth ICT to support the operation of remote international research teams successfully piloted, including a number of internet meetings and video conferences in Indonesia (Lombok and Sulawesi) and at two sites in the Limpopo Province of South Africa; work progressing on how ACIAR and CSIRO can best scale up the learnings and technologies.

Position

ACIAR has a statutory obligation to communicate the results of the research it funds. With a wide range of stakeholders, the Communications Program targets specific audiences through the ACIAR website, hard- and soft-copy publications, and other communication activities that raise awareness of the Centre's activities and outcomes. The scientific publishing program links research and adoption through the provision of low-cost access to syntheses of information from ACIAR-funded projects or activities. Customised information resources and briefing materials support targeted communication activities that raise awareness of our research. Our partnership with the Australian Development Gateway provides another avenue for linking our outputs with the broader development community.

The Communications Program utilises ACIAR's website as the primary source of information on project activities and outcomes, dissemination of free publications and an associated on-line shopping facility, with material also supplied in traditional hard copy form and on CD-ROM. Translations into regional languages and use of multimedia technology are also supported where appropriate.

Achievements

During 2005–06 ACIAR published and distributed 14 new titles in its scientific series (six monographs, two proceedings, four working papers and two technical reports), and five reports in its impact assessment series. These are listed in Appendix Four, together with the corporate and research awareness titles produced during the year.

The published monographs included *Integrating knowledge for river basin management*, a treatise on how an integrated water resources assessment and management framework has developed a multi-disciplinary and multi-agency approach to this complex problem. The issue of surveillance guidelines for plant pests was covered in Monograph 119, outlining how plant health scientists can devise surveillance programs and transmit specimens to the laboratory for identification and preservation.

Monograph 120, on culture-based fisheries best practice, helps provide guidance to development workers and program planners for integrating community-based fisheries into rural development plans. A monograph on agricultural land policy in Vietnam focused on an assessment of the impacts of the Vietnamese government's new policies on agriculture and presented economic models suitable for analysing policy reforms.

Proceedings published included *Evaluation and performance of permanent raised bed cropping systems in Asia, Australia and Mexico*. ACIAR has supported research into permanent raised bed systems in Asia and Australia. Results from these projects and other research, presented at a workshop in 2005, have been published to provide a valuable resource for researchers and practitioners of permanent raised bed cropping systems. Technical report titles covered the management of pest and disease incursion risks in Papua New Guinea and controlling pollination methods for Melaleuca species.

More than 31,000 hard copies of publications were distributed, of which 250 were sold to developed world customers, earning net income of $12,600. Complimentary copies were distributed on request to 2120 people and institutions involved in agricultural research, development and extension. Website usage almost doubled throughout 2005–06, with the ACIAR Online bookshop one of the most popular destinations. The bookshop groups publications by research area and publication type, and allows all available electronic publications to be freely downloaded.

The most popular hard copy titles were: *Working with ACIAR Now and in the Future; Nitrogen Fixation in Acacias* (Monograph 115, 2005); *Selecting Safer Pesticides—integrating risk assessment, monitoring and management of pesticides* (Monograph 117, 2005); *Agriproduct supply-chain management in developing countries* (Proceedings 119, 2004); *and ACIAR's Country Profiles*. The most frequently downloaded titles included: *China's Agricultural and Rural Development in the Early 21st Century* (Monograph 116); *Lantana: Current Management Status and Future Prospects*

(Monograph 102); *Review of the returns to ACIAR's bilateral R&D Investments – Impact Assessment Series 35; Partners Magazines; and Building on the John Allwright Fellowship Scheme*. A new *Publication Catalogue* was produced in 2005–06 profiling ACIAR publications in a ready-reference format.

The Program supported a range of briefings, events and activities, media releases, television and radio coverage, targeting specific audiences and supplying tailored information. These included activities in East Timor, Indonesia, China, the Philippines, Pakistan, Vietnam and India. The Program also encouraged the development and delivery of country-specific newsletters, written through country offices, together with ongoing activities to keep Australian embassy staff and international partners up to date with ACIAR projects, achievements and activities. ACIAR also maintained a presence at several conferences, such as the International Association of Agricultural Economists Conference and the Annual Crawford Fund Seminar (which in 2005 focused on forestry and its contribution to poverty alleviation).

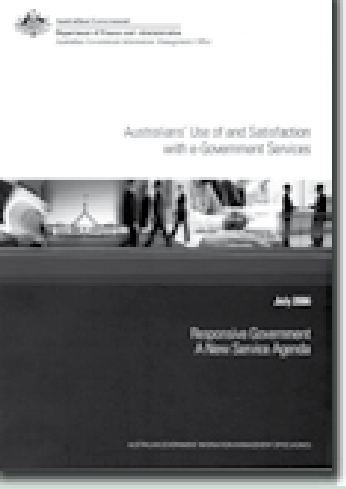
The Communications team has provided support to various ACIAR training and education programs, including science and general communications training and support to the John Allwright Fellowship, John Dillon Fellowship and the Youth Ambassador Programs. Information and support—for communication strategies, channels and tools applicable to projects and for communicating the results of research—were also provided to program areas and country offices.

The Communications Unit published a range of corporate publications and brochures as well as a suite of new marketing materials, and targeted promotions to communicate effectively and transparently with our key audiences and stakeholders.

The ACIAR flagship quarterly magazine *Partners in Research for Development* continued to attract favourable attention from Australian and overseas recipients. ACIAR's work in Indonesia, South Asia, the Philippines and the Pacific featured during the year. Other features included the programs and projects that are helping rebuild research capacity in tsunami-devastated areas of Aceh, Indonesia, the ACIAR research that benefits indigenous communities, and the efforts to preserve seed resources of essential crops.

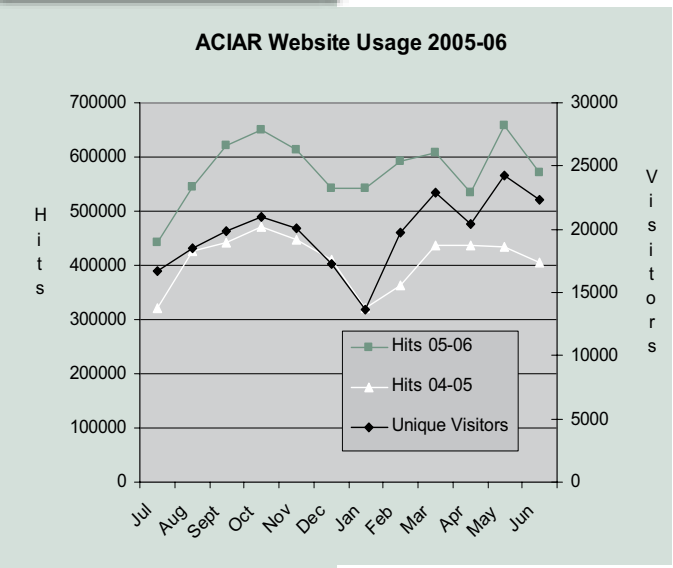
The second series of the popular Country Profiles was produced in 2005–06, and continues to be well received by stakeholders. Each Profile comprised a current overview of ACIAR's program with summaries of active and recently concluded projects for a specific country or region.

ACIAR contributes to Australia's commitment to increase the use of ICTs through projects examining their appropriateness and relevance to developing countries. By utilising low-cost, low-bandwidth technology the operations of remote international teams can be effectively supported. A



successful pilot of internet meeting software and video conferencing was held across three countries. Teams in Australia were able to communicate with partners in Lombok and Sulawesi in Indonesia and Limpopo Province in South Africa. Following these findings ACIAR and CSIRO will examine further opportunities on a project-by-project basis, rather than through specific activities. The Program continues to develop, where appropriate, CD-ROM based publications.

ACIAR's website

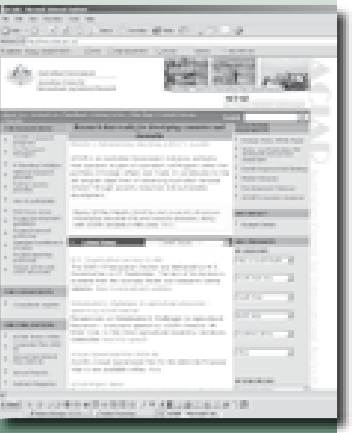


ACIAR's website (www.aciar.gov.au) is designed to offer a first-stop gateway into the Centre's activities and operations. Accessibility remains a key design feature, particularly for developing-country visitors to the site.

The site features detailed project information, with a growing number of concluded projects and their impacts reported on, as well as details of all active projects, including progress reports. Australian and international research partner information and project involvement is included, together with detailed reporting and planning documentation on ACIAR priorities and outcomes.

During 2005–06 website traffic almost doubled compared to that of the 2004–05 financial year. Website statistics were captured throughout the year, revealing visits, hits and usage all trending significantly upwards. Almost 7 million page hits were recorded by more than 200,000 unique or separate visitors.

ACIAR's Online bookshop, through which all publications available electronically can be freely downloaded, remained one of the most popular destinations on the site. An average of 22 per cent of visitors each month downloaded parts of or whole publications, including corporate and scientific titles.



A number of site enhancements, including a story of the month, current issues briefs, International Agricultural Research Centres' area and impacts reporting were developed. Feedback to the site continues to be positive, with less than one per cent of comments coming from visitors unable to find the information they are seeking.

The chart shows the number of unique visitors to the site along the right hand axis and the number of hits on the left hand axis.

Measuring Research Impacts

AOP budget expenditure 2005–06	$450,000
Actual Expenditure 2005–06	$709,307*
Expenditure in 2004–05	$408,624
Expenditure in 2003–04	$439,026
Proportion of total ACIAR expenditure 2005–06	**1.3%**

** Higher than the AOP budget because of an expanded focus in this area with a new program manager*

Jeff Davis, Policy Linkages and Impact Assessment

Key Performance Indicators	Performance 2005–06
• Six assessments of completed projects will be commissioned and published in 2005–06	Five assessments were published. An additional five assessments were commissioned and will be published in early 2006–07. The review of all past impact assessments undertaken in 2004–05 was published.
• Adoption studies of projects concluded in 2001–02 will be commissioned	Ex-post adoption studies undertaken for nine projects completed in 2001–02.
• Clarification and estimation of the outcomes of new projects will be enhanced by assisting project proponents during the peer-review process of their proposals	Input to a range of project development activities. Examples include mango and dairy project development in Pakistan and livestock projects in Cambodia and Laos.
• Increase capacity of ACIAR staff and Australian and developing country researchers in conceptual and practical aspects of estimating research-induced poverty reduction	Collaboration with partner-country groups for more effective adoption estimation has been established in pilot activities. Links to several Australian groups have been developed. Collaboration with the CGIAR System and Crawford Fund was established.
• Meta-analysis of the impact of ACIAR's animal health to guide future investments	External review commissioned and completed and ACIAR response finalised. The report is due to be published in early 2006–07.
• Complete a study of the benefits to Australia of ACIAR's bilateral project investment	Study completed and published as a report in the ACIAR Impact Assessment Series.
• Complete a study of ACIAR's investment in fruit fly control	Since project investments in Indonesia, Vietnam and Papua New Guinea are still under way, it was decided to limit the study to a review of ACIAR's investment in fruit fly control in the Pacific. Report published.
• Review returns to Australia from investment in IRRI	An evaluation of the impact of CABI on Australia was finalised instead.

Position

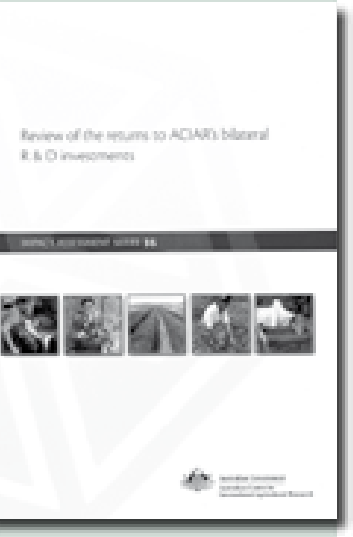
During the year the Impact Assessment Unit (IAU) activities of ACIAR were combined with a new Policy Linkage activity and introduced as a specific Policy Linkage and Impact Assessment Program (PLIA).

The functions of this impact assessment activity, however, remain basically the same. They provide an important 'after the event' dimension to the comprehensive monitoring and evaluation processes ACIAR has in place to ensure that its funds are used to support priority issues and are undertaken so that objectives are achieved and effective impacts result.

The functions include an important accountability role in providing key stakeholders with a clear measure of the returns on the funds ACIAR invests.

ACIAR continues to expand the measures of these returns to include quantification of all 'economic' impacts, that is, financial, environmental and social. In addition the assessments increasingly provide a basis for improving the research selection process by identifying lessons learnt from past activities and feeding them into the project development process.

Emphasis is also placed on developing collaborative links with partner-country, Australian and international groups undertaking similar activities to enhance ACIAR's effectiveness in this area. These collaborative links help improve the accuracy of the information used in assessing the impacts of the research and also the effectiveness of the methodology used to quantify the returns on investment. In the last two years several 'stocktakes' of past impact assessments have been undertaken. These have assessed the comprehensiveness of the methods used and the results achieved, and will also be used as a basis for developing an up-to-date set of guidelines for undertaking these assessments. This will be finalised in the coming year and linked to activities associated with the White Paper on the Australian Government's Overseas Aid Program.



Achievements

Review of the returns to ACIAR's bilateral R&D investments

In 2004–05 ACIAR commissioned a comprehensive review of the 29 economic assessments of bilateral project investments published in its Impact Assessment Series. This review developed a systematic framework for assessing the transparency and analytical rigour of the assessments. It then reviewed all of the assessments using this framework and analysed in detail the returns to ACIAR's investment. It revealed that overall the assessments have been of a high standard and that the aggregate returns from all projects assessed have been very high. The projects evaluated represent about 8 per cent of total ACIAR funding but together more than pay for the total investment of funds. The benefit–cost ratio using only benefits form this 8 per cent of funding, but all ACIAR's funding over its 23 years was estimated at 3:1. If the returns to this 8 per cent of projects were to apply to all projects funded by ACIAR the report shows that the benefit–cost ratio would be 40:1. The results were published in Impact Assessment Series Report No 35. The report was complemented by the production of a brochure on the key messages and findings in the report for wider dissemination to general audiences and stakeholders.

Impacts of mud crab hatchery technology in Vietnam

Mud crab aquaculture has been practiced in Southeast Asia for many years, based primarily on capturing then fattening juvenile crabs from the wild. With increased demand for this product it has become more difficult to obtain stock of juveniles from the wild and there has been concern of over-exploitation of the resource. The ACIAR-funded research developed new hatchery technology for commercial-scale production of crablets. This technology is being adopted and has a significant impact on the cost of aquaculture production of mud crabs. The assessment found that the research has returned a net present value of $6.45 million with a benefit–cost ratio of 2.7:1 and an internal rate of return (IRR) of 16 per cent. The assessment noted that there were no direct benefits to Australia since the technology was too simple for Australian conditions and other crab species are now receiving more commercial attention. However,

it noted that there have been significant indirect benefits, because the knowledge gained in relation to mud crabs is applicable to these other species. This has enabled the Australian research groups to achieve success for these species much sooner than would have been the case. These benefits were not estimated in the study. The results were published in Impact Assessment Series Report No 36.

Management of fruit flies in the Pacific

Fruit flies are one of the most important pest species for fruit in the world. They cause large fruit and vegetable losses and their presence in countries places considerable restrictions on exports. ACIAR and other groups have funded a range of measures to address this major problem in the Pacific. The result of this major effort by several groups has been development of a substitute heat treatment technology to replace the quarantine fumigant ethylene dibromide after it was withdrawn from use. Without this technology exports to the main markets for the crops from several Pacific countries would have ceased. The assessment indicates that the net present value of the benefits from the research and development are $15.6 million, giving a benefit–cost ratio of 2:1 and IRR of 15 per cent. The assessment includes the costs of all projects in this area, not just the four funded by ACIAR, and also the development funding to ensure adoption of the out-comes. The results were published in Impact Assessment Series Report No 37.

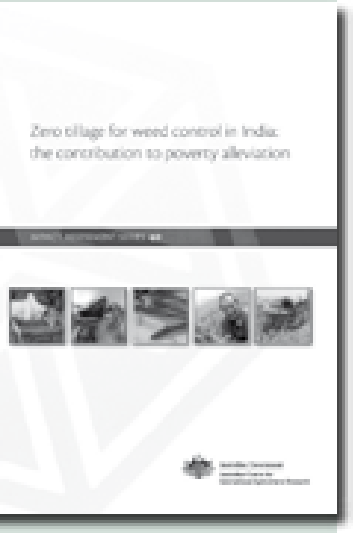
Review of animal health research

For more than 20 years animal health has been a significant program in ACIAR's research portfolio. Much has been achieved both in capacity enhancement in partner countries and Australia, and in the improvement of productivity. In 2005 it was felt that it was an appropriate time to review these efforts and consider the strategic future directions for this area. ACIAR commissioned a thematic evaluation and review. This review undertook: (i) a broad (meta type) analysis of a range of animal health projects; (ii) a more detailed cluster analysis of two of ACIAR's important animal health programs: Newcastle disease and internal ruminant parasites with two case studies on transboundary diseases; (iii) a review of the changing environment; and (iv) the development of a framework to assist in developing and evaluating future animal health research program clusters and projects. This report includes the full review report including its 24 specific recommendations and ACIAR's responses to these recommendations in the form of a Management Action Plan.

The Action Plan is designed to respond positively to the review recommendations and recognises the imperative for changes to this research field to align with current and prospective regional and Australian strategic and operational priorities. In particular, the need for future programs to be more focused, more integrated with overall development efforts and sufficiently flexible to respond and contribute to the immediate and emerging needs of partner countries is recognised. Finally, based on the deliberations of ACIAR's management and Board, the future role of ACIAR in animal health in its mandate regions is outlined. The report for the study was published as Impact Assessment Series Report No 38.

Benefits to Australia from ACIAR-funded research

ACIAR's establishment was based on the belief that funding collaborative agricultural research between Australian and developing country scientist was a unique opportunity for effective provision of aid. There are often common problems facing agricultural sectors in all countries, so potential for mutual gains by addressing these is high. Past impact assessment studies have usually estimated the benefits to Australia from research activities. However, since ACIAR's primary focus is on aid provision, these mutual benefits have not been highlighted in the past. This study was commissioned to specifically look at Australian benefits from ACIAR funding. It found that ACIAR is unique, in that it straddles both Australia's innovation system and provision of international aid. The study summarised the Australian benefits from past impact assessment studies and found that of 41 assessments 17 had quantified Australian benefits. It also undertook five randomly selected additional studies of Australian benefits and found that three of these had quantifiable benefits, with the other two likely to have indirect benefits in the future. For all assessments it was found that the benefits to Australia were $735 million for total project costs of $60 million. This is relative to the total aid benefits from the 41 assessments of around $8 billion. The study noted that these benefits can come from four main categories and that the share of benefits in each category were: direct production benefits (44 per cent); indirect (35 per cent) and direct (12 per cent) protection from pests and diseases; and increased trade (9 per cent). The report for the study was published in the Impact Assessment Series Report No 39.



Zero tillage for weed control in India – contribution to poverty alleviation

Measuring the contribution to poverty alleviation of research outcomes is a challenging issue, and while the methodology has been developed to look at this it is usually difficult to find the information that is required to give reliable measures. This impact assessment study took advantage of an existing agricultural survey in India to elicit farmer information on poverty and technology adoption to quantify likely poverty impacts. The report for the study highlights the difficulties in this exercise. Unfortunately the area the project focused on was one of the relatively better-off areas in India. So the study concluded that the technology, although adopted extensively, did not have a very significant direct impact on alleviating poverty since very few farmers in the area of application fit the standard definitions of poverty. Impacts on the very poor from this research are likely to be through indirect improvements in overall economic growth from the research outcomes, together with lower prices of the outputs that are consumed by the poor. There are important lessons for future studies. The report is being prepared for publication in the Impact Assessment Series as Report No 40.

ACIAR's submission to Productivity Commission study on public support for science and innovation IAS No 41

In March 2006 the Productivity Commission (PC) was requested by the Government to undertake a study on public support for science and innovation in Australia. ACIAR believes that it has a unique and interesting role to play which transcends both Australia's overseas aid program and Australia's innovation system. While many in Australia have a clear understanding of ACIAR's overseas aid mandate, it was felt that fewer in the broader community appreciate the contribution it makes to the wider Australian innovation system.

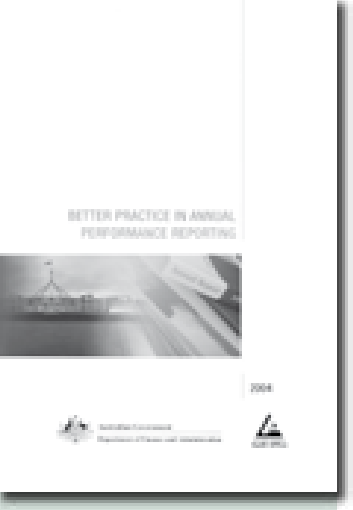
The PC study provided an opportunity to highlight this important Australian benefit role of ACIAR. It was felt that this story also provides an important illustration of one of the many subtle relationships which make up a very complex innovation system in Australia. This publication aims to make this story available to a wider audience. It includes a collection of documents regarding ACIAR's submission to the PC study: a copy of the letter which was included with the submission; a copy of the formal submission; and the Terms of Reference from the Government to the PC for the study. ACIAR engaged the Centre for International Economics (CIE) to assist with preparation of the submission with the view that this would add an important dimension of independence to the analysis.

Benefits to Australia of selected CABI products

The Centre for Applied Biosciences International (CABI) – comprising enterprises CAB International, CABI Publishing and CABI Bioscience – is an international research and publishing organisation. ACIAR, among other organisations, provides funding to CABI to support its activities in developing countries. However, the services CABI offers are also of considerable benefit to Australian research organisations and groups. An assessment of the impact of CABI's services that bring value to Australian agricultural research was undertaken along similar lines to previous CGIAR Centre evaluations. These studies have focused on the total benefits to Australia and do not try to attribute these benefits to specific funding sources. Three surveys were developed, targeting Australian users of CABI products. Survey results were used to estimate the cost savings for Australian research institutions. This analysis suggests that CABI services save Australian users between $2.2 and $2.5 million per year. This is a significant impact. No attempt was made in the assessment to estimate the returns of these savings in funds to the user. However, since they were most likely used to fund additional research activities in Australia, it is reasonable to assume that the benefits to Australia from CABI are between 2 and 10 times the cost saving. These are the types of benefit–cost ratios that are commonly achieved from agricultural research. The report for the study is being prepared for publication in early 2006–07 as Impact Assessment Series Report No 42.

Water management in public irrigation schemes in Vietnam

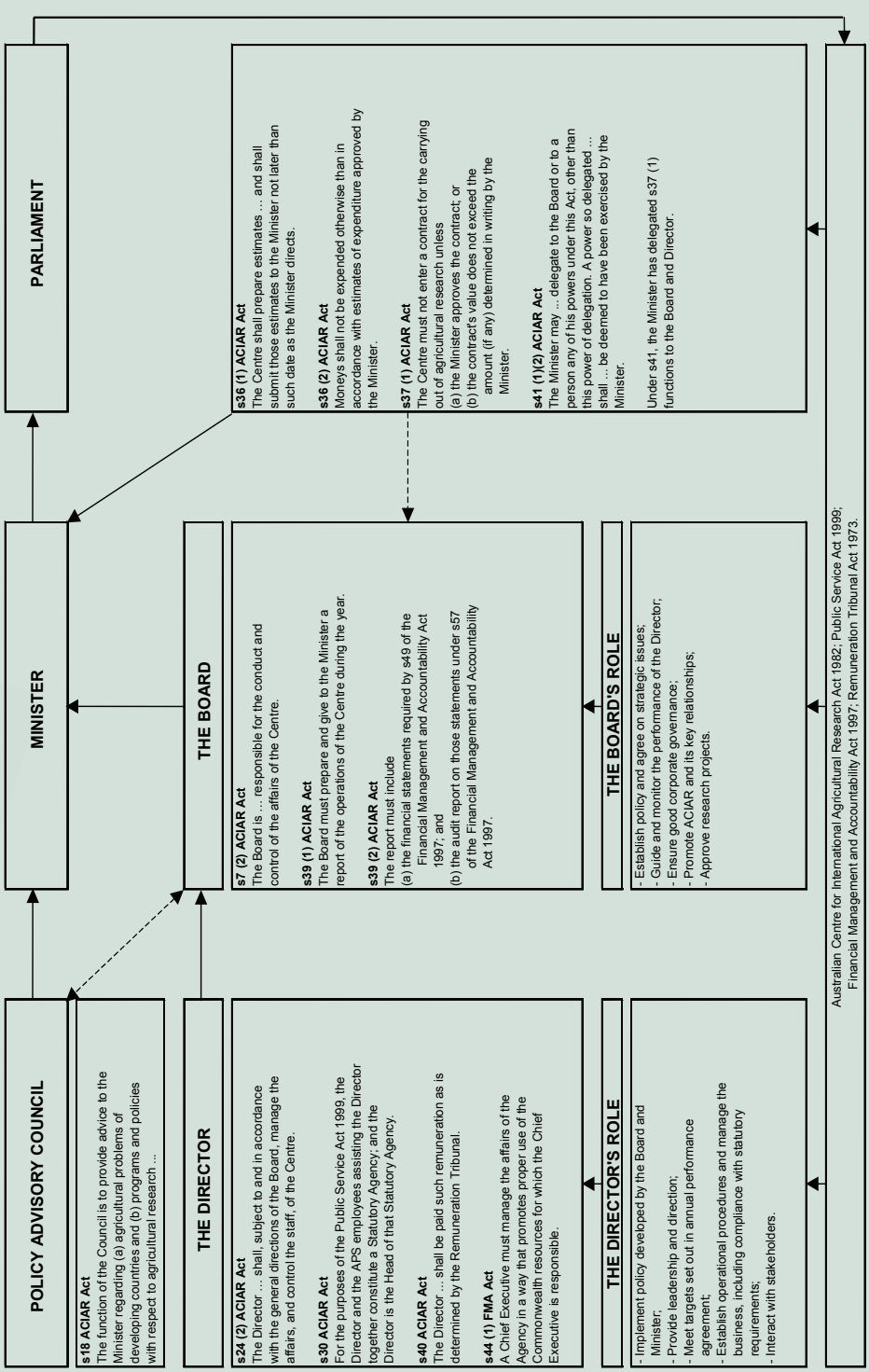
Two projects have looked at the management of three public irrigation schemes in different areas of Vietnam. Past reviews of these types of scheme had revealed that the system performance was often deficient in their capacity to supply required amounts of water for seasonal cropping demands. This research evaluated existing systems and developed hydrologic models to help water company management in water scheduling decisions. The three systems chosen for the study were selected to be representative of different issues affecting water management efficiency. The assessments indicate that there have been significant improvements in water management and that these have translated into reduced water stress or logging and associated increases in crop yields and water savings. The assessments estimated that for the three schemes covered the net present value of benefits was $13 million with a benefit–cost ratio of 10:1. The assessment did not include estimates of potential spillovers of the scheme-specific outcomes to similar schemes throughout the country. These are likely to flow as the experiences with the study schemes are shared with other managers. The report for the assessment is being prepared for publication as Impact Assessment Series Report No 43.



Corporate governance

ACIAR Board of Management – left to right, Peter Core (ACIAR Director), John Williams (Member), Joanna Hewitt (Member), Meryl Williams (Chair), Peter Corish (Member), Lisa Wright (Board Secretary)

Accountability framework



Board of Management

The Board of Management and its responsibilities for the overall corporate governance of ACIAR are established under Section 7 of the ACIAR Act. Through consultation with the Minister, the Board of Management sets the strategic directions of the Centre, with the Director and senior management having responsibility for implementing and managing these directions. The Board of Management is committed to achieving the highest possible standards of corporate governance, emphasising performance-oriented management practices and accountability to Parliament and the Minister. The Board's role is to:

- establish policy and agree on high-level strategic issues,
- advise the Minister in relation to appointment of the Director, and guide and monitor the performance of the Director,
- ensure good corporate governance,
- promote ACIAR and its key relationships, and
- approve research projects.

In fulfilling these roles the Board of Management monitors corporate and program performance and provides feedback on program development. Project proposals are presented during the early stages of their development, and the Board approves research projects in the bilateral and multilateral programs (subject to subsequent endorsement by the Minister). The Board monitors and appraises the Director's performance and ensures that operational plans and control processes are in place and working.

Board composition

The Board comprises five members:

- the Chair, who is also the President of the Policy Advisory Council (see later section on the Policy Advisory Council),
- the Director (CEO) of ACIAR, and
- three part-time members of the Policy Advisory Council.

In recognition of the strong linkages between ACIAR and AusAID, the Director General of AusAID is invited to attend Board of Management meetings. Details of Board members are on page 105. Mr Michael Taylor completed his term on the Board in November 2005; he had served on the ACIAR Board since 1997.

Board meetings

Meetings of the Board of Management are scheduled approximately quarterly, to enable the Board to fulfil its governance and statutory responsibilities. The Board held five meetings in 2005–06, as follows:

101st meeting	28–30 July 2005	Canberra
102nd meeting	8 September 2005	Canberra
103rd meeting	24 November 2005	Canberra
104th meeting	7 March 2006	Canberra
105th meeting	27 March 2006	Canberra
106th meeting	26 May 2006	Canberra

Mr Peter Corish

Member

National Water Commissioner, former President of the National Farmers' Federation, Chair of the Cairns Group Farm Leaders, and a member of the International Federation of Agricultural Producers Executive.

He has previously held the position of Chairman of Cotton Australia Limited and Chairman of the Australian Cotton Industry Council, and has served on the NFF Executive Committee since 1999.
Appointed 1 December 2003 for three years.

Meetings attended: 5

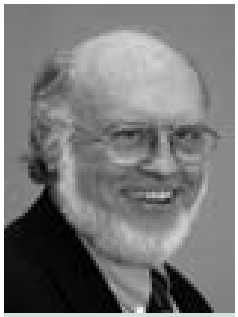
Ms Joanna Hewitt

Member

Secretary, Federal Department of Agriculture, Fisheries and Forestry, and former Deputy Secretary of the Federal Department of Foreign Affairs and Trade.

She was Australia's Ambassador in Brussels from 2000–2003 and before that Deputy Secretary of the Federal Department of Foreign Affairs and Trade, and Australia's APEC Ambassador.
Appointed 1 December 2005 for three years.

Meetings attended: 3



Dr John Williams

Member

Commissioner for Natural Resources Commission in NSW, and former Chief of CSIRO Land and Water. Dr Williams is one of Australia's leading experts on sustainable agricultural practices, the nature of agriculture as part of the natural ecosystem and its integration into natural resources management.
Appointed 25 July 2002 for three years.
Re-appointed 7 July 2005 for three years.

Meetings attended: 6

Dr Meryl Williams

Chair

Member of the Aid Advisory Council, former Executive Officer of the Future Harvest Alliance Office, former Chair of the FAO Advisory Committee on Fisheries Research, Director General of WorldFish Center from 1994 to 2004, Fellow of the Australian Academy of Technological Science and Engineering, a world leader in fisheries research and research for development.
Appointed 5 August 2004 for three years.

Meetings attended: 6

Mr Peter Core

Director
Director of ACIAR since 31 July 2002. Former Managing Director of Rural Industries Research and Development Corporation and held numerous senior positions in the Australian Public Service.

Appointed 31 July 2002 for five years.

Board performance

During 2005–06 major milestones for the Board included:

- finalisation of a performance agreement with the Director for 2005–06 and monitoring of his performance for that period;
- development of the draft Corporate Plan for 2006–10 which provides a greater focus on the achievement of community impacts;
- development of the Annual Operational Plan for 2006–07 which seeks to codify program priorities for partner countries and provide enhanced operational transparency;
- a review of the returns to ACIAR's bilateral R&D investments;
- a survey of Australian stakeholders;
- a review of animal health research ;
- ACIAR's strategy for avian influenza;
- a review of ACIAR's corporate governance framework and practices following the *Review of the Corporate Governance of Statutory Authorities and Office Holders*; and
- approval of 9 medium and 24 large projects for commencement.

Conflict of interest

Board membership represents stakeholder organisations involved in agriculture, this having the potential to give rise to a conflict of interest in some decisions. Project approval with institutions from which Board members are drawn is the most notable example. Members are required to disclose any interests that may affect their position, and where a conflict exists, the relevant Board member(s) must withdraw from a decision on that particular matter. Potential conflicts are recorded in the Board Minutes which are available for consideration by the Centre's Auditors.

Ministerial delegations, instruments and directions

Section 37 of the ACIAR Act allows the Minister to delegate authority to the Board of Management for the approval of contracts for the carrying out of agricultural research (ACIAR's research projects). The Director has delegated authority from the Minister to approve research projects and variations to projects of up to $165,000, inclusive of GST, and to enter into all contracts for projects approved by the Board of Management. The Board of Management reports to the Minister on the exercise of this delegation after every Board meeting. This mechanism enables the Minister to review proposed project-specific decisions to ensure consistency with broader portfolio considerations.

The Deputy Director (Research and Development) and Research Program Managers have delegated authority from the Minister to approve research projects of up to $165,000 inclusive of GST, and $50,000 inclusive of GST, respectively.

The Minister may give directions in writing to the Board of Management with respect to the exercise of its powers or the performance of its functions. This includes directions with respect to the commissioning of particular research.

In 2005–06 there were no directions given, though the Minister indicated his desire for ACIAR to:

- address food security in East Timor through the Seeds of Life 2 program, and
- broaden the number of partners and attract new partners in Papua New Guinea to participate in ACIAR projects.

Board costs

The direct cost of Board of Management operations during 2005–06 was $45,952, including fees, travel and other meeting expenses. The Director's salary and other management costs are not included. The comparative figure for 2004–05 was $34,793.

Board remuneration

The Remuneration Tribunal sets fees for the Chair and Members of the Board. The annual fee for the Chair was $31,350 and daily fees for Members (other than the Director) were $467 as at 30 June 2006.

The remuneration of the Director is subject to the relevant determinations of the Remuneration Tribunal. These provisions enable the Board to determine the total remuneration, superannuation salary and performance pay components of the remuneration package, within the parameters of Remuneration Tribunal Determination 2004/15.

The Director's remuneration package at 30 June 2006 consisted of:

- base salary of $163,319;
- PSS superannuation with an employer contribution of 12.4 per cent of base salary,
- annual performance bonus of up to a maximum of $34,997 (for 2005–06 $23,331 bonus was paid);
- productivity increase of 4.1 per cent; and
- and other negotiable benefits, consisting of car and spouse travel.

Lisa Wright, Policy Secretariat Manager

Stephanie Adler, Project Officer, Policy Secretariat

Uhrig review

ACIAR, as a statutory authority of the Department of Foreign Affairs and Trade, was reviewed by the Department and the Portfolio Minister, following the *Review of Corporate Governance of Statutory Authorities and Office Holders* Report.

The Report, by Mr John Uhrig AC, examined governance structures and provided two models by which statutory authorities may be governed.

The review of ACIAR examined the Centre's governance structure in light of the two templates—executive management or board management— outlined in the Report. Responsibility for assessing statutory authorities resides with the Portfolio Minister.

Financial accountability and compliance

As a statutory authority ACIAR is subject to the policy guidelines determined by government from time to time regarding accountability, reporting, review and general operations and is accountable through the Minister to the parliament. It is also subject to government financial and accounting policies and procedures. Staff members are employed under the Public Service Act. Within these constraints, the Centre has the power to do all things it considers appropriate for the performance of statutory functions.

ACIAR derives its financial authority from the ACIAR Act. Under the ACIAR Act the Centre, as a body corporate, may acquire, fold and dispose of real and personal property, and may sue and be sued in its corporate name. Financial powers and duties derive from the *Financial Management and Accountability Act 1997* (FMA Act) and subordinate regulations and Orders.

The Centre follows accounting practices in accordance with the FMA Act and other related legislation and recognised accounting standards. ACIAR's Annual Financial Statements, presented in accrual accounting format on pages 117 – 152 of the report, along with all financial transactions made by the Centre, are subject to examination by the Australian National Audit Office.

Insurances

Comcover as the manager of the Commonwealth's insurable risks provides corporate insurance for the Centre. Comcover's coverage includes general and products liability, professional indemnity, Director's and officers' liability, property loss and damage, personal accident and official overseas travel. The cost of insurance for 2005–06 was $89,800 (excluding GST). The premium paid in 2004–05 was $119,631.

Liability and professional indemnity insurances were not required to be invoked in 2005–06.

Risk Management

In May 2006 ACIAR reviewed and redesigned its Risk Management Plan. The current review was designed both to update the plan and to simplify its presentation to improve its usefulness and transparency. The review also recognised that risks are not static and that the plan should be utilised in conjunction with a number of other complementary activity statements including:

- ACIAR's Fraud Control Plan 2005–2007
- ACIAR's Security Plan 2006
- ACIAR's Business Continuity Plan 2004

In reviewing this plan a number of changes have been made to the previous versions:

- The plan now includes an identification of key strategic risks and actions based on the new draft Corporate Plan 2006–2010.
- A business risk framework with 12 risk categories has been introduced with linkages to the strategic risk profile.
- The overall business/operational risk register has been re-examined and re-weighted in the context of the current corporate and governmental environment.
- The overall risk register has been simplified and the risks are accompanied by a short risk attribution comment on most risks.
- The register again nominates the key officers responsible for each risk control action to ensure staff inclusiveness. It is recognised that risk management is the ongoing responsibility of the executive and all staff in the organisation.

The plan also differs from previous approaches by identifying 12 key 'significant' residual risks and associated action plans for management to address and ameliorate (not eliminate) the nominated risks. The Audit Committee has agreed that this will be the basis for an annual progress report by the Director to the Board of Management in the context of the strategic risk profile.

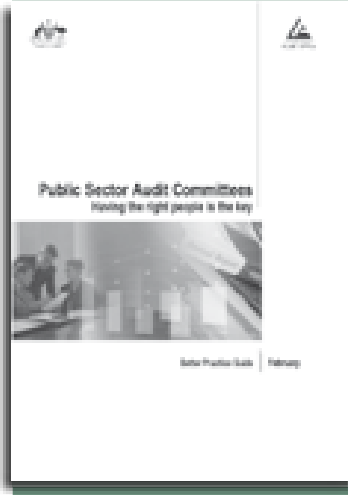
Audit Committee

ACIAR's Audit Committee is established in accordance with Section 46 of the *Financial Management and Accountability Act 1997*. The Committee promotes and facilitates communication between the Centre's auditors (both internal and external) and management. The Committee responsibilities are:

- advising the Director and Board of Management that ACIAR's control framework is in place and working effectively;
- ensuring the objectivity and reliability of externally published financial information; and
- advising the Director and Board of Management that adequate systems are in place to ensure that ACIAR complies with all legislative and other requirements.

Audit Program 2005-2008

At the Audit Committee meeting in June 2005 the Committee agreed on a more strategic focus for the development of a new three-year audit plan. This will focus on major decisions made by the Board of Management over recent years and tailor an internal audit program to assess the impact these decisions will have. Normal compliance audits will continue, but the timeframe will be extended based on satisfactory results of recent audit work.



In fulfilling its corporate governance responsibilities and overall accountability for the Centre's operations, the Board of Management provides advice on each three-year audit program, and provides general advice on arrangements for the Audit Committee and on audit matters arising from the Committee's deliberations. Four Audit Committee meetings were held in 2005–06. Audit Committee membership and attendance during the year were as follows:

Member		Meetings attended
Mr Len Early	Chair	4
Ms L Atkinson	External Member	4
Dr Ray Trewin	Centre Program Manager, (appointed 1.7.2004)	3
Dr S Hearn	Centre Senior Advisor, (appointed 28.4.2005)	1
Dr Jeff Davis	Centre Program Manager, (appointed 1.1.2006)	1

Internal Audit

ACIAR Management provides an audit report to each Board meeting. The Audit Committee Chair attends two Board meetings to:

- present an updated annual Audit Plan for endorsement, and
- present audited Financial Statements for Board sign-off.

The Chair of the Audit Committee is an external appointee and each Committee meeting is supported by advisers from our external auditors (ANAO), internal auditors (Acumen Alliance) and the Centre's Finance Unit, with the Finance Manager and Accountant both ex-officio members and responsible for Secretariat support.

Acumen Alliance was contracted to undertake various internal audit reviews to support the Committee. Internal audit reviews conducted in 2005–06 were:

- Competitive Tendering and Contacting #
- IT Security Follow-up Audit
- Balance Sheet Management
- Procurement Review.

 # Audit fieldwork completed in 2004–05; final report received after 1 July 2005.

In addition a review of corporate governance arrangements was completed by Professor Stephen Bartos and the final report was presented to the Audit Committee and the Board of Management.

Professor Bartos was commissioned by the Audit Committee to conduct a review of ACIAR's corporate governance framework and practices, having regard to the provisions of the governing legislation, the Australian Centre for International Agricultural Research Act 1982 and the Financial Management and Accountability Act 1997, and with specific reference to: the key conclusions and recommendations of the Uhrig Review of the Corporate Governance of Statutory Authorities and Office Holders and the application of current governance arrangements and practices of ACIAR. The findings and recommendations of the Governance Review, which

were considered by the Board through the Audit Committee, provided appropriate guidance to the Board as it underwent the Uhrig assessment conducted by the Portfolio in 2005–06. RSM Bird Cameron has been appointed to provide internal auditors for a two-year term commencing 1 July 2006.

The Director

The office and role of Director as the Chief Executive Officer of the Centre is established under Section 24 of the ACIAR Act. Subject to, and in accordance with, the general directions of the Board, the Director manages the affairs of the Centre and controls staff. Specifically, the Director's functions are to:

- develop strategic and operational plans for presentation to, and approval by, the Board of Management; ensure that these plans and their component parts are implemented;
- ensure the Board of Management is provided with relevant and timely decision support information;
- ensure the Board of Management is properly informed about evolving key issues and alternatives for dealing with them;
- manage the operational functions of the Centre consistent with its strategic and operational plans;
- provide Centre staff with strong and empowering leadership to enhance the motivation, focus and satisfaction they derive from their contribution to the Centre;
- nurture and enhance research alliances and represent and promote the Centre at forums and workshops; and
- maximise the adoption of research outputs.

The Director is appointed by the Governor-General for a term of up to seven years and is subject to the determinations of the Remuneration Tribunal. The Tribunal has determined the Director to be an officer in the Principal Executive Officer (PEO) structure, at PEO Band C. The Board of Management is the identified Employing Body for remuneration purposes.

The current Director, Mr Peter Core, began a five-year term on 31 July 2002.

Peter Core, Director

Melina Tensen, Executive Assistant to the Director

The Policy Advisory Council

The Policy Advisory Council is established under Section 17 of the ACIAR Act. The Council's function is to provide advice to the Minister regarding:
(a) agricultural problems of developing countries, and
(b) programs and policies with respect to agricultural research for either or both of the following purposes:
(i) identifying agricultural problems of developing countries, and
(ii) finding solutions to agricultural problems of developing countries.

The role of the Council utilises stakeholder knowledge to provide a valuable overview for advising the Minister, the Board of Management and the Centre on matters including:

- national and regional development constraints;
- opportunities for research and development collaboration;
- national and regional research priorities, particularly those of ACIAR's partner countries;
- the matching of Australian expertise (Australia's competitive advantage) with these priorities;
- modes of operation for ACIAR; and
- sources of national and international expertise.

Council meeting

Council meetings are held annually, in Australia, over several days to discuss areas related to its role and functions. During 2005–06 the Council met in Canberra on 27 March 2006. The program included discussions with the Minister in Canberra, and was followed by field visits and meetings with Australian research providers and stakeholders in Wagga Wagga, Orange and Sydney from 28 to 31 March.

At its meeting, the Council gave priority consideration to:

- greater focus on the achievement of community impacts as set out in a draft of the Centre's 2006–10 Corporate Plan;
- research priorities as set out in a draft of the Centre's 2006–07 Annual Operational Plan;

Council composition

Council membership is limited to 14, comprising a President (the Chair of the Board of Management), ACIAR's Director, the Director General of AusAID or his nominee, and not fewer than nine, nor more than 11, other members appointed by the Minister for Foreign Affairs. Members are appointed from stakeholder organisations in Australia and partner countries to bring a range of agricultural and development experience. The Minister is required, under the Act, to ensure that a substantial number of the members of the Council are residents of countries other than Australia, and to have regard for the knowledge of appointees concerning the agricultural problems of developing countries or their experience in organising or conducting agricultural research.

ACIAR Policy Advisory Council, 26th meeting, 27–31 March 2006: Canberra, Wagga Wagga, Orange and Sydney.

ACIAR Policy Advisory Council members inspect the yellow fin tuna at the Sydney Fish Market Auction.

- key findings of a survey of Australian stakeholders on ACIAR's operations;
- priority-setting mechanisms in ACIAR's programs; and
- a presentation from AusAID and discussion on emerging issues and trends in Australia's aid program.

Council costs

During 2005–06, the direct costs of the Policy Advisory Council were $20,038, compared with a figure $18,754 for 2004–05.

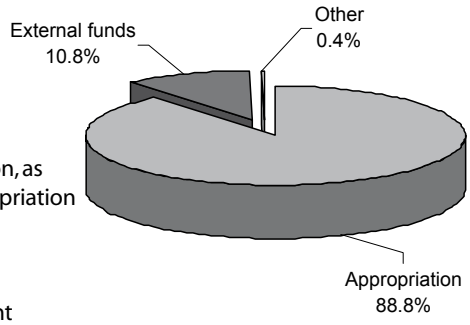
Membership of the Council at the time of its meeting in Canberra on 27 March 2006, and attendance, is set out in the accompanying table. The Policy Advisory Council meeting was also attended by Mr Agus Muharam from Indonesia as an observer.

Member	Term of appointment	Meeting
Dr Meryl **Williams** Aid Advisory Council Canberra ACT	President 5/8/2004–4/8/2007	Yes
Mr Brown **Bai** Chairman Rural Industries Council Port Moresby PAPUA NEW GUINEA	Appointed member 7/3/2005–6/3/2008	No
Mr Peter **Core** Director ACIAR Canberra ACT	Ex officio member 31/7/2002–30/7/2007	Yes
Mr Peter **Corish** President National Farmers' Federation Canberra ACT	Appointed member 1/12/2003–30/11/2006	Yes
Mr Bruce **Davis** Director General AusAID Canberra ACT	*Ex officio* member	Yes (nominee)
Dr Patricio **Faylon** Executive Director Philippine Council for Agriculture, Forestry and Natural Resources Research and Development Los Baños PHILIPPINES	Appointed member 10/3/2003–9/3/2005 10/3/2005–9/3/2008	Yes
Mr Jim **Hallion** Chief Executive Department of Primary Industries and Resources South Australia Adelaide SA	Appointed member 1/3/2004–28/2/2007	Yes
Ms Joanna **Hewitt** Chief Executive Department of Agriculture, Fisheries and Forestry Canberra ACT	Appointed member 1/12/2005–30/11/2008	No
Mr **Jia** Jingdun Deputy Director General Ministry of Science and Technology Beijing CHINA	Appointed member 10/3/2003–9/3/2006 10/3/2006–9/3/2009	Yes
Dr **Nguyen** Van Bo President Vietnamese Academy of Agricultural Sciences Hanoi VIETNAM	Appointed member 1/3/2004–28/2/2007	Yes
Dr Mangala **Rai** Secretary Department of Agricultural Research and Education and Director General Indian Council of Agricultural Research New Delhi INDIA	Appointed member 10/3/2003–9/3/2006	No
Dr Achmad **Suryana** Director General Indonesian Agency for Agricultural Research and Development Jakarta INSONESIA	Appointed member 1/9/2005–31/8/2008	No
Dr John **Williams** Commissioner Natural Resources Commission Sydney NSW	Appointed member 16/7/2002–30/6/2005 7/7/2005–6/7/2008	Yes

Paul Tyrrell, Chief Finance Officer

Chief Finance Officer's Review

ACIAR Revenue 2005–06



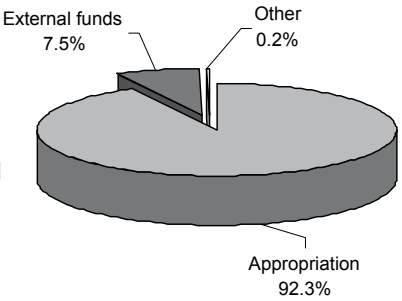
Funding and other revenue

ACIAR's funding is mainly provided through Commonwealth appropriation, as determined in the Federal Budget in May each year. In 2005–06 our appropriation was $49.334 million.

This appropriation is supplemented through:

- co-funding of projects by AusAID, the Grains Research and Development Corporation and other relevant funding agencies, and
- a small revenue flow from the sale of ACIAR scientific publications.

ACIAR Revenue 2004–05



Due to the varied timeframes of ACIAR's project activities external revenue fluctuates between years depending on project start and finish dates and the Centre's involvement in particular projects. External funds in 2005–06 totalled $6.016 million compared to $3.841 in 2004–05.

Appropriation has remained constant in real terms during the past five financial years.

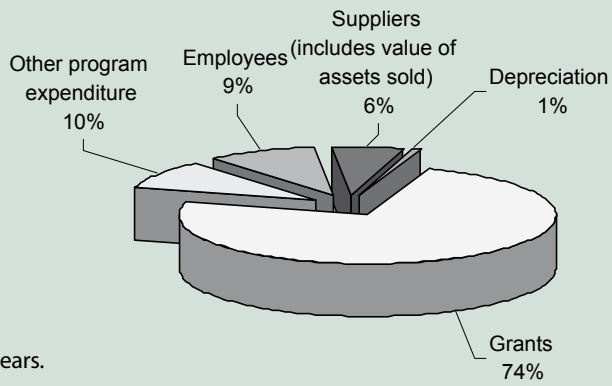
Total income for 2005–06 was $55.578 million.

Program and operational costs

ACIAR's mandate directs the Centre to fund both bilateral and multilateral research and training activities (including educational fellowships), for the benefit of developing countries and Australia. In addition, the Centre disseminates publications and measures the impacts of its projects.

These activities account for 84 per cent of expenditure, expressed as grants and other program expenditure in the chart below.

ACIAR Expenditure 2005–06

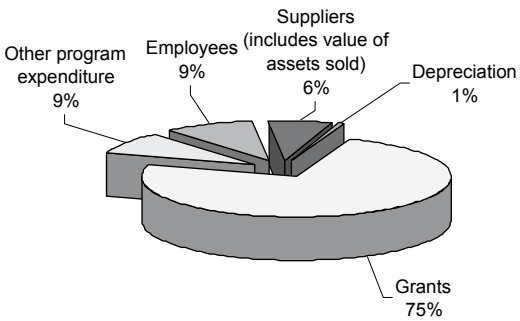


Expenditure

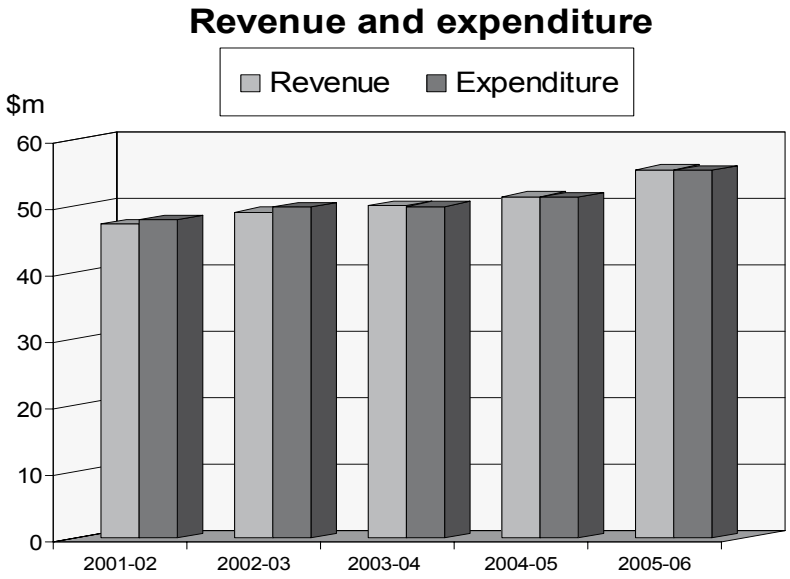
The costs of supporting these operations, in staffing and administration, accounts for the remaining 16 per cent of expenditure. This has remained constant over the past two years.

Total expenses in 2005–06 was $55.419 million.

ACIAR Expenditure 2004–05



Revenue and expenditure

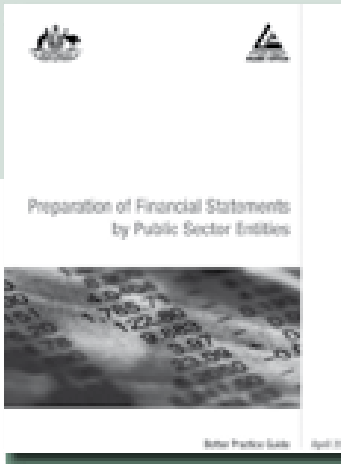


Operating result and financial position

ACIAR operates a balanced budget and aims to achieve a small surplus each financial year. In 2005–06 this surplus was $158,985.

Accounting policies

ACIAR complies with relevant accounting standards, relevant legislation and the Finance Minister's Orders. The Centre's Executive and Finance Section work closely to deliver a balance budget, including responding to the emerging needs of the Australian Government in delivering effective aid.



Financial statements

The Board noted:

The Board of Management noted the draft financial statements for 2005-06 that were considered by the Audit Committee on 5 September 2006.

Decision 109/19
7 September 2006

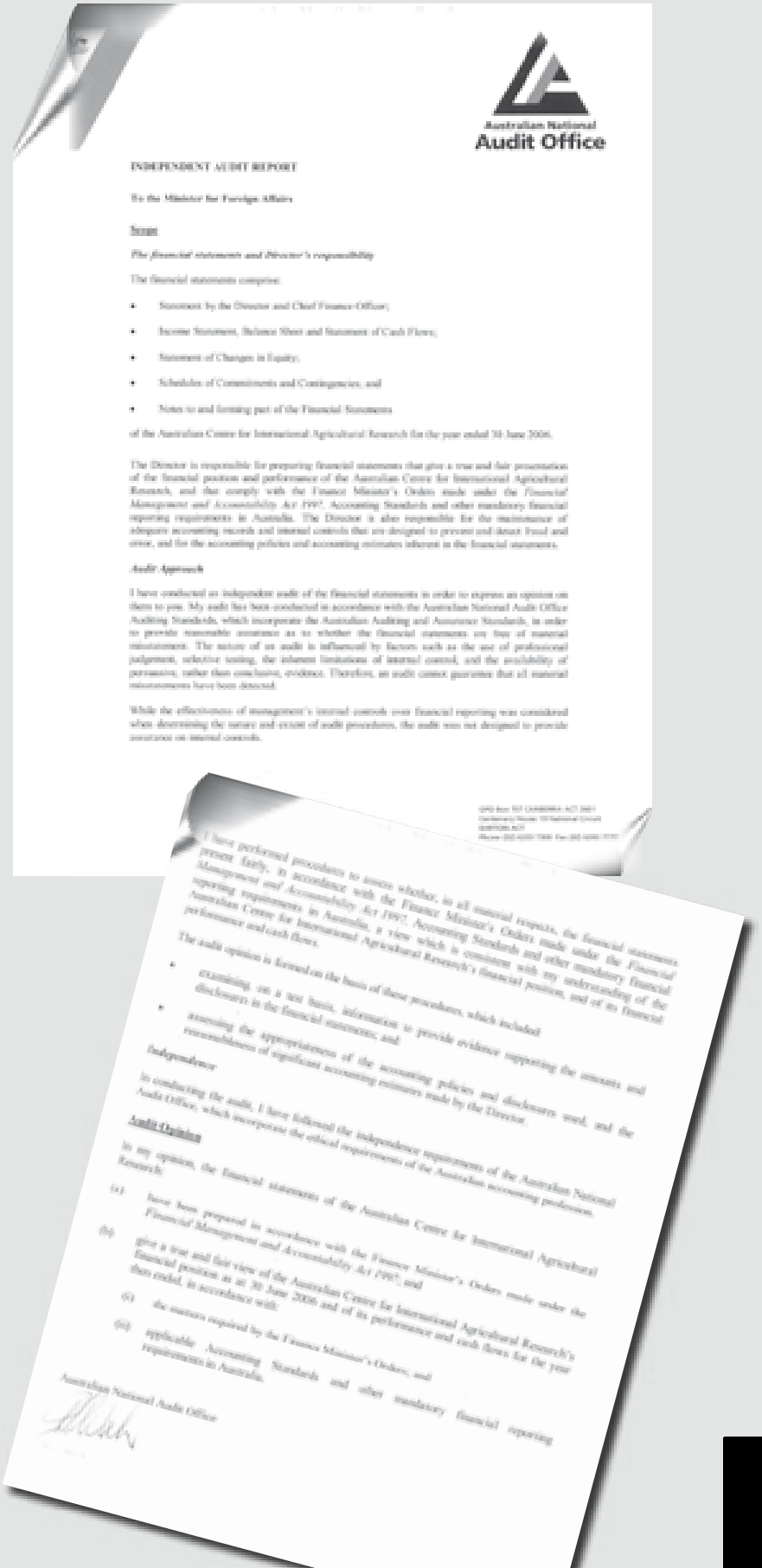
Paul Tyrrell

Gloria Radosavljevic

ACIAR's finance team

Henry Lee

Frances McPherson



Australian National
Audit Office

INDEPENDENT AUDIT REPORT

To the Minister for Foreign Affairs

Scope

The financial statements and Director's responsibility

The financial statements comprise:

- Statement by the Director and Chief Finance Officer;
- Income Statement, Balance Sheet and Statement of Cash Flows;
- Statement of Changes in Equity;
- Schedules of Commitments and Contingencies; and
- Notes to and forming part of the Financial Statements

of the Australian Centre for International Agricultural Research for the year ended 30 June 2006.

The Director is responsible for preparing financial statements that give a true and fair presentation of the financial position and performance of the Australian Centre for International Agricultural Research, and that comply with the Finance Minister's Orders made under the *Financial Management and Accountability Act 1997*, Accounting Standards and other mandatory financial reporting requirements in Australia. The Director is also responsible for the maintenance of adequate accounting records and internal controls that are designed to prevent and detect fraud and error, and for the accounting policies and accounting estimates inherent in the financial statements.

Audit Approach

I have conducted an independent audit of the financial statements in order to express an opinion on them to you. My audit has been conducted in accordance with the Australian National Audit Office Auditing Standards, which incorporate the Australian Auditing and Assurance Standards, in order to provide reasonable assurance as to whether the financial statements are free of material misstatement. The nature of an audit is influenced by factors such as the use of professional judgement, selective testing, the inherent limitations of internal control, and the availability of persuasive, rather than conclusive, evidence. Therefore, an audit cannot guarantee that all material misstatements have been detected.

While the effectiveness of management's internal controls over financial reporting was considered when determining the nature and extent of audit procedures, the audit was not designed to provide assurance on internal controls.

I have performed procedures to assess whether, in all material respects, the financial statements present fairly, in accordance with the Finance Minister's Orders made under the *Financial Management and Accountability Act 1997*, Accounting Standards and other mandatory financial reporting requirements in Australia, a view which is consistent with my understanding of the Australian Centre for International Agricultural Research's financial position, and of its financial performance and cash flows.

The audit opinion is formed on the basis of these procedures, which included:

- examining, on a test basis, information to provide evidence supporting the amounts and disclosures in the financial statements; and
- assessing the appropriateness of the accounting policies and disclosures used, and the reasonableness of significant accounting estimates made by the Director.

Independence

In conducting the audit, I have followed the independence requirements of the Australian National Audit Office, which incorporate the ethical requirements of the Australian accounting profession.

Audit Opinion

In my opinion, the financial statements of the Australian Centre for International Agricultural Research:

(a) have been prepared in accordance with the Finance Minister's Orders made under the *Financial Management and Accountability Act 1997*, and

(b) give a true and fair view of the Australian Centre for International Agricultural Research's financial position as at 30 June 2006 and of its performance and cash flows for the year then ended, in accordance with:

(i) the matters required by the Finance Minister's Orders; and

(ii) applicable Accounting Standards and other mandatory financial reporting requirements in Australia.

Australian National Audit Office

Statement by Director and Chief Finance Officer

AUSTRALIAN CENTRE FOR INTERNATIONAL AGRICULTURAL RESEARCH
STATEMENT BY THE DIRECTOR AND CHIEF FINANCE OFFICER

In our opinion, the attached financial statements for the year ended 30 June 2006 have been prepared based on properly maintained financial records and give a true and fair view of the matters required by the Finance Minister's Orders made under the *Financial Management and Accountability Act 1997*, as amended.

Signed .....

Peter Core
Director

7 September 2006

Signed .....

Paul Tyrrell
Chief Finance Officer

7 September 2006

Financial Statements for 2005–06

AUSTRALIAN CENTRE FOR INTERNATIONAL AGRICULTURAL RESEARCH

INCOME STATEMENT

for the year ended 30 June 2006

	Notes	**2006 $'000**	2005 $'000
INCOME			
Revenue			
Revenues from Government	4A	**49,334**	47,523
Goods and services	4B	**17**	16
Interest		**-**	3
External funds revenue	4C	**6,017**	3,841
Other revenues	4D	**187**	82
Total Revenue		**55,555**	51,465
Gains			
Other Gains	4E	**23**	24
Total Gains		**23**	24
TOTAL INCOME		**55,578**	51,489
EXPENSES			
Administration			
Employees	5A	**5,177**	4,852
Suppliers	5B	**3,483**	3,356
Depreciation and amortisation	5C	**319**	341
Write-down and impairment of assets	5D	**21**	-
Program expenditure			
Grants	6A	**41,107**	38,142
Other program expenditure	6B	**5,300**	4,704
TOTAL EXPENSES		**55,407**	51,395
Losses			
Net loss on disposal of assets		**12**	4
Total Losses		**12**	4
TOTAL		**55,419**	51,399
Operating result before income tax		**159**	90
Income tax equivalent expense		**-**	-
OPERATING RESULT		**159**	90

The above statement should be read in conjunction with the accompanying notes.

AUSTRALIAN CENTRE FOR INTERNATIONAL AGRICULTURAL RESEARCH

BALANCE SHEET

as at 30 June 2006

	Notes	2006 $'000	2005 $'000
ASSETS			
Financial Assets			
Cash and cash equivalents	7A	**470**	580
Receivables	7B	**6,500**	2,588
Total Financial Assets		**6,970**	3,168
Non-Financial Assets			
Infrastructure, plant and equipment	8A,B	**799**	547
Intangibles	8C	**207**	198
Other non-financial assets	8D	**399**	196
Total Non-Financial Assets		**1,405**	941
TOTAL ASSETS		**8,375**	4,109
LIABILITIES			
Payables			
Suppliers	9A	**571**	141
Grants	9B	**1,202**	344
Other payables	9C	**4,419**	1,901
Total payables		**6,192**	2,386
Provisions			
Employee provisions	10A	**1,355**	1,379
Total provisions		**1,355**	1,379
TOTAL LIABILITIES		**7,547**	3,765
NET ASSETS		**828**	344
EQUITY			
Contributed equity		**-**	-
Reserves		**325**	-
Retained surplus		**503**	344
TOTAL EQUITY		**828**	344
Current Assets		**7,369**	3,364
Non-current Assets		**1,006**	745
Current Liabilities		**7,463**	3,512
Non-current Liabilities		**84**	253

The above statement should be read in conjunction with the accompanying notes.

AUSTRALIAN CENTRE FOR INTERNATIONAL AGRICULTURAL RESEARCH

STATEMENT OF CASH FLOWS

for the year ended 30 June 2006

	Notes	**2006 $'000**	2005 $'000
OPERATING ACTIVITIES			
Cash received			
Goods and services		**15**	20
Appropriations		**46,460**	47,648
Interest		**-**	3
Net GST received from ATO		**2,566**	2,578
External Funds		**8,391**	4,638
Other		**11**	59
Total cash received		**57,443**	54,946
Cash used			
Employees		**5,221**	5,027
Suppliers		**3,722**	3,532
Grants		**41,742**	40,642
Other program expenditure		**6,564**	5,288
Total cash used		**57,249**	54,489
Net cash from or (used by) operating activities	11	**196**	457
INVESTING ACTIVITIES			
Cash received			
Proceeds from sales of property, plant and equipment		**1**	2
Total cash received		**1**	2
Cash used			
Purchase of property, plant and equipment		**244**	194
Purchase of intangibles		**63**	144
Total cash used		**307**	338
Net cash from or (used by) investing activities		**(306)**	(336)
Net increase or (decrease) in cash held		**(110)**	121
Cash at the beginning of the reporting period		**580**	459
Cash at the end of the reporting period	7A	**470**	580

The above statement should be read in conjunction with the accompanying notes.

AUSTRALIAN CENTRE FOR INTERNATIONAL AGRICULTURAL RESEARCH

STATEMENT of CHANGES in EQUITY

for the year ended 30 June 2006

ITEM	Accumulated Results		Asset Revaluation Reserves		TOTAL EQUITY	
	2006	2005	**2006**	2005	**2006**	2005
	$'000	$'000	$'000	$'000	$'000	$'000
Opening balance as at 1 July	**344**	254	**-**	-	**344**	254
Net surplus/deficit	**159**	90	**-**	-	**159**	90
Net revaluation increment/(decrement)	**-**	-	**325**	-	**325**	-
Transactions with owner:						
Distributions to owner:						
Returns on Capital						
Dividends	**-**	-	**-**	-	**-**	-
Returns of Capital						
Restructuring	**-**	-	**-**	-	**-**	-
Returns of contributed equity	**-**	-	**-**	-	**-**	-
Contributions by owner:						
Appropriations (equity injections)	**-**	-	**-**	-	**-**	-
Restructuring	**-**	-	**-**	-	**-**	-
Transfers to/(from)/between reserves	**-**	-	**325**	-	**325**	-
Closing balance as at 30 June	**503**	344	**325**	**-**	**828**	344

The above schedule should be read in conjunction with the accompanying notes.

AUSTRALIAN CENTRE FOR INTERNATIONAL AGRICULTURAL RESEARCH

SCHEDULE OF COMMITMENTS

as at 30 June 2006

	2006 $'000	2005 $'000
BY TYPE		
Other Commitments		
Operating leases[1]	**2,685**	402
Other commitments[2]	**56,189**	59,035
Total Other Commitments	**58,874**	59,437
Commitments Receivable	**(645)**	(863)
Net Commitments by Type	**58,229**	58,574
BY MATURITY		
All Net Commitments		
One year or less	**29,660**	25,207
From one to five years	**28,569**	34,230
Over five years	**-**	**-**
Net Commitments	**58,229**	59,437
Operating lease commitments		
One year or less	**588**	402
From one to five years	**2,097**	-
Over five years	**-**	**-**
Total Operating Lease Commitments	**2,685**	402

NB: Commitments are GST inclusive where relevant.

[1] Operating leases included are effectively non-cancellable and comprise:

- leases for office accommodation; and
- agreements for the provision of motor vehicles to senior executive officers.

[2] As at 30 June 2006, other commitments comprise amounts committed under grant agreements in respect of which the recipient is yet to either perform the services required, or meet eligibility conditions.

These have not been recognised as liabilities in the statement of assets and liabilities.

The above schedule should be read in conjunction with the accompanying notes.

AUSTRALIAN CENTRE FOR INTERNATIONAL AGRICULTURAL RESEARCH

SCHEDULE OF CONTINGENCIES

for the year ended 30 June 2006

CONTINGENT LOSSES

There are no contingent losses.

CONTINGENT GAINS

There are no contingent gains.

There are no unquantifiable or remote contingencies.

1. Summary of Significant Accounting Policies

1.1 Objectives of ACIAR

ACIAR is an Australian Public Service organisation. The Centre's mission is to achieve more productive and sustainable agricultural systems, for the benefit of developing countries and Australia, through international agricultural research partnerships. Developing countries are the major beneficiaries but there are also spin-offs for Australia. To achieve this goal, ACIAR facilitates and supports bilateral and multilateral research and development activities in a broad range of agricultural areas, including crops, animals, fisheries, forestry, land and water resources management, post-harvest technology, and economic studies of agricultural and natural resource utilisation.

The Centre is structured to meet one outcome:

> Agriculture in developing countries and Australia is more productive and sustainable as a result of better technologies, practices, policies and systems.

The outcome is identified under two outputs:

- Collaborative research that addresses agricultural and natural resource management problems of developing countries and Australia.
- Trained researchers in developing countries and Australia.

1.2 Basis of Preparation of the Financial Statements

The financial statements are required by section 49 of the *Financial Management and Accountability Act 1997* and are a general purpose financial report.

The statements have been prepared in accordance with:

- Finance Minister's Orders (or FMOs, being the *Financial Management and Accountability Orders (Financial Statements for reporting periods ending on or after 1 July 2005))*;
- Australian Accounting Standards issued by the Australian Accounting Standards Board that apply for the reporting period; and
- Interpretations issued by the AASB and UIG that apply for the reporting period.

This is the first financial report to be prepared under the Australian Equivalents to International Financial Reporting Standards (AIEFRS). The impacts of adopting AEIFRS are disclosed in Note 2.

The Income Statement and Balance Sheet have been prepared on an accrual basis and are in accordance with historical cost convention, except for certain assets and liabilities, which as noted, are at fair value or amortised cost. Except where stated, no allowance is made for the effect of changing prices on the results or the financial position.

The financial report is presented in Australian dollars and values are rounded to the nearest thousand dollars unless disclosure of the full amount is specifically required.

Unless alternative treatment is specifically required by an accounting standard, assets and liabilities are recognised in the Balance Sheet when and only when it is probable that future economic benefits will flow and the amounts of the assets and liabilities can be reliably measured. However, assets and liabilities arising under agreements equally proportionately unperformed are not recognised unless required by an Accounting Standard. Liabilities and assets which are unrecognised are reported in the Schedule of Commitments and the Schedule of Contingencies.

Unless alternative treatment is specifically required by an accounting standard, revenues and expenses are recognised in the Income Statement when and only when the flow or consumption or loss of economic benefits has occurred and can be reliably measured.

The Centre is a Statutory Authority under the *Australian Centre for International Agricultural Research Act 1982*. The accounts have been prepared in accordance with that Act.

1.3 Significant Accounting Judgements and Estimates

No accounting assumptions or estimates have been identified that have a significant risk of causing a material adjustment to carrying amounts of assets and liabilities within the next accounting period.

1.4 Statement of Compliance

The financial report complies with Australian Accounting Standards, which include Australian Equivalents to International Financial Reporting Standards (AEIFRS).

Australian Accounting Standards require ACIAR to disclose Australian Accounting Standards that have not been applied, for standards that have been issued but are not yet effective.

The AASB has issued amendments to existing standards, these amendments are denoted by year and then number, for example 2005-1 indicates amendment 1 issued in 2005.

The table below illustrates standards and amendments that will become effective for ACIAR in the future. The nature of the impending change within the table, has been out of necessity abbreviated and users should consult the full version available on the AASB's website to identify the full impact of the change. The expected impact on the financial report of adoption of these standards is based on ACIAR's initial assessment at this date, but may change. ACIAR intends to adopt all of standards upon their application date.

Title	Standard affected	Application date*	Nature of impending change	Impact expected on financial report
2005-4	AASB 139, AASB 132, AASB 1, AASB 1023 and AASB 1038	1 Jan 2006	Amends AASB 139, AASB 1023 and AASB 1038 to restrict the option to fair value through profit or loss and makes consequential amendments to AASB 1 and AASB 132.	No expected impact.
2005-5	AASB 1 and AASB 139	1 Jan 2006	Amends AASB 1 to allow an entity to determine whether an arrangement is, or contains, a lease. Amends AASB 139 to scope out a contractual right to receive reimbursement (in accordance with AASB 137) in the form of cash.	No expected impact.
2005-6	AASB 3	1 Jan 2006	Amends the scope to exclude business combinations involving entities or businesses under common control.	No expected impact.
2005-9	AASB 4, AASB 1023, AASB 139 and AASB 132	1 Jan 2006	Amended standards in regards to financial guarantee contracts.	No expected impact.
2005-10	AASB 132, AASB 101, AASB 114, AASB 117, AASB 133, AASB 139, AASB 1, AASB 4, AASB 1023 and AASB 1038	1 Jan 2007	Amended requirements subsequent to the issuing of AASB 7.	No expected impact.
2006-1	AASB 121	31 Dec 2006	Changes in requirements for net investments in foreign subsidiaries depending on denominated currency.	No expected impact.
	AASB7 Financial Instruments: Disclosures	1 Jan 2007	Revise the disclosure requirements for financial instruments from AASB132 requirements.	No expected impact.

* Application date is for annual reporting periods beginning on or after the date shown

1.5 Revenue

Revenues from Government

Amounts appropriated for Departmental outputs appropriation for the year (adjusted for any formal additions or reductions) are recognised as revenue, except for certain amounts that relate to activities that are reciprocal in nature, in which case revenue is recognised only when it has been earned.

Appropriations receivable are recognised at their nominal amounts.

Other Revenue

Revenue from the sale of goods is recognised when:

- The risks and rewards of ownership have been transferred to the buyer;
- The seller retains no managerial involvement nor effective control over the goods;
- The revenue and transaction costs incurred can be reliably measured; and
- It is probable that the economic benefits associated with the transaction will flow to the entity.

Revenue from rendering of services is recognised by reference to the stage of completion of contracts at the reporting date. The revenue is recognised when:

- The amount of revenue, stage of completion and transaction costs incurred can be reliably measured; and
- The probable economic benefits with the transaction will flow to the entity.

The stage of completion of contracts at the reporting date is determined by reference to the proportion that costs incurred to date bear to the estimated total costs of the transaction.

Receivables for goods and services, which have 30 day terms, are recognised at the nominal amounts due less any provision for bad and doubtful debts. Collectability of debts is reviewed at balance date. Provisions are made when collectability of the debt is no longer probable.

1.6 Gains

Resources Received Free of Charge

Services received free of charge are recognised as gains when and only when a fair value can be reliably determined and the services would have been purchased if they had not been donated. Use of those resources is recognised as an expense.

Other Gains

Gains from the disposal of non-current assets is recognised when control of the asset has passed to the buyer.

1.7 Transactions with the Government as Owner

ACIAR has received no equity injections or been involved in any restructuring arrangements or other distributions to owners.

1.8 Grants

The Centre makes grant payments under the *Australian Centre for International Agricultural Research Act 1982*.

All grant agreements require the grantee to perform services or provide facilities, or to meet eligibility criteria. In these cases, liabilities are recognised only to the extent that the services required have been performed or the eligibility criteria have been satisfied by the grantee. (Where grants moneys are paid in advance of performance or eligibility, a prepayment is recognised.)

1.9 Employee Benefits

As required by the Finance Minister's Orders, ACIAR has early adopted AASB 119 Employee Benefits as issued in December 2004.

Liabilities for services rendered by employees are recognised at the reporting date to the extent that they have not been settled.

Liabilities for 'short-term employee benefits' (as defined in AASB 119) and termination benefits due within twelve months of balance date are measured at their nominal amounts.

The nominal amount is calculated with regard to the rates expected to be paid on settlement of the liability.

All other employee benefits are measured as the present value of the estimated future cash outflows to be made in respect of services provided up to the reporting date.

Leave

The liability for employee benefits includes provision for annual leave and long service leave. No provision has been made for sick leave as all sick leave is non-vesting and the average sick leave taken in future years by employees of the Centre is estimated to be less than the annual benefit for sick leave.

The liability for annual leave reflects the value of total annual leave benefits of all employees at 30 June 2006 and is recognised at its nominal amount.

The long service leave liability for 2005-2006 has been calculated using a shorthand methodology using the following probability weightings for each band of completed years from years one to ten:

Completed Years of Service	Probability Weight
0-1	0.5
1-2	0.6
2-4	0.7
4-6	0.8
6-8	0.9
8+	1.0

The liability reflects the future cash outflows in net present terms by applying a 5% discount factor.

All annual leave is recognised as a current liability. In 2004-2005 leave in excess of 4 weeks was treated as non-current. Comparatives have been adjusted transferring $73,149 from non-current to current.

Long service leave is disclosed as current where the service period is 10 years and over as there is a legal right to payment, irrespective of whether payment is expected to be settled within 12 months. Comparatives have been adjusted transferring $588,092 from non-current to current.

Separation and Redundancy

No provision is made for separation and redundancy payments as the Centre has not formally identified any positions as excess to requirements.

Superannuation

Staff of ACIAR are members of the Commonwealth Superannuation Scheme (CSS), the Public Sector Superannuation Scheme (PSS) or the PSS accumulation plan (PSSap).

The CSS and PSS are defined benefit schemes of the Commonwealth. The PSSap is a defined contribution scheme.

The liability for deferred benefits is recognised in the financial statements of the Australian Government and is settled by the Australian Government in due course.

ACIAR makes employer contributions to the Australian Government at rates determined by an actuary to be sufficient to meet the cost to the Government of the superannuation entitlements of the Centre's employees.

From 1 July 2005, new employees are eligible to join the PSSap scheme.

The liability for superannuation recognised at 30 June represents outstanding contributions for the final fortnight of the year.

1.10 Leases

A distinction is made between finance leases which effectively transfer from the lessor to the lessee substantially all the risks and benefits incidental to ownership of leased non-current assets and operating leases under which the lessor effectively retains substantially all such risks and benefits.

Where a non-current asset is acquired by means of a finance lease, the asset is capitalised at either the fair value of the lease property or, if lower, the present value of minimum lease payments at the inception of the lease and a liability recognised for the same amount. Leased assets are amortised over the period of the lease. The discount rate used is the interest rate implicit in the lease.

Operating lease payments are expensed on a basis which is representative of the pattern of benefits derived from the leased assets.

1.11 Borrowing Costs

All borrowing costs are expensed as incurred.

1.12 Cash

Cash means notes and coins held and any deposits held at call with a bank or financial institution. Cash is recognised at its nominal amount.

1.13 Financial Risk Management

ACIAR's activities expose it to normal commercial financial risk. As a result of the nature of ACIAR's business and internal and Australian Government policies, dealing with the management of financial risk, ACIAR's exposure to market, credit, liquidity and cash flow and fair value interest rate risk is considered to be low

1.14 Derecognition of Financial Assets and Liabilities

As prescribed in the Finance Minister's Orders, ACIAR has applied the option available under AASB 1 of adopting AASB 132 and 139 from 1 July 2005 rather than 1 July 2004.

Financial assets are derecognised when the contractual rights to the cash flows from the financial assets expire or the asset is transferred to another entity. In the case of a transfer to another entity, it is necessary that the risks and rewards of ownership are also transferred

.

Financial liabilities are derecognised when the obligation under the contract is discharged or cancelled or expires.

For the comparative year, financial assets were derecognised when the contractual right to receive cash no longer existed. Financial liabilities were derecognised when the contractual obligation to pay cash no longer existed.

1.15 Impairment of Financial Assets

As prescribed in the Finance Minister's Orders, ACIAR has applied the option available under AASB 1 of adopting AASB 132 and 139 from 1 July 2005 rather than 1 July 2004.

Financial assets are assessed for impairment at each balance date.

Financial Assets held at Amortised Cost

If there is objective evidence that an impairment loss has been incurred for loans and receivables or held to maturity investments held at amortised cost, the amount of the loss is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows discounted at the asset's original effective interest rate. The carrying amount is reduced by way of an allowance account. The loss is recognised in profit and loss.

Financial Assets held at Cost

If there is objective evidence that an impairment loss has been incurred on an unquoted equity instrument that is not carried at fair value because it cannot be reliably measured, or a derivative asset that is linked to and must be settled by delivery of such an unquoted equity instrument, the amount of the impairment loss is the difference between the carrying amount of the asset and the present value of the estimated future cash flows discounted at the current market rate for similar assets.

Available for Sale Financial Assets

If there is objective evidence that an impairment loss on an available for sale financial asset has been incurred, the amount of the difference between its cost, less principal repayments and amortisation, and its current fair value, less any impairment loss previously recognised in profit and loss, is transferred from equity to the profit and loss .

Comparative Year

The above policies were not applied for the comparative year. For receivables, amounts were recognised and carried at original invoice amount less a provision for doubtful debts based on an estimate made when collection of the full amount was no longer probable.

Other financial assets carried at cost which were not held to generate net cash inflows, were assessed for indicators of impairment. Where such indicators were found to exist, the recoverable amount of the assets was estimated and compared to the assets carrying amount and, if less, reduced to the carrying amount. The reduction was shown as an impairment loss.

1.16 Trade Creditors

Trade creditors and accruals are recognised at their nominal amounts, being the amounts at which the liabilities will be settled. Liabilities are recognised to the extent that the goods or services have been received (and irrespective of having been invoiced).

Contingent Liabilities and Assets are not recognised in the Balance Sheet but are discussed in the relevant schedules and notes. They may arise from uncertainty as to the existence of a liability or asset, or represent an existing liability or asset in respect of which settlement is not probable or the amount cannot be reliably measured. Remote contingencies are part of this disclosure. Where settlement becomes probable, a liability or asset is recognised. A liability or asset is recognised when its existence is confirmed by a future event, settlement becomes probable (virtually certain for assets) or reliable measurement becomes possible.

1.17 Acquisition of Assets

Assets are recorded at cost on acquisition except as stated below. The cost of acquisition includes the fair value of assets transferred in exchange and liabilities undertaken. Financial assets are initially measured at their fair value plus transaction costs where appropriate.

Assets acquired at no cost, or for nominal consideration, are initially recognised as assets and revenues at their fair value at the date of acquisition, unless acquired as a consequence of restructuring of administrative arrangements. In the latter case, assets are initially recognised as contributions by owners at the amounts at which they were recognised in the transferor agency's accounts immediately prior to restructuring.

1.18 Property, Plant and Equipment

Asset Recognition Threshold

Purchases of property, plant and equipment are recognised initially at cost in the Balance Sheet, except for purchases costing less than $2,000, which are expensed in the year of acquisition (other than where they form part of a group of similar items which are significant in total).

Revaluations

Basis

Infrastructure, plant and equipment have been revalued in accordance with the 'fair value' principles.

Infrastructure, plant and equipment assets were revalued in June 2006. The revaluation process was performed by the Australian Valuation Office.

Revaluation adjustments are made on a class basis. Any revaluation increment is credited to equity under the heading asset revaluation reserve except where to the extent that it reverses a previous revaluation decrement of the same asset class that was previously recognised through profit and loss. Revaluation decrements for a class of assets are recognised directly to profit and loss except to the extent that they reverse a previous revaluation increment for that class.

Any accumulated depreciation as at the revaluation date is eliminated against the gross carrying amount of the asset and the asset restated to the revalued amount.

Depreciation and Amortisation

Depreciable infrastructure. plant and equipment assets are written-off to their estimated residual values over their estimated useful lives to the Centre using, in all cases, the straight-line method of depreciation. Leasehold improvements are depreciated on a straight-line basis over the lesser of the estimated useful life of the improvement or the unexpired period of the lease.

Depreciation/amortisation rates (useful lives), residual values and methods are reviewed at each balance date and necessary adjustments are recognised in the current, or current and future reporting periods, as appropriate.

Depreciation rates applying to each class of depreciable asset are based on the following useful lives:

	2006	2005
Plant and equipment	**5-10 years**	5-10 years
Computer Equipment	**3-5 years**	3- 5 years
Intangibles	**5-10 years**	5-10 years

The aggregate amount of depreciation and amortisation allocated for each class of asset during the reporting period is disclosed in Note 8.

Impairment

All assets were assessed for impairment at 30 June 2006. Where indications of impairment exist, the assets recoverable amount is estimated and an impairment adjustment is made if the assets recoverable amount is less than its carrying amount.

The recoverable amount of an asset is the higher of its fair value less costs to sell and its value in use. Value in use is the present value of the future cash flows expected to be derived from the asset. Where the future economic benefit of an asset is not primarily dependent on the asset's ability to generate future cash flows, and the asset would be replaced if the Centre were deprived of the asset, its value in use is taken to be its depreciated replacement cost.

No indicators of impairment were found for assets at fair value.

1.20 Intangibles

Intangibles consist of purchased proprietary software and are amortised on a straight-line basis over their useful lives, which range from 5 to 10 years.

All software assets were assessed for indications of impairment as at 30 June 2006. None were found to be impaired.

1.21 Taxation

The Centre is exempt from all forms of taxation except fringe benefits tax and the goods and services tax (GST).

Revenues, expenses and assets are recognised net of GST:

- except where the amount of GST incurred is not recoverable from the Australian Taxation Office, and
- except for receivables and payables

Note 2: The impact of the transition to AEIFRS from the previous AGAAP

Reconciliation of total equity as presented under previous AGAAP to that under AEIFRS

	2006 **$'000**	2005 $'000
Total Equity under previous AGAAP	**828**	344
Adjustments to retained earnings	**-**	-
Adjustments to other reserves	**-**	-
Total Equity translated to AEIFRS	**828**	344

Reconciliation of profit or loss as presented under previous AGAAP to AEIFRS

Prior year profit as previously reported	**90**
Adjustments	**-**
Prior year profit translated to AEIFRS	**90**

The Cash Flow Statement presented under the previous AGAAP is equivalent to that prepared under AEIFRS.

Note 3: Events after the Balance Sheet Date

There are no foreseeable financial effects of events or transactions after the reporting date which could materially affect these financial statements.

Note 4: Income

Revenues

	2006 $'000	2005 $'000
Note 4A: Revenues from Government		
Appropriations for outputs	**49,334**	47,523
Total revenues from government	**49,334**	47,523
Note 4B: Goods and Services		
Goods	**17**	16
Total sales of goods and services	**17**	16
Provision of goods to:		
External entities	**17**	16
Total sales of goods	**17**	16
Note 4C: Revenues from External Sources		
AusAID contributions	**5,438**	3,646
Industry contributions	**579**	195
Total revenues from external sources	**6,017**	3,841
Provision of services to:		
Related entities	**6,017**	3,841
Total revenues from external sources	**6,017**	3,841
Note 4D: Other revenue		
Project returns	**169**	44
Miscellaneous revenue	**18**	38
Total other revenue	**187**	82
Provision of services to:		
External entities	**187**	82
Total other revenue	**187**	82

Gains

Note 4E: Other gains		
Resources received free of charge	**23**	24

Note 5: Operating Expenses - Administration

	2006 $'000	2005 $'000
Note 5A: Employee Expenses		
Wages and Salaries	**4,138**	3,949
Superannuation	**652**	610
Leave and other entitlements	**239**	91
Separation and redundancies	**28**	100
Other employee expenses	**120**	102
Total employee expenses	**5,177**	4,852
Note 5B: Suppliers		
Provision of goods - related entities	**2**	10
Provision of goods - external entities	**271**	205
Rendering of services - related entities	**456**	462
Rendering of services - external entities	**2,153**	2,059
Operating lease rentals*	**574**	593
Worker compensation premiums	**27**	27
Total supplier expenses	**3,483**	3,356

* These comprise minimum lease payments only.

Note 5C: Depreciation and Amortisation		
Depreciation		
Other infrastructure, plant and equipment	**270**	291
Amortisation		
Intangibles - Computer Software	**49**	50
Total depreciation and amortisation	**319**	341

The aggregate amounts of depreciation or amortisation expenses during the reporting period for each class of depreciable asset are as follows:

Leasehold improvements	**51**	44
Plant and equipment	**219**	247
Intangibles	**49**	50
Total depreciation and amortisation	**319**	341

Note 5D: Write-down and impairment of assets		
Computer equipment - impairment loss	**21**	-

Note 6: Operating Expenses - Grants

	2006 $'000	2005 $'000
Note 6A: Grants		
Rendering of Services - external entities		
Non-profit institutions	**31,115**	28,167
Overseas entities	**9,992**	9,975
Total grants	**41,107**	38,142
Note 6B: Other Program Expenditure		
Rendering of Services - external entities		
Training	**2,909**	2,565
Communications research	**691**	778
Other research	**1,700**	1,361
Total other program expenditure	**5,300**	4,704

Note 7: Financial Assets

Note 7A: Cash and cash equivalents		
Special Account	**470**	580
Note 7B: Receivables		
Goods and services	**814**	340
Other Debtors	**439**	8
	1,253	348
GST receivable from the Australian Taxation Office	**596**	463
Undrawn appropriations	**4,651**	1,777
Total receivables (net)	**6,500**	2,588
All receivables are with entities external to ACIAR.		
Receivables (gross) are aged as follows:		
Current	**5,686**	2,531
Overdue by:		
Less than 30 days	**254**	57
30 to 60 days	**560**	-
61 to 90 days	**-**	-
More than 90 days	**-**	-
Total Receivables (gross)	**6,500**	2,588

Note 8: Non-Financial Assets

	2006 $'000	2005 $'000
Note 8A: Infrastructure, Plant and Equipment		
Infrastructure, Plant and equipment - fair value	**1,572**	1,786
Accumulated depreciation	**(773)**	(1,239)
Total Infrastructure, Plant and Equipment (non-current)	**799**	547

All revaluations are conducted in accordance with the revaluation policy stated at Note 1. In 2005-06, an indpendent valuer Mr T. Noble (Australian Valuation Office) conducted the revaluations.

A revaluation increment of $325,636 for leasehold improvements was credited to the asset revaluation reserve and included in the equity section of the balance sheet. A revaluation decrement of $21,475 for plant and equipment was expensed.

Note 8B: Analysis of Infrastructure, Plant and Equipment

TABLE A
Reconciliation of the opening and closing balances of infrastructure, plant and equipment

ITEM	Leasehold Improvements $'000	Plant and Equipment $'000	Total Infrastructure, Plant and Equipment $'000
As at 1 July 2005			
Gross book value	582	1,204	1,786
Accumulated depreciation / amortisation	(425)	(814)	(1,239)
Opening Net book value	157	390	547
Additions:			
by purchase	53	232	285
Net revaluation increment / (decrement)	325	(21)	304
Depreciation / amortisation expense	(51)	(219)	(270)
Disposals (net)	-	(67)	(67)
As at 30 June 2006			
Gross book value	467	1,105	**1,572**
Accumulated depreciation / amortisation	(341)	(432)	**(773)**
Closing Net book value	126	673	**799**

Note 8: Non-Financial Assets – cont.

Note 8C: Intangibles	**2006**	2005
Computer software	**$'000**	$'000
Purchased computer software	**594**	536
Accumulated amortisation	**(387)**	(338)
Total Intangibles	**207**	198

TABLE A
Reconciliation of the opening and closing balances of intangibles

ITEM	**Computer Software Purchased $'000**
As at 1 July 2005	
Gross book value	536
Accumulated depreciation / amortisation	(338)
Opening Net book value	198
Additions:	
by purchase	58
Movements:	
Depreciation / amortisation expense	(49)
Disposals	-
As at 30 June 2006	
Gross book value	**594**
Accumulated depreciation / amortisation	**(387)**
Closing Net book value	**207**

Note 8D: Other non-financial assets	**2006**	2005
Prepayments:	**$'000**	$'000
Employees	**22**	15
Suppliers	**116**	180
Grants	**261**	-
Other program expenditure	**-**	1
Total	**399**	196

All other non-financial assets are current assets.

Note 9: Payables

	2006 $'000	2005 $'000
9A - Supplier Payables		
Trade creditors	**571**	141
Total supplier payables	**571**	141
Supplier payables are represented by:		
Current	**571**	141
Non-current	**-**	**-**
Total supplier payables	**571**	141
Settlement is usually made net 30 days.		
9B - Grants Payables		
Non-profit institutions		
ACIAR Projects	**1,097**	344
Project witholdings	**105**	-
Total grants payables	**1,202**	344
9C - Other Payables		
Unearned Revenue	**4,255**	1,764
Research Publications	**59**	98
Other Research Activities	**105**	39
Total other program payables	**4,419**	1,901

All payables are current liabilities.

Note 10: Provisions

10A - Employee Provisions		
Salaries and wages	**142**	128
Superannuation	**5**	2
Leave	**1,208**	1,249
Aggregate employee entitlement liability	**1,355**	1,379
Workers' compensation	**-**	-
Aggregate employee entitlement liability and related on-costs	**1,355**	1,379
Current	**1,271**	1,276
Non-current	**84**	103

Note 11: Cash Flow Reconciliation

	2006 $'000	2005 $'000
Reconciliation of cash per Income Statement to Statement of Cash Flows		
Cash at year end per Statement of Cash Flows	**470**	580
Balance Sheet items comprising above cash:		
'Financial Asset - Cash'	**470**	580
Reconciliation of operating result to net cash from operating activities:		
Operating result	**159**	90
Depreciation/amortisation	**319**	341
Loss on sale of assets	**12**	4
Resources received free of charge	**(23)**	(24)
(Increase)/decrease in net receivables	**(3,912)**	(272)
(Increase)/decrease in prepayments	**(203)**	218
Increase/(decrease) in supplier payables	**430**	(52)
Increase/(decrease) in employee provisions	**(24)**	(144)
Increase/(decrease) in grants and other payable	**3,376**	268
GST cash refund from financing and investing actvitites	**62**	28
Net cash from / (used by) operating activities	**196**	458

Note 12: Executive Remuneration

The number of executives who received or were due to receive total remuneration of $130,000 or more:	**2006**	2005
$190,001 - $204,999		
$205,000 - $219,999	**1**	2
$220,000 - $234,999		
$235,000 - $249,999		1
$250,000 - $264,999	**1**	
$265,000 - $289,999		
	2	3
The aggregate amount of total remuneration of executives shown above.	**$467,477**	$672,097
The aggregate amount of separation and redundancy/termination benefit payments during the year to executives shown above.	**-**	$99,601

The executive remuneration includes all officers concerned with or taking part in the management of the economic entity during 2005-06 including the Director.

Note 13: Remuneration of Auditors

	2006	2005
	$	**$**
Financial statement audit services are provided free of charge to ACIAR.		
The fair value of the services provided was:	**23,000**	24,000

No other services were provided by the Auditor-General.

Note 14: Average Staffing Levels

The average staffing levels for the Centre in 2005-2006 were 48 (FTE 44.44), (2004-2005: 45 (42.04 FTE)).

A number of contract and locally engaged staff are engaged in Australian overseas missions. In 2005-2006 the number was 21 (FTE 20.5), (2004-2005: 21 (20.5 FTE)).

Note 15: Financial Instruments

15A - Interest Rate Risk

				Fixed Interest Rate Maturing In			
		Floating Interest Rate		1 year or less		1 to 2 years	
Financial Instrument	**Notes**	**2006 $'000**	2005 $,000	**2006 $'000**	2005 $,000	**2006 $'000**	2005 $,000
Financial Assets							
Cash at bank	7A	**-**	-	**-**	-	**-**	-
Receivables	7B	**-**	-	**-**	-	**-**	-
Total		**-**	-	**-**	-	**-**	-
Financial Liabilities							
Suppliers	9A	**-**	-	**-**	-	**-**	-
Grants	9B	**-**	-	**-**	-	**-**	-
Other program expenditure	9C	**-**	-	**-**	-	**-**	-
Total		**-**	-	**-**	-	**-**	-

		Non-Interest Bearing		Total		Weighted Average Effective Interest Rate	
Financial Instrument		**2006 $'000**	2005 $,000	**2006 $'000**	2005 $,000	**2006 %**	2005 %
Financial Assets							
Cash at bank	7A	**470**	580	**470**	580	**n/a**	n/a
Receivables	7B	**1,253**	348	**1,253**	348	**n/a**	n/a
Total		**1,723**	928	**1,723**	928	**n/a**	n/a
Total Assets				**8,375**	4,109		
Financial Liabilities							
Suppliers	9A	**571**	141	**571**	141	**n/a**	n/a
Grants	9B	**1,202**	2,107	**1,202**	2,107	**n/a**	n/a
Other program expenditure	9C	**164**	138	**164**	138	**n/a**	n/a
Total		**1,937**	2,386	**1,937**	2,386	**n/a**	n/a
Total Liabilities				**7,547**	3,765		

Note 15: Financial Instruments – cont.

15B - Net Fair Values of Financial Assets and Liabilities

The net fair values of each class of financial assets and liabilities equals the carrying amounts in both 2005 and 2006. Values are shown in the Balance Sheet.

15C - Credit Risk Exposures

The entity's maximum exposures to credit risk at reporting date in relation to each class of recognised financial assets is the carrying amount of those assets as indicated in the Balance Sheet.

The entity has no significant exposures to any concentrations of credit risk.

Note 16: Appropriation

16A - Acquittal of Authority to Draw Cash from the Consolidated Revenue Fund (CRF) for Ordinary Annual Services Appropriations

Particulars	Departmental Outputs	
	2006	2005
	$	$
Year ended 30 June 2005		
Balance carried from previous year	**2,820,215**	2,709,423
Appropriation Act (No.1) 2005-2006	**49,334,000**	47,523,000
Appropriation Act (No.3) 2005-2006	**-**	-
Departmental Adjustments by the Finance Minister (Appropriation Act)	**-**	-
Comcover receipts (Appropriation Act s13)	**-**	-
Advance to the Finance Minister	**-**	-
Refunds credited (FMAA s30)	**-**	-
Sub total 2005-06 Annual Appropriation	**52,154,215**	50,232,423
Appropriations to take account of recoverable GST (FMAA s30A)	**3,303,968**	3,167,791
Annotations - revenue credited to Special Account	**8,416,887**	4,722,489
Total Appropriations available for payments	**63,875,070**	58,122,703
Cash payments made during the year (GST inclusive)	**58,158,056**	55,302,488
Appropriations credited to Special Accounts (excluding GST)	**-**	-
Balance of Authority to Draw Cash from the CRF for Ordinary Annual Services Appropriations	**5,717,014**	2,820,215
Represented by:		
Cash at bank and on hand	**470,274**	580,433
Receivable - departmental appropriations	**4,651,000**	1,777,000
Receivables - GST receivable from customers	**-**	-
Receivables - GST receivable from ATO	**653,686**	514,601
Payables - GST payable	**57,946**	51,819
Total	**5,717,014**	2,820,215

Note 17: Special Accounts

17A - Special Account

Legal authority: Financial Management and Accountability Act, 1997; s21
Purpose: for the receipt of all moneys and payment of all expenditure related to the operations of ACIAR.

This account is non-interest bearing

Particulars	Departmental Outputs	
	2006	2005
	$	$
Balance carried from previous year	**580,433**	459,370
Appropriation Act (No. 1) 2005-2006	**46,460,000**	47,648,000
Other receipts		
Goods - Provision of goods to related entities	**25,854**	22,418
Services - Rendering of services to related entities	**8,391,745**	4,700,071
GST credits (FMAA s30A)	**3,170,297**	2,577,839
Available for payments	**58,628,329**	55,407,698
Payments made to employees	**(5,220,713)**	(5,026,929)
Payments made to suppliers	**(52,937,342)**	(49,800,336)
Balance carried to next year	**470,274**	580,433
Represented by:		
Cash - held by ACIAR	**470,274**	580,433
Total balance carried to the next period	**470,274**	580,433

ACIAR has an *Other Trust Monies Special Account* and a *Services for other Governments and Non-Agency Bodies Account*. For the years ended 30 June 2002-2005 both special accounts had nil balances and there were no transactions debited or credited to them.

The purpose of the *Other Trust Monies Special Account* is for expenditure of monies temporarily held on trust or otherwise for the benefit of a person other than the Commonwealth.

The purpose of the *Services for other Government And Non-Agency Bodies Special Account* is for expenditure in connection with services performed on behalf of other Governments and bodies that are not under the *Financial Management and Accountability Act 1997*.

Note 18: Reporting by Outcomes

ACIAR costs have been attributed between the outputs on the basis of direct program expenditure and salary costs plus a proportion of other running costs based on staff numbers. The basis of attribution in this table is consistent with the basis used for the 2004-05 Budget.

18A - Net Cost of Outcome Delivery

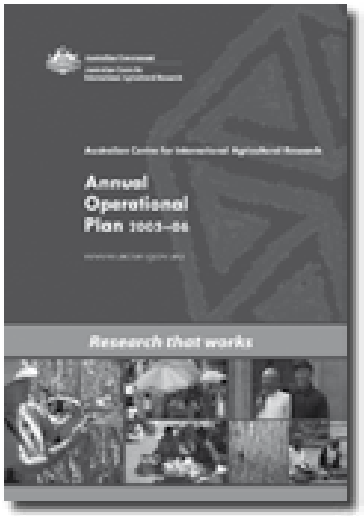
	Outcome 1	
	2006 $'000	2005 $'000
Departmental expenses	**55,419**	51,399
Total expenses	**55,419**	51,399
Cost recovered from provision of goods and services to the non-government sector		
Departmental	**17**	16
Total cost recovered	**17**	16
Other external revenues		
Departmental revenues		
Interest	**-**	3
Revenue from disposal of assets	**1**	2
Other	**187**	106
Goods and Services Revenue from Related Entities	**6,017**	3,841
Total other external revenues	**6,204**	3,952
Net cost/(contribution) of outcome	**49,197**	47,430

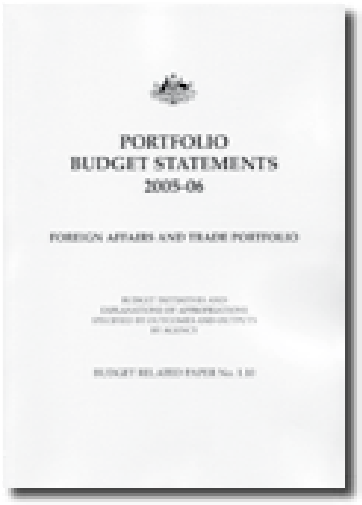
Note 18: Reporting by Outcomes – cont.

18B - Major Classes of Departmental Revenues and Expenses by Output Group

Outcome 1	Output 1.1		Output 1.2		Total	
	2006 $'000	2005 $'000	**2006 $'000**	2005 $'000	**2006 $'000**	2005 $'000
Departmental expenses						
Employees	**5,050**	4,635	**127**	244	**5,177**	4,879
Suppliers	**3,397**	3,163	**86**	166	**3,483**	3,329
Depreciation & Amortisation	**311**	324	**8**	17	**319**	341
Grants	**41,107**	38,142	**-**	-	**41,107**	38,142
Other Program Expenditure	**2,391**	2,139	**2,909**	2,565	**5,300**	4,704
Other	**33**	3	**-**	-	**33**	3
Total departmental expenses	**52,289**	48,407	**3,130**	2,992	**55,419**	51,399
Funded By:						
Revenues from government	**46,648**	44,987	**2,686**	2,536	**49,334**	47,523
Sale of goods and services	**17**	16	**-**	-	**17**	16
Other non-taxation revenue	**6,227**	3,946	**-**	-	**6,227**	3,953
Total departmental revenues	**52,892**	48,953	**2,686**	2,536	**55,578**	51,489

Tracking performance





Vision

ACIAR looks to a world where poverty has been reduced and the livelihoods of many improved through more productive and sustainable agriculture emerging from collaborative international research

Mission

To achieve more productive and sustainable agricultural systems, for the benefit of developing countries and Australia, through international agricultural research partnerships

Outcome

Agriculture in developing countries and Australia is more productive and sustainable as a result of better technologies, practices, policies and systems

Tracking performance: against the 2001–06 Corporate Plan*

ACIAR's vision	ACIAR looks to a world where poverty has been reduced and the livelihoods of many improved through more productive and sustainable agriculture emerging from collaborative international research
ACIAR's mission	To achieve more productive and sustainable agricultural systems, for the benefit of developing countries and Australia, through international agricultural research partnerships
Outcome	Agriculture in developing countries and Australia is more productive and sustainable as a result of better technologies, practices, policies and systems

Critical success factors	Key performance indicators	Performance 2005–06
1. Research outputs (including agricultural policy analyses) that clearly align with improvements to productivity and sustainability of agricultural systems	• Evidence of uptake and use of research outputs	• Five impact assessments published with five more commissioned. • A meta-analysis of returns on ACIAR's bilateral investments was published in August 2005. The *Review of the returns to ACIAR's bilateral R&D investments* examined returns in 29 impact assessments of past projects, these projects representing 7.8% of total investments made by ACIAR since 1982. The accrued and future benefits from these impacts result in a cost–benefit ratio of 3:1, based on a minimal estimate which could be as high as 40:1 if the economic returns of the small number of projects assessed are representative of ACIAR's total portfolio. • The second in the adoption of project outcomes series was published, *Adoption of ACIAR Project Outputs – Study of Projects Completed in 2000–2001*. • A major study of the benefits to Australia from ACIAR-funded research was undertaken. This was based on projects evaluated so far and resulted in $748 m in benefits to Australia for project costs of $62 m. These benefits come from productivity improvements (44%), indirect (35%) and direct (12%) protection from pests and diseases and increased trade (9%). • Other evidence of uptake and use of ACIAR project research outputs obtained during 2005–06 includes: – Significant involvement of farmer groups and local government in participatory research and extension in ACIAR projects in PNG, Philippines, Indonesia, Vietnam, Thailand, Laos and India, – Implementation of a suite of projects that address key technical and marketing bottlenecks for estate crops (coffee, cocoa and oil palm) in PNG and Indonesia, – Community adoption of better watershed management practices in Philippines, Thailand and India, – Water harvesting and better cropping systems adopted by communities in watersheds in Indonesia, India, Vietnam and Philippines, – Improved and alternative management approaches for migratory tuna stocks identified in Pacific; catch monitoring and assessment data systems significantly improved for fisheries of high common interest (tuna, shark, snapper) in Indonesia; contribution to protocols for managing illegal fishing in Philippines and Indonesia, – Commercialisation agreement for a new, environmentally safe fruit fly bait, developed with ACIAR-supported research, signed in Vietnam, – Greater involvement of communities in agroforestry, particularly in Indonesia, Vietnam, Laos and PNG – Improved feed and hatchery technology for freshwater prawns, trochus, sea cucumber and black pearls in PNG, the Pacific Islands, Vietnam and Indonesia, – Improved pig production in Solomon Islands, Laos and Vietnam to increase growth rates and meat production, and – Engagement of farmer groups, industry, extension agencies and NGOs in projects and throughout projects in: o PNG, o Pacific Islands, o Indonesia, o Cambodia, Vietnam, o Philippines, o South Africa, o China, o Pakistan and o India.

Critical success factors	Key performance indicators	Performance 2005–06
2. Government recognises and values ACIAR as an integral part of the Australian aid program	• Positive feedback from Australian Government	• In 2005–06, ACIAR continued to maintain and develop appropriate programs to respond to changing Government priorities, particularly those expressed under the April 2006 White Paper: - Continued to increase investment in Indonesia and PNG, - Commencement of collaborations under the Australian–Indonesian partnership in Aceh and Eastern Indonesia, - Expansion of the ACIAR John Allwright postgraduate scholarships program, - Consultations with Philippines government, industry and NGO partners leading to a targeted expansion of the program in the southern Philippines, - Activities under Agriculture Sector Linkages Program in Pakistan initiated under ACIAR management, and - Support for targeted research and training initiatives, working with whole-of-government partners on management of avian influenza and on trade policy. • Contributed to Whole-of-Government initiatives: – the White Paper on Australia's Overseas Aid Program and the Pacific 2020 – papers by the Board Chair and senior ACIAR staff, – response to the National Research Priorities, – participation in Department of Agriculture, Fisheries and Forestry (DAFF) policy development in fisheries management and biosecurity, – contribution to formulation of several AusAID program strategies and in selected program reviews, and – briefings for Australian Heads of Mission from more than ten partner countries.
	• Bilateral research resources disbursed on a regional basis within agreed percentage ranges	• The ACIAR Board, in conjunction with the Minister and in consultation with the Executive, establishes target ranges for research program expenditure. Actual expenditure for 2004–05 and 2005–06 (including AusAID funds) for each target was: ***Target*** ***2004–05 as %*** ***2005–06 as %*** *PNG & Pacific* > 20 % 22.5 22.4 *Southeast Asia* > 45 % 46.3 50.9 *North Asia* < 15 % 15.1 12.6 *South Asia* < 15 % 13.5 12 *Southern Africa* < 5 % 2.6 2.1 *All* target ranges for research program expenditure were *achieved* in 2005–06
	• Funding to IARCs reflects their performance and needs and Australia's interests	• A new policy for funding IARCs, based on categories of track records of impacts applicable to the Asia-Pacific region was developed and commenced in July 2005. All new IARC projects aligned with AOP country priorities and had strong focus to ACIAR's geographic emphasis.
3. ACIAR's funding base secured, and flexible and realistic project funding arrangements in place	• ACIAR's appropriation at least maintained in real terms	• ACIAR's Appropriation funding in 2005–06 was $49.3 m compared with $ 47.5 m in 2004–05 • ACIAR revenue in 2005–06 was $55.2 m • 46.4% of project costs in 2005–06 were contributed by research partners, compared with 50.3% in 2004–05 • Major co-investment by AusAID, for whole-of-government programs in PNG, Pakistan, Cambodia, Iraq, Afghanistan, East Timor and Indonesia

Critical success factors	Key performance indicators	Performance 2005–06
	• Co-investment by ACIAR and its research partners matches mutual priorities and ability of partners to contribute	• Focus on increased co-investment in China, Thailand and India
	• Evidence of financial support from other sources for research activities that are developed by ACIAR	• Increased involvement of NGOs in suitable projects. NGOs contributing a significant proportion of costs as ACIAR-supported NGO activities are embedded in larger, separately funded area development or livelihoods programs, including: – World Vision, – Catholic Relief Services, and – Salvation Army. • Involvement of industry and industry associations, as funding partners providing good leverage, continued in many partner countries, including: – cattle industry partners (South Africa), – sugar, field crops and oil palm industry partners (PNG), and – the cocoa industry (Indonesia). • Additional cash contributions and co-investment, or parallel investment, in ACIAR-developed projects from: – AusAID, – the Department of Environment and Heritage (Australian Greenhouse Office), and – the Grains Research and Development Corporation.
4. Research priorities established in consultation with key stakeholders in partner countries and Australia, and with regional fora	• Project portfolio matches priorities	• All new projects/project ideas developed in 2005–06 match priorities from Annual Operational Plan 2005–06. • During 2005–06 ACIAR responded to partner country priorities, as expressed during formal country consultations or through meetings with senior government officials, including: – Indonesia—developing projects that increase productivity and quality of income-generating horticultural and fisheries products, – PNG—designing and initiating new projects that emphasise food security and improvement of smallholder incomes from sweet potato and coffee production, – Pacific— emphasis on marketability and marketing of horticultural and forestry products, – Vietnam— targeted interventions on the role of ducks in avian influenza; systems for better management of infertile lands and limited water resources in central provinces, – Philippines— continuing the implementation of projects that involve greater participation of end-users at the district level in projects, and – India—a suite of projects that increase productivity in marginal areas of Northern India with limited resources.

Critical success factors	Key performance indicators	Performance 2005–06
5. Streamlined, flexible, transparent and accessible project development and approval processes	• Time from start to finish of project development, and streamlining of implementation	• Over 40% of projects developed in 2005–06 designed to deliver significant community or policymaker impacts within 5 years of completion. • Project proponents are routinely using the ACIAR website to obtain information on country priorities and project application documentation. • On-time submission of annual and final reports presented in a format for web publication. • In 2005–06, ACIAR started 36 new bilateral projects and three new multilateral projects. • Greater use of scoping studies to rapidly but more completely identify key researchable issues ahead of implementation of major projects.
6. Effective communication with key stakeholders	• Key groups within and outside ACIAR well informed and listened to by ACIAR	• Australian stakeholder survey completed regarding attitudes to ACIAR and identifying methods to improve stakeholder–ACIAR communication. • Annual Operational Plan for 2005–06 widely disseminated to stakeholders and potential research providers in Australia, partner countries, international research community and relevant government institutions/departments. • During 2005–06 a number of new communication initiatives implemented—including media trips to Indonesia's West Timor province, and East Timor, ABC radio interviews with a range of project leaders, launch of Crawford Fund booklet – Australian perspective on CGIAR booklet Healing Wounds in Darwin, new corporate brochure, corporate marketing materials. • Flagship publication – Partners Magazine widely disseminated and the publication of Annual Country Profiles for our key partner countries widely read by stakeholders. • Information on ACIAR website accessed regularly by Australian and partner country stakeholders throughout Asia, Pacific and Southern Africa, with 236,000 separate visitors and 7 million hits recorded. • Website Online Bookshop offering available scientific electronic publications and online shopping for hard copies, new Publications Catalogue profiling publications in a ready reference format. Twenty two per cent of visitors to the website downloaded publications in 2005–06. • ACIAR Portal (intranet site) widely utilised by staff as an information hub.
	• Others call on ACIAR and project staff for consultation and advice	• Contribution by the Board Chair, Director and senior ACIAR staff to development of the White Paper on the aid program and the Pacific 2020 study. • The Director on the Executive Committee of the Consultative Group for International Agricultural Research. • The Deputy Director on the Board of the International Water Management Institute and on the Gene Technology Technical Advisory Committee. • Regular dialogue with World Bank Indonesia on program linkages; senior ACIAR staff asked by World Bank to formally appraise a major new agribusiness program. • Formal high-level consultations were held with Philippines and informal consultative meetings held with a number of partner-country institutions and representatives. • Requests for involvement of senior ACIAR Executive and Research Management staff as: – keynote speakers/presenters at international technical and development meetings, as well as to student groups and professional societies in Australia, – participants in the review and design of AusAID programs, and – members of Interdepartmental Committees, including with DEST, DAFF and PM&C.

Critical success factors	Key performance indicators	Performance 2005–06
7. Capacity-building focused on the human resource development needs of collaborators; this includes the effective delivery of project outputs in targeted countries to achieve practical outcomes	• Capacity of partner country and Australian partners to identify and prioritise needs and conduct R&D, focus on problem solving, and deliver the results to farmers	• ACIAR projects utilise collaborative approach to involve partner-country scientists in program and project planning and reviews, delivering capacity-building in all projects. • Emphasis on providing postgraduate and short-course training for ACIAR project scientists from: – PNG – the Pacific Islands – Indonesia – Philippines – East Timor – Cambodia – Vietnam and – Laos. • Five John Dillon Fellows (from China, India and Philippines) visited relevant Australian organisations and institutions to develop leadership skills in areas of agricultural research management, agricultural extension technologies, and/or policy making. • Twelve short training courses, including those co-funded and delivered as Master Classes, developed in response to consultation on training priorities and conducted in five countries; attended by scientists from 10 developing countries.
8. An appropriately skilled, committed and enthusiastic ACIAR workforce focused on tasks that enhance outputs	• Staff skills match the Centre's needs, training reflects priorities for skills enhancement, staff feel valued and performance is recognised	• Staff are provided with information on learning and development opportunities and encouraged to participate in identified priority areas. Six staff (12.5% of staff) are being supported in formal study related to ACIAR operations. • During 2006 a Staff Survey was conducted with the results indicating: – the majority of staff agreeing that they are given real opportunities to improve their skills, – the majority of staff agreeing that ACIAR recognises a high standard of work and efficient work practices, and – a majority are satisfied with the recognition they receive.

**The ACIAR Corporate Plan 2006–10 is being prepared for publication in late 2006.*

Tracking performance: against the 2005–06 Portfolio Budget Statement

Output	Indicator	Performance 2005–06	
1.1Collaborative research that addresses agricultural and natural resource management problems of developing countries and Australia	**Quality:**		
	• Regional investment profile is consistent with Australian Government aid priorities	Government priorities (from *Australia's Overseas Aid Program 2005–06)*	ACIAR position
		Increase funding to Indonesia to $5.2m Increase investment in bilateral research in PNG to $4.5m and Pacific to $2.5m	Actual expenditure for 2005–06 $5.450m Actual expenditure for 2005–06 $4.559m in PNG and $2.275m in the Pacific
		Reduce bilateral research in China	Actual expenditure for 2005–06 $3.733m compared to $3.926m in 2004–05
		Increased number of projects targeting pilot-scale delivery of research outcomes to end-users	In 2004, ACIAR's Board endorsed a policy of having approximately 40% of new projects designed to provide significant impact on policy-makers and farmers (outside those directly involved in research) within five years of project completion. Of the 51 projects submitted to In House Review in 2005–06 42% fitted this category
		Joint AusAID-ACIAR initiatives, including projects in Afghanisatn, Cambodia, China, PNG Guinea and the Philippines, accounting for $3.9m of research expenditure	Actual expenditure for 2005–06 for joint ventures in nominated countries and new initiatives in Iraq, Pakistan and East Timor was $5.437m
	• Research partners contribute 40–55 per cent of project costs	• Project partners contributed 43.5% of project cost	

Output	Indicator	Performance 2005–06
	>90 per cent of concluding projects are assessed by external reviews as having achieved their main objectives	• In 2005–06, 36 external project reviews were conducted and recommendations considered by ACIAR Management and Board. Of these 92% achieved their main objectives (28 achieved all of the substantial project objectives and a further five achieved the main objectives but not all).
	• There is further substantiated evidence of significant economic, social and environmental impacts from completed ACIAR projects	• Five impact assessments published in 2005–06 all showing strong investment returns on research, and ex-post adoption studies undertaken of nine projects completed in 2001–02 • A major review found that total benefits from the 29 assessments in the Impact Assessment Series have been around $3.4b. • Another major review was undertaken of Australian benefits from the same activities plus 12 additional assessments from before and after the last study. The results revealed an interesting mutual benefits story, with total benefits to Australia from all 46 assessments totalling $735m. These were found to come from direct production benefits (44%), indirect (35%) and direct (12%) protection from pests and diseases, and increased trade (9%).
	• Support for multilateral research providers is concentrated on those International Agricultural Research Centres with greatest comparative advantage	• ACIAR allocated 19.9% of its total appropriation in 2005–06 to the IARCs. Of this total IARC investment, 56% was allocated as unrestricted funding to centres with a comparative advantage in the Asia-Pacific region while another 43.1% was allocated to specific projects within the region. The remaining 0.9% was allocated to other multilateral activities. These percentages are consistent with the three-year IARC funding strategy announced at the beginning of 2005–06.
	Quantity:	
	• Around 200 projects are delivering outputs during 2005–06	• ACIAR had 297 active projects during 2005–06*: – 267 bilateral, and – 30 multilateral projects.

Output	Indicator	Performance 2005–06
	• >10,000 copies of ACIAR research publications and papers are requested or downloaded	• ACIAR distributed: – 31,000 hard copies of publications, and each month the ACIAR publication lists featured in the top ten most visited pages, with an average of more than 83,000 visits, or 22% of visitors downloading publications in 2005–06.
1.2 Trained researchers in developing countries and Australia	Quality:	
	• >90 per cent of trainees will indicate satisfaction with training	• In 2005–06, 91% rated training courses as satisfactory or greater, with over 80% rating them highly satisfactory (or very good)
	Quantity:	
	• > 100 trainees are in formal, ACIAR-supported training courses	• In 2005–06, ACIAR had 57 active John Allwright Fellows undertaking postgraduate study in Australia representing 14 countries • Five John Dillon Fellowships awarded for research management training • Ten cross-program training courses and five courses, including Master Classes, were run through the Crawford Fund to support ACIAR projects

**In 2005–06 ACIAR introduced a new project category of Small Research Activities, aimed at utilising scoping studies to rapidly but more completely identify key researchable issues ahead of implementation of major projects.*

Operational issues and problems

ACIAR has, and will continue to adopt, a safety first approach when approving travel for its own personnel and in negotiating travel for project personnel. The Centre follows the travel advisory updates issued by the Department of Foreign Affairs and Trade. Throughout the year travel advisories relating to ongoing security concerns in Indonesia, Pakistan, East Timor, Afghanistan, Solomon Islands, Papua New Guinea and the southern Philippines, especially southern Mindanao, have slowed progress on some projects.

Concerns related to the security situation in Zimbabwe continue to constrain project implementation. All new projects in southern Africa are now developed targeting the Republic of South Africa. Project development in Burma was also curtailed due to political and security issues.

Resources for outcome

Financial performance

In 2005–06 ACIAR's direct expenditure on Outputs 1 and 2, including bilateral and multilateral research projects, education and training of researchers and project-related publications disseminating research results, represented 84 per cent of expenditure.

The Centre has continued to maintain its healthy financial position. For 2005–06 we operated with a small surplus of $158,985. ACIAR will continue to operate a balanced budget in future years to maintain this position.

Price of departmental outcomes

Outcome 1—Agriculture in developing countries and Australia is more productive and sustainable as a result of better technologies, practices, policies and systems.

	(1) Budget* 2005-06 $'000	(2) Actual expenses 2005-06 $'000	Variation (column 2 minus column 1) $'000	Budget** 2006-07 $'000
Administered Expenses[1] (including third party outputs)	n/a	n/a	n/a	n/a
Total Administered Expenses	n/a	n/a	n/a	n/a
Price of Departmental Outputs				
Output Group 1.1: Collaborative research that addresses agricultural and natural resource management problems of developing countries and Australia	46,648	46,115	(533)	46,607
Subtotal Output Group 1.1	46,648	46,115	(533)	46,607
Output Group 1.2: Trained researchers in developing countries and Australia	2,686	3,060	374	3,755
Subtotal Output Group 1.2	2,686	3,060	374	3,755
Revenue from Government (Appropriation) for Departmental Outputs	49,334	49,175	(159)	50,362
Revenue from other Sources	4,340	6,244	1,904	7,589
Total Price of Outputs	53,674	55,419	1,745	57,941
TOTAL FOR OUTCOME 1 (Total Price of Outputs and Administered Expenses)	53,674	55,419	1,745	57,941
Staff Numbers (FTE)[2]	**2004–05**		**2005–06**	
	62.54		64.94	

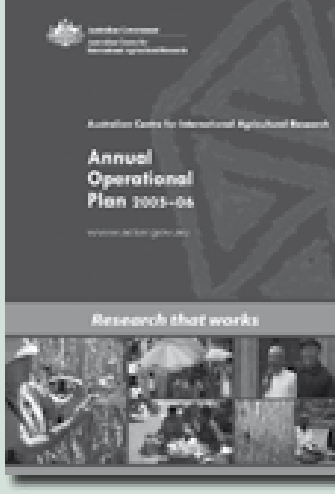
** Full-year budget, including additional estimates*
*** Budget prior to additional estimates*
[1] ACIAR does not have administered expenses
[2] Staff numbers expressed in full-time equivalent.

Tracking performance: against the 2005–06 Annual Operational Plan

ACIAR measures its progress in each country through key performance indicators (KPIs). These assist in the development of more focused programs in each country and also reflect the drive to refine and target programs more strongly to deliver research applicable to partner-country needs. Progress against country-specific KPIs is listed in the *Regional achievements* chapter, at the beginning of each country report.

AOP indicators are included for other core areas of operation, such as the *Multilateral program, Communicating research, Measuring research impacts* and *Building research capacity*, within the relevant chapters of the *Year in Review* section. Of the 99 indicators, 93 were achieved; six were not

Key performance indicators	Performance 2005–06
• Management costs are kept to an acceptable level of 17% of total budget	• Management costs were 16.2% of the total 2005–06 budget
• Running costs do not increase in real terms.	• ACIAR's running costs were within the budgeted parameters of the Portfolio Budget Statement, being $9.0m – (a saving of $100,000 on budget).
• All legislative and reporting requirements are met with no significant operational problems.	• All legislative requirements for the 2005–06 financial year were met; tabling of the past year's Annual Report, the Portfolio Budget Statement, and other miscellaneous reporting requirements such as to the National Research Priorities.
• Our operations are kept as simple as possible	• In-house project development, approval and implementation processes were improved; • Processes for approving and implementing projects were improved in several partner countries; • A new form of contract – the Small Research Activity – was introduced to streamline processes relating to targeted research.
• Our corporate knowledge and information is readily accessible to all staff	• ACIAR has investigated and begun implementing improvements to its record-keeping system; • Online reporting of financial information was improved, allowing access to budgetary and expenditure information; • The Project Information System was enhanced; • ACIAR's Portal has become the main information repository for staff in Canberra and country offices; • Wireless hotspots were enabled for travelling staff, giving them faster and more convenient access to ACIAR information systems while away.



ACIAR's 2005–06 research priorities were set out in its Annual Operational Plan (AOP). The AOP provides a transparent window into ACIAR's operations and research directions, including grouping research priorities by country and key program areas.

Portfolio management*

AOP budgeted expenditure in 2005–06	$3,429,000
Actual expenditure in 2005–06	$3,195,791
Proportion of total ACIAR expenditure 2005–06	5.8%

** includes Executive and Advisory (Executive Planning and Board/Policy Advisory Council/Policy Secretariat), Information Services, Information Technology and Infrastructure, Finance, Human Resources and International Support*

ACIAR's Service Charter

During 2004–05 ACIAR launched its Service Charter, to embed a service delivery culture. The Charter outlines what can be expected when dealing with ACIAR and how individuals can contact the Centre to comment on performance. This includes service standards to be upheld for replying to emails, website and telephone queries and project development timeframes. The transparency of decision-making is also included, along with standards of accessibility.

ACIAR's Service Charter defines responsiveness, not accountabilities. The Centre's responsiveness to partners, government agencies, community groups and other stakeholders demonstrates ACIAR's commitment to doing the best job possible.

Since the Charter was launched no complaints have been lodged, nor have there been any other forms of feedback through the Charter. ACIAR continues to work to ensure that stakeholders have access to the most relevant and up-to-date information for project development and activities, that staff are accessible and that operations are transparent.

achieved due to delays and problems in project-related implementation beyond ACIAR's control.

At a broader level, 2005–06 saw a number of changes. Since the beginning of 2005, seven new Research Program Managers have commenced at ACIAR. The new appointees are now familiar with the priorities and networks in the key partner countries, allowing the continuation of a solid program of project development. Other notable initiatives include significant growth in the Pakistan and Indonesia programs in collaboration with AusAID, commencement of the large Seeds of Life 2 project in East Timor, and significant expansion of the John Allwright Fellowship program. An approach to seek Expressions of Interest for projects in Papua New Guinea is being trialled, following on from a similar pilot in the Philippines and Indonesia five years ago. The trial call in Papua New Guinea aims to further enhance transparency of project selection and identify both new project ideas and potential new research providers.

ACIAR's projects rely on partnerships that operate within a complex international, collaborative and inter-governmental environment. Effective project implementation and the delivery of results in this environment require sound portfolio management. This is delivered through a sound administrative underpinning and an investment in information technology and services.

The Information Technology and Infrastructure unit is responsible for the technical requirements needed for a safe and secure working environment, including issues relating to compliance on technical matters. The unit also supports appropriate technology use for ACIAR country offices and between ACIAR and relevant Government departments. Wireless technology has been adopted to enable travelling staff more convenient access to ACIAR information systems. Infrastructure in ACIAR's headquarters and management of environmental impacts from day-to-day operations are also serviced by the unit, with security of the ACIAR building and assets being upgraded following the recommendation on a risk management review.

ACIAR's operations also require an investment in overseas offices that is sufficient to facilitate a collaborative approach, in which partner-country priorities are heard and addressed.

The International Support program administers the development and implementation of project activities through the provision of services in seven ACIAR country offices and the Centre's headquarters. The program advises senior management and stakeholders on country contexts and project development, approval, legal-contractual requirements and project implementation. Offices are located in Australian missions in Papua New Guinea, Indonesia, Philippines, Thailand, Vietnam, China and India, with some providing support for ACIAR programs in neighbouring countries.

Tracking performance: against Australia's National Research Priorities

Dr Simon Hearn
Senior Adviser

Key performance indicators	Performance 2005–06
• Increased share of resources devoted to priority themes 1 and 4.	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.
• Increased evidence of co-funding of projects in national research priority areas.	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

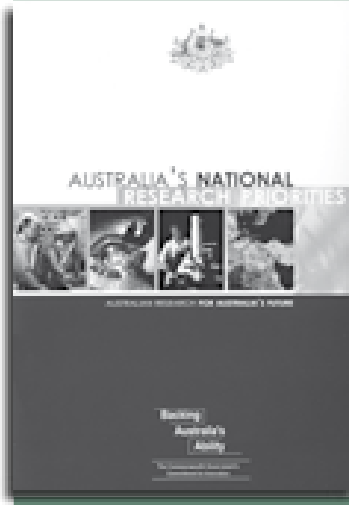
ACIAR's research funding priorities are driven strongly by Australia's overseas aid agenda and by country strategies that accommodate the development needs of partner countries in our region. ACIAR also operates within the strategic aid framework recently confirmed by the White Paper on Australia's overseas 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 that 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)
1. An environmentally sustainable Australia		
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
Total Theme 1	**10.72**	**11.21**
4. Safeguarding Australia		
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
Total Theme 4	**8.55**	**9.45**
TOTALS 1 AND 4	**19.26**	**20.66**
TOTAL as percentage of total ACIAR bilateral project funding	**57%**	**59%**

** 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 ($m)#	2005–06 actual ($m)
1. An environmentally sustainable Australia		
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
Total Theme 1	**9.28**	**10.47**
4. Safeguarding Australia		
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
Total Theme 4	**5.7**	**8.37**
TOTALS 1 AND 4	**14.98**	**18.84**

 # 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. *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*.
	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. *Permanent crop bed technology to increase water use efficiency in irrigated cropping while reducing energy inputs*.
	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. *Prevention of saline environment contamination from tanneries by improved recycling of salt reagents used in leather tanning*
	ASEM/2000/109	Farming systems research for crop diversification in Cambodia and Australia. *Reduction of soil losses in cereal cropping in Northern NSW through introduction of conservation tillage practices*
	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. *An economic model for identifying socially optimal herbicide management strategies using Western Australian data*.
	FST/2003/002	Development and evaluation of sterile triploids and polyploid breeding methodologies for commercial species of Acacia in Vietnam, South Africa and Australia. *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*.
	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. *A combined economic and hydrological model of salinisation is being further developed for catchment in the Upper Macquarie Valley, NSW*
	LWR/1998/130	Water resources and salinity management in agricultural areas of inland northern China and northern Australia. *Understanding mechanisms of waterlogging and salinity so that vulnerability to salinisation under different management practices can be mapped*.
	LWR/2002/085	Utilising basic soil data for the sustainable management of upland soils in Vietnam and Australia. *Use of a fertility capability classification to improve soil and fertiliser management in the Herbert River catchment of Queensland*.
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. *Assessment of the diversity of Australian shark and ray fishery stocks in NW waters*
	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. *Hybrid eucalypts jointly developed in South Africa and Australia will provide new germplasm for use in revegetating degraded sites in inland Australia*.
	FST/1998/096	Domestication of Australian trees for reforestation and agroforestry systems in developing counties. *Delivery of improved knowledge and application of taxonomic variation, silviculture and genetic improvement of Australian species to expand hardwood plantations*.
	FST/2000/003	Mixed species plantations of high-value trees for timber production and enhanced community services in Vietnam and Australia. *Mixed species plantations will provide more productive options for reforestation with native species, with more diverse environmental services*.
1.7 Responding to climate change and variability	ASEM/2003/009	Bridging the gap between seasonal climate forecasts and decision-makers in agriculture. *Understanding the economics and social factors affecting adoption of seasonal climate forecasts by farmers*.
	SMCN/2002/033	Seasonal climate forecasting for better irrigation systems management in Lombok. *Seasonal climate forecasting for more efficient allocation of scarce irrigation to crops*.

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. *Diagnostic test for the identification of the exotic disease caused by Trypanosoma evansii in cattle, pigs and dogs*.
	CIM/1999/072	Oilseed Brassica improvement in China, India and Australia. *Enhanced oilseed Brassica germplasm in all collaborating countries through germplasm exchange, crossings and selection*
	CIM/2001/039	Integrated management of Botrytis Grey Mould of chickpea in Bangladesh and Australia. *Development of new controls on BGM in Australia with an integrated disease management approach*
	CP/1996/140	Biological threats to *Saccharum* 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. *Control of red-banded mango caterpillar, an exotic pest of mangoes recently discovered in mainland Australia*.
	FST/2000/123	Heart rots in plantation hardwoods in Indonesia and southeast Australia. *Minimisation of pruning-associated decay that limits the potential for selected plantation species to produce high-value products*.
	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 *Hypsipyla robusta* 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. *Foster the sustainability of the squash industry through improvements to integrated disease, pest and weed management—to improve field-based crop protection and quality*.
	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.

Reporting against other statutory requirements

ACIAR values

We are committed to partnerships that:
- help reduce poverty
- respect each other's values, cultures and laws.

In our work we believe in:
- open, honest communication that is personally and culturally sensitive, within and beyond ACIAR
- scientific and professional excellence to guide decision making
- innovation and creativity within the context of the APS values
- efficient use of resources.

As an organisation we value:
- the commitment of our people and partners to the mission and work of ACIAR
- integrity, consultation, professionalism, fairness and ethics
- a satisfying workplace.

Sue Allen, Personnel Administrator

Snapshot of ACIAR staff as at 30 June 2006

Staff employed under the PS Act	48*	FTE	44.44
Median length of APS service		6 years	
Median age		51	
Women as % of total		47.9%	
NESB staff as % of total		16.7%	
Part-time staff as % of total		20.8%	
Non-ongoing staff as % of total		31.3%	
Employee turnover for 2005–06		12.8%	

** excludes three inoperative employees*

Management of human resources

ACIAR four-year perspective

Staff employed under the Public Service Act 1999

	2002–03	2003–04	2004–05	2005–06
Staff at 30 June	48	47	45	48
Staff (FTE)	45.7	44.3	42.04	44.44
Base salaries	$3,319,528	$3,362,474	$4,008,509	$3,483,490
Cessations	12	11	12	6
Staff turnover	23.3%	23.4%	26.7%	12.8%
Women	56.3%	57.4%	51.1%	47.9%
Part-time	14.6%	14.9%	20%	20.8%
Non-ongoing	16.7%	21.3%	26.7%	31.3%
Learning & development activities	$103,898	$85,596	$44,158	$66,793

Overseas staff

	2002–03	2003–04	2004–05	2005–06
Staff (FTE)	18.8	18.8	20.5	20.5
Base salaries	$569,828	$505,919	$440,224	$575,523
Learning & development activities	$8,561	$8,047	$8,990	$5,344

Performance management

ACIAR's Individual Development Planning and Evaluation Scheme (IDPES) operates on a 3-point rating scale and employees who are rated as 'meets expectations' or 'exceeds expectations' in the annual performance assessment receive an increment (where they are not on top of a salary range). In the cycle concluded in June 2006 there were 43 completed assessments, including 1 SES equivalent employee. Twenty-seven employees were rated as 'meets expectations' and 15 as 'exceeds expectations', with three employees rated as being between meeting and exceeding expectations. Three employees on long-term leave were assessed as meeting expectations in absentia. Of the 45 employees rated as meets expectations or higher, 16 were advanced one salary point. There was one employee rated as not meeting expectations.

Bonuses based on the performance of the organisation

Employees rated as 'meets expectations' or higher in the performance cycle, who have worked for ACIAR for at least nine months and who were still employed by ACIAR at 30 June 2006, received a bonus of $2000 in recognition of ACIAR's achievements against the 2005–2006 Annual Operational Plan. Part-time employees received a pro rata payment based on hours worked. Forty-three employees received the performance bonus with payments totaling $80,044.

Classification*	Number of employees	Aggregated amount	Average bonus payment
APS2–4	14	$26,520	$1,894
APS5–6	8	$14,860	$1,857
ELL1–EL2	6	$11,260	$1,877
RPM Group	15	$25,404	$1,694
SES1 equivalent	1	$2,000	$2,000
Total for agency	**44**	**$80,044**	**$1,819**

**Due to the small number of staff employed, including some classification levels with less than five employees, classifications have been aggregated to ensure that payments to individuals cannot be identified.*

Occupational health and safety

There were no accidents or dangerous occurrences giving rise to issue of any notices or directions under the OHS *(Commonwealth Employment) Act 1991*.

ACIAR employees and their families have access to a free Employee Assistance Program that provides professional counselling services and a variety of other services, including career and personal planning and assistance to managers.

ACIAR provides annual health assessments, healthy lifestyle initiatives, annual flu injections and pre-travel assessments for overseas travellers, including vaccinations and pharmaceutical supplies. New initiatives were introduced in 2005–06 to reduce the possibility of travellers contracting avian influenza, including access to medical advice and protective medication. ACIAR engages a qualified workplace assessor to conduct ergonomic assessments for new employees and employees who experience discomfort at their workstation. Modifications are made to work practices and work areas as required.

ACIAR conducted its annual Cleanup Day in December 2005 as part of its ongoing commitment to the health, safety and wellbeing of its employees

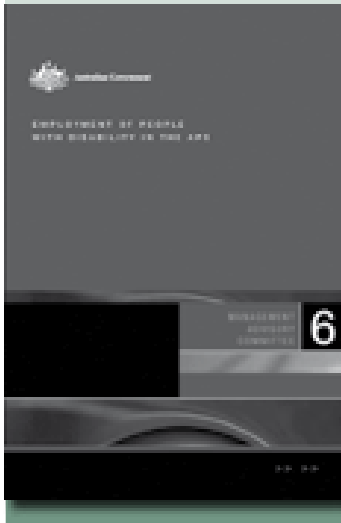
Commonwealth Disability Strategy (CDS)

ACIAR is committed to ensuring that all people seeking employment have fair access to employment opportunities. Applicants with disabilities are encouraged to identify their disability when applying for vacancies and ACIAR's Recruitment and Selection Policy provides advice to selection panels on making provision for the needs of applicants with disabilities. People seeking employment with ACIAR can find guidance and assistance on the recruitment page of ACIAR's website.

ACIAR's Certified Agreement and supporting HR Manual provides a framework and guidelines for dispute resolution and internal review of employment actions.

Learning and development

In 2005–06 ACIAR spent $66,793 on external training for its Canberra-based employees, which averages at $1518 per employee. In comparing the number of days spent in formal learning and development activities, participation by ACIAR employees is broadly consistent with APS-wide figures. It should be noted that ACIAR's expenditure does not take into account in-house training and workshops conducted by consultants for ACIAR employees or the attendance of Research Program Managers at conferences and seminars in Australia and overseas. ACIAR provides substantial studies assistance for formal study and employees are encouraged to take up broader development opportunities to enhance their skills.



Workplace diversity

ACIAR's Workplace Diversity Plan for 2003–2006 was reviewed and a new plan for the period 2006–2009 was put in place. ACIAR continues to foster an environment that values diversity of backgrounds and experience.

All-staff workshop

ACIAR Week was held in the last week of February 2006, where local and overseas employees worked through an agenda which included forward planning and discussion of priority issues facing the Centre. An all-staff workshop was held on the last day, with an agenda designed to value diversity in teams and tools to enhance the effectiveness of communication and teamwork across ACIAR.

Comparison of workforce statistics against Service-wide figures

	ACIAR	APS
Ongoing employees	68.7%	92.2%
Non-ongoing employees	31.3%	7.8%
Full time	79.2%	88.7%
Part time	20.8%	11.3%
EEO Groups	**ACIAR**	**APS**
Women	47.9%	54.2%
Indigenous employees	0%	2.2%
People with a disability	0%	3.8%
NESB1	12.5%	5.3%
Age Groups	**ACIAR**	**APS**
Under 25	4.2%	4.0%
25–34	12.5%	25.1%
35–44	16.6%	30.5%
45–54	29.2%	30.3%
Over 55	37.5%	10.1%
Classification	**ACIAR**	**APS**
APS 1–2	2.1%	5.2%
APS 3–4	31.9%	35.8%
APS 5–6	19.2%	33.9%
Executive Level	44.7%	22.5%
SES	2.1%	1.6%
Graduate entry	0%	0.9%

ACIAR's 4th Certified Agreement

The ACIAR Certified Agreement 2005–2008 was certified by the Australian Industrial Relations Commission on 12 July 2005. The classification structure was changed in this CA, with ACIAR now having four separate broadbands. A breakdown of staff numbers in each broadband is in Appendix 5 (page 200).

Productivity savings – Certified Agreement Year1

ACIAR estimated that the 4 per cent salary increase to be paid on certification of the new Certified Agreement would equate to a cost of $153,236 in the first year.

At the end of year one of the Agreement, salary savings of $285,055 were achieved through organisational restructuring, such as movement from full-time to part-time positions, and from positions being filled at lower levels or at lower salary points. Other productivity benefits were achieved by abolishing leave banking for Research Program Managers and the introduction of a simplified travel acquittal system, which amounted to savings of $25,080.

In addition, new initiatives relating to fellowships and market-driven adaptive research were introduced, without additional staffing supplementation. These initiatives cannot be quantified in Year 1 as additional revenue for these initiatives was received at the end of the financial year.

Sick leave and absenteeism

The APS State of the Service Report for 2006–07 will report on unscheduled work absences. As a precursor to that, ACIAR reported the following sick and carer's leave usage in 2005–06. Benchmarked figures for 2004–05 are provided for comparison purposes.

Category	Type of leave	2004–05	2005–06
1	Paid or unpaid sick leave	338.44 days (3.0% of available working days)	343.42 days (2.95% of available working days)
2	Paid or unpaid personal leave	108.92 days (0.95%)	73.11 days (0.63%)
Total		447.36 days (3.95%)	416.53 days (3.57%)

Staff survey

The third ACIAR Staff Survey was completed in April 2006. The 2006 survey results are more positive than those in 2003 and this improvement is across most categories. A number of areas for improvement will be addressed during the remainder of calendar year 2006.

The following table provides a comparison of employee responses to analogous questions in the ACIAR Staff Survey and the 2005 State of the Service Employee Survey.

Topic	Sub-topic	ACIAR	SOS
APS Values and Code of Conduct	Familiar with APS Values	53%	85%
	Familiar with Code of Conduct	56%	83%
Identity	Proud to work in agency	87%	65%
Work/life balance and job satisfaction	A culture that supports a good work/life balance	77%	68%
	Job satisfaction factor: good working relationships	42.6%	52%
	Job satisfaction factor: salary (conditions in ACIAR survey)	29.5%	46%
Workplace relations	Satisfied with overall say in decisions that impact on work	68%	45%
Developing APS capability	Intending to leave in next three years	37%	15%
	Accessed at least one day of off-the-job learning and development in last 12 months	64%	79%
	Rated supervisor effective at managing people	70%	51%

Judicial decisions and decisions of administrative tribunals

Judicial decisions and decisions of administrative tribunals
There were no decisions made at either the judicial or administrative tribunal level during the 2005–06 financial year that impacted on ACIAR. There are no impending decisions relating directly to ACIAR.

External scrutiny and auditing

Reports by the Auditor General and the ANAO

The only ACIAR specific audit completed in 2005–06 was of the 2005–06 financial statements, (unqualified).

Through its Audit Committee the Centre looks at the findings and recommendations of relevant Australian National Audit Office (ANAO) reports for their applicability to ACIAR. These audits include the following across-agency audits:

- Audit Report No. 11—The Senate Order for Departmental and Agency Contracts,
- Audit Report No. 16—The Management and Processing of Leave;
- Audit Report No. 22—Cross Portfolio Audit of Green Office Procurement;
- Audit Report No. 23—IT Security Management; and
- Audit Report No. 27—Reporting of Expenditure on Consultants.

The Audit Committee also examines Better Practice Guides issued by the ANAO in regard to their applicability to improve systems and processes. Reports of interest were:

- Administration of Fringe Benefits Tax; and
- Preparation of Financial Statements by Public Sector Entities.

Purchasing and tendering compliance

Purchasing

ACIAR complies with the *Commonwealth Procurement Guidelines* and the objectives of Commonwealth Procurement. The Centre applies value for money as the core principle in the procurement process, consistent with section 4 (4.1) of the Guidelines. ACIAR's Chief Executive Instructions include details on delegations, the spending of public moneys and dealing with public property. These instructions have been developed in accordance with the *Commonwealth Procurement Guidelines*, the *Environmental Purchasing Guide* and various Finance Circulars.

Most of ACIAR's procurement falls into either: Exemption 5—procurement for the direct purpose of providing foreign assistance, or Exemption 6—procurement of research and development services, but not the procurement of inputs to research and development undertaken by an agency, as outlined in *Appendix B: Exemptions from Mandatory Procurement Procedures, Commonwealth Procurement Guidelines*.

These contracts and agreements, under Exemption 5 and 6 include: contracts for scoping and feasibility studies; appraisals relating to project design, monitoring and evaluation of programs or projects; project implementation; procurement of goods and services for projects; agreements with NGOs, other governments and international agencies; follow-up activities including workshops to disseminate project outcomes; and post-project assessments and reviews. In relation to project activities the Centre:

- publishes an Annual Operational Plan that indicates areas of priority

for research, developed in consultation with partner countries; and
- disseminates this to research providers, both within and outside Australia, inviting suitable experts to submit ideas and develop these in consultation with ACIAR's Research Program Managers.

Competitive tendering

No open purchasing (over $80,000) involving tendering was carried out during 2005–06. ACIAR did not let any contracts for $80,000 or more, that did not provide the Auditor General access to the contractor's premises. ACIAR is subject to the *Financial Management and Accountability Act 1997* and is required by the Commonwealth Procurement Guidelines to publish on AusTender contracts and standing offers with a value of $10,000 or more. Details can be accessed at www.contracts.gov.au. No contracts were let in excess of $10,000 that were exempted from publication in AusTender due to Freedom of Information exemptions. ACIAR has prepared an Annual Procurement Plan for 2005–06 that was published on AusTender.

Consultants and contracts

The policies and procedures for selecting consultants, and approving expenditure for them, are set out in the Chief Executive Instructions. The procurement method is determined having regard to the nature of the work involved and the broad cost thresholds set out in the Chief Executive Instructions.

ACIAR's reporting against the Senate Order of 20 June 2001 requiring departments and agencies to list contracts entered into with a value of more then $100,000, that were still to be concluded or had been concluded during the previous 12 months, is available on the ACIAR website and reported separately to that outlined below.

During 2005–06 six contracts for **consultancies** were entered into, involving total expenditure of $161,945. The aggregate value of these contracts was $242,050 (refer to Table 1) and compared with $194,000 in 2004–05.

Table 1. Consultancy services let during 2005–06, over $10,000

Consultant name	Description	Contract price	Selection process	Justification
Bartos Consulting Group	Review ACIAR's corporate governance framework and practices	$30,000	Direct sourcing	Need for specialised or professional skills
Orima Research P/L	ACIAR 2006 Staff Survey	$15,700	Direct sourcing	Need for specialised or professional skills
P7 Consulting	Facilitation of ACIAR staff workshops	$30,800	Direct sourcing	Need for specialised or professional skills
Centre for International Economics	Evaluation of benefits to Australia of ACIAR-funded R&D	$79,750	Direct sourcing	Need for independent research or assessment
Centre for International Economics	The return on public investment in R&D: the ACIAR experience	$27,500	Direct sourcing	Need for independent research or assessment
Centre for International Economics	Develop guidelines on impact assessment for ACIAR	$58,300	Direct sourcing	Need for specialised or professional skills
TOTAL		$242,050		

In addition to these consultancies, ACIAR had a large number of aid/research **contracts** to provide services related mainly to the research program. These are published on AusTender and totalled $3,667,000 in 2005–06 compared to $4,034,000 in 2004–05 (refer to Table 2).

Table 2: consultancy services, tendering and contracting*

ACIAR consultancy contracts[1]				Other contracts and agreements[2]	
	Number of new contracts awarded	Financial limits of new contracts awarded ($'000)	2005–06 Expenditures ($'000)*	Number of new contracts and agreements awarded	Financial limits of new contracts and agreements awarded ($'000)
Contracts					
Contracts & agreements				212	3,667
Open tenders					
Calls for quotations					
Direct approach	6	242	162		
Total	6	242	162	212	3,667

**The distinction between a consultancy and other contracts is in accordance with FMG No. 12 Guidance on Identifying Consultancies for Annual Reporting Purposes.*

Discretionary Grants

ACIAR did not issue any discretionary grants during 2005–06 or have any ongoing grants from previous years.

Advertising and market research

ACIAR did not enter into contracts with any advertising agencies, market researchers or polling organisations or media advertising organisations. No direct marketing of information to the public was undertaken, and ACIAR has no contracts. The Centre maintains mailing lists of project personnel and those requesting selected material.

Appendices

Our powers

ACIAR's powers are established through section 6 of the *ACIAR Act 1982*. The Centre has the powers of a body corporate:

(1) Subject to this Act, the Centre has power to do all things necessary or convenient to be done for or in connection with the performance of its functions.

(2) Without limiting the generality of subsection (1), the powers of the Centre include power to accept gifts, devises, bequests or assignments made to the Centre whether on trust or otherwise, and whether unconditionally or subject to a condition and, if a gift, devise, bequest or assignment is accepted by the Centre on trust or subject to a condition, to act as trustee or to comply with the condition, as the case may be.

(3) Notwithstanding anything contained in this Act, any money or other property held by the Centre upon trust or accepted by the Centre subject to a condition shall not be dealt with except in accordance with the obligations of the Centre as trustee of the trust or as the person who has accepted the money or other property subject to the condition, as the case may be.

Appendix 1: Basis of authority

ACIAR is governed by the *Australian Centre for International Agricultural Research Act 1982*, proclaimed on 3 June 1982 as Act No. 9 of 1982. The Act was described as 'An Act to encourage research for the purpose of identifying, or finding solutions to, agricultural problems of developing countries'.

Under Sections four to six of the Act ACIAR is established as a body corporate with the powers of a body corporate. It has a seal, and it may sue and be sued.

Our functions

ACIAR's role is described in section five of the ACIAR Act 1982.

(1) The functions of the Centre are:
- (a) to formulate programs and policies with respect to agricultural research for either or both of the following purposes
  - (i) identifying agricultural problems of developing countries
  - (ii) finding solutions to agricultural problems of developing countries
- (b) to commission agricultural research by persons or institutions (whether the research is to be conducted in Australia or overseas) in accordance with such programs and policies
- (c) to communicate to persons and institutions the results of such agricultural research
- (d) to establish and fund training schemes related to its research programs
- (e) to conduct and fund development activities related to its research programs
- (f) to fund international agricultural research centres.

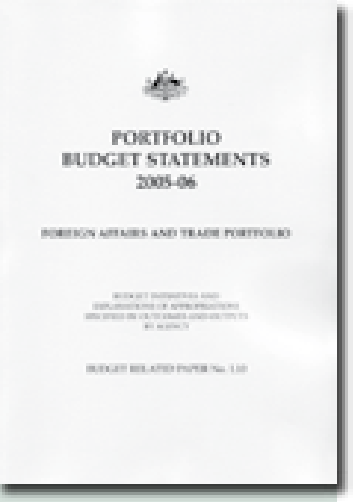
(2) In performing its functions with respect to agricultural research, the Centre shall have regard to the need for persons or institutions in developing countries to share in that research.

(3) Nothing in this section authorises, or permits, the Centre to carry out research on its own behalf.

Our governing body

Part three of the ACIAR Act establishes the Board of Management as the governing body responsible for the management and control of the Centre and its affairs. The Act also defines the constitution of the Board, its delegations and the authority by which the Minister may give directions to the Board.

Organisational structure (at June 2006)



Appendix 2: ACIAR's outcomes and outputs framework

ACIAR's outcome, as specified in the Portfolio Budget Statement, describes the Centre's role within the context of Australia's development assistance program.

The achievement of this outcome continues to rely on the contribution of two outputs:

- Output 1 aggregates the activities of bilateral and multilateral research and development (R&D) programs that address the agreed priorities of developing countries
- Output 2 focuses on capacity-building activities delivered through formal training of researchers. (In addition to formal training, much training takes place through involvement in R&D projects themselves.)

Outcome and outputs structure

OUTCOME
Agriculture in developing countries and Australia is more productive and sustainable as a result of better technologies, practices, policies and systems

Output 1
Collaborative research that addresses agricultural and natural resource management problems of developing countries and Australia

Output 2
Trained researchers in developing countries and Australia

Corporate and operational planning

The Corporate Plan 2001–06 outlines the challenges for ACIAR in regard to its operating environment. The implications of these challenges and the critical success factors in addressing these are spelt out together with linkages to strategies to meet these challenges. The section 'Tracking performance: against the 2001–06 Corporate Plan', beginning on page 154, reports against these strategies.
In the lead-up to 2005–06, ACIAR has published a formal Annual Operational Plan, to guide external stakeholders through the priority areas for research in partner countries. Key research programs in each country are also identified, creating a two-way management matrix, against which funds are allocated.

Appendix 3: ACIAR's active research projects 2005–06

Bilateral projects (these may be active in more than one country)

	Bangladesh
CIM/2001/039	Integrated management of Botrytis Grey Mould of chickpea in Bangladesh and Australia
SMCN/2005/042	Scoping study to assess the technical and economic feasibility of wheat production in southern Bangladesh
	Bhutan
HORT/1997/101	A survey of fruit flies in Bhutan and a field control program for *Bactrocera minax* (Enderlein) (the Chinese citrus fly)
	Burma (Myanmar)
AH/2005/147	Data analysis needs in Burma
AH/2002/042	Control of Newcastle disease and identification of major constraints in village chicken production systems in Myanmar
SFS/2002/041	Ecologically-based management of rodents in rainfed cropping systems in Myanmar
	Cambodia
ASEM/2003/012	Improving the marketing system for maize and soybeans in Cambodia
ASEM/2003/007	CARF—Cambodian Agricultural Research Fund
ASEM/2000/109	Farming systems research for crop diversification in Cambodia and Australia
AH/2002/099	Development of a model for the control of fasciolosis in cattle and buffaloes in the Kingdom of Cambodia
CIM/2003/030	Improving understanding and management of rice pathogens in Cambodia
CIM/1999/048	Increased productivity of rice-based cropping systems in Lao PDR, Cambodia and Australia
CP/2005/035	Survey toolbox for plant pests - A practical manual for surveillance of agricultural crops and forests
FIS/2003/003	Stock structure of two important Mekong River carp species *(Henicorynchus* spp.)
FIS/2002/068	Improving feeds and feeding for small scale aquaculture in Vietnam and Cambodia
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
PLIA/2006/012	Livestock health and vaccines in Cambodia and Lao PDR: scoping study and economic assessment
SFS/2000/007	Farmer-based adaptive rodent management, extension and research system in Cambodia
	China
ADP/2005/005	Crawford Fund Masterclass—CGE modelling
ADP/2002/021	Sustainable land use change in the north-west provinces of China
ADP/2000/120	Institutions and policies for improving water allocation and management in the Yellow River Basin, China
ADP/1998/128	Achieving food security in China—implications of WTO accession
CIM/2002/093	Intensifying production of grain and fodder in Central Tibet farming systems
CIM/2000/038	Use and improvement of sugarcane germplasm
CIM/2000/035	Increased productivity of cool season pulses in rain-fed agricultural systems of China and Australia

CIM/1999/094	Improving the productivity and sustainability of rainfed farming systems for the western Loess Plateau of Gansu Province
CIM/1999/072	Oilseed Brassica improvement in China, India and Australia
CIM/1996/006	Wheat improvement in Sichuan Province: application of modern breeding technologies
FST/2001/086	Assessment of the potential of *Pinus radiata* for ecological restoration of the Yangtze River catchment in Aba Prefecture, Sichuan, China
FST/2001/021	Improving the value chain for plantation-grown eucalypt sawn wood in China, Vietnam and Australia: sawing and drying
FST/1999/095	Improving the value chain for plantation-grown eucalypt sawn wood in China, Vietnam and Australia: genetics and silviculture
HORT/2002/016	Improving the implementation of integrated crop management in Brassica vegetables through a decision support toolkit based on end-user needs in China and Australia
HORT/1999/081	Reducing spoilage and contamination risks of fresh vegetables in China and Australia
HORT/1998/140	Postharvest handling and disease control in melons in China and Australia
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
LWR/2002/113	Application of innovative irrigated cropping and soil filtration technology for wastewater reuse and treatment in China
LWR/2002/094	Promotion of conservation agriculture using permanent raised beds in irrigated cropping in the Hexi Corridor, Gansu, China
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/1998/130	Water resources and salinity management in agricultural areas of inland northern China and northern Australia
LPS/2002/108	Improved management of small mammals in Tibetan grasslands
LPS/2002/104	Increasing milk production from cattle in Tibet
LPS/2001/094	Sustainable development of grasslands in western China
LPS/1998/035	Ruminant production in the red soils region of southern China and in northern Australia
LPS/1998/026	Lucerne adapted to adverse environments in China and Australia
PLIA/2005/152	Australia-China linkage for improved rice cold tolerance
PLIA/2005/123	Trends in world agriculture to 2030, implication for developing countries
PHT/1998/137	Integrating effective phosphine fumigation practices into grain storage systems in China, Vietnam and Australia
SMCN/2005/059	Modelling water and solute processes and scenarios for optimisation of permanent raised bed systems in China, India, Pakistan and Indonesia
	East Timor
CIM/2005/081	Design workshop for Seeds of Life 2
CIM/2005/079	Seeds of Life 2—Technical Advisory Committee
CIM/2003/014	Seeds of Life 2
CIM/2000/160	Seeds of Life—East Timor
LPS/2003/028	Biological control of two major weeds affecting crop and livestock production in East Timor
LPS/2003/004	Building agricultural knowledge and R&D capacity in Timor Leste: a small projects facility
LPS/2000/164	Rehabilitation of the Agriculture Faculty of the National University of East Timor

	Federated States of Micronesia
SFS/2001/036	Maximising the economic benefits to Pacific Island Nations from management of migratory tuna stocks
	Fiji
ADP/2002/105	Economic and market analysis of the live reef fish food trade in Asia-Pacific
ADP/1996/136	Fiji sugar industry: assessing international sugar market reforms and their impacts and defining appropriate responses
AH/2001/054	The identification of constraints and possible remedies to livestock production by zoonotic diseases in the South Pacific
CP/2004/064	Biological control of 'mile-a-minute' (*Mikania micrantha*) in Papua New Guinea and Fiji
CP/2004/001	TaroPest: A computer based information and diagnostics package for taro pests of the South Pacific
CP/2000/044	Taro beetle management in Papua New Guinea and Fiji
CP/1994/043	Virus indexing and DNA fingerprinting for the international movement and conservation of taro germplasm
FIS/2005/029	Marketing options and opportunities for seaweed in the Pacific
FIS/2005/026	SPC support for ACIAR Seaweed Marketing Consultancy
FIS/2001/075	Sustainable aquaculture development in Pacific Islands region and northern Australia
FIS/1997/031	Pearl oyster resource development in the western Pacific
FST/2004/053	Establishing forest pest detection systems in South Pacific countries and Australia
HORT/2004/063	Integrated pest management in a sustainable production system for Brassica crops in Fiji and Samoa
HORT/2004/049	Improved farming systems for managing soil-borne pathogens of ginger in Fiji and Australia
HORT/2003/046	Integrated control of powdery mildew and other disease, weed and insect problems in squash in Tonga and Australia
PLIA/2005/150	A review of the policy and economic environment in the South Pacific and implications for the adoption of ACIAR project outcomes: a scoping study
SFS/2005/140	Participatory needs assessment for capacity building in extension (Pacific Islands)
SFS/2003/069	Policy options for improving the value of land use in smallholder Fijian agriculture
SFS/2002/047	Trade liberalisation, agriculture and land degradation in Fiji: implications for sustainable development policies
SFS/2001/036	Maximising the economic benefits to Pacific Island Nations from management of migratory tuna stocks
SMCN/2001/038	Management of animal waste to improve the productivity of Pacific farming systems
	Global
SMCN/2005/039	Seeding equipment database for resource-conserving cropping systems in developing countries
	India
ADP/2002/089	Agricultural trade liberalisation and domestic market reforms in Indian agriculture
ADP/2001/014	Improving water resource management in India's agriculture: search for effective institutional arrangements and policy frameworks
ADP/2000/004	International food safety regulation and processed food exports from developing countries: a comparative study of India and Thailand
AH/2002/038	Improved productivity, profitability and sustainability of sheep production in Maharashtra, India through genetically enhanced prolificacy, growth and parasite resistance
AH/2001/005	Salinity reduction in tannery effluents in India and Australia

AH/1997/115	Increasing efficiency and productivity of ruminants in India and Australia by the use of protected nutrient technology
AH/1997/058	Increasing the productivity of cattle in India and Australia with rumen fungal treatments
CIM/2005/012	Aflatoxin workshop in India
CIM/2001/026	Drying systems to improve grain quality in north-east India
CIM/1999/072	Oilseed Brassica improvement in China, India 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
FIS/2005/176	Masterclass—Aquatic animal health
FIS/2002/075	Application of PCR for improved shrimp health management in the Asian region
FIS/2002/001	Developing aquaculture in degraded inland areas in India and Australia
FST/1995/106	Improving and maintaining productivity of eucalypt plantations in India and Australia
HORT/2002/030	Improving subtropical citrus production in Sikkim and Australia
PLIA/2005/123	Trends in world agriculture to 2030, implication for developing countries
SMCN/2006/045	Modelling minimum residue thresholds for soil conservation benefits in tropical, semi-arid cropping systems
SMCN/2005/059	Modelling water and solute processes and scenarios for optimisation of permanent raised bed systems in China, India, Pakistan and Indonesia
SMCN/2004/033	Zero-tillage rice establishment and crop-weed dynamics in rice and wheat cropping systems in India and Australia
SMCN/2002/100	Water harvesting and better cropping systems for the benefit of smallfarmers in watersheds of the East India Plateau
SMCN/2002/032	Integrated manure nutrient management in soybean/wheat cropping systems on vertisols in Madhya Pradesh and Queensland
SMCN/2000/089	Permanent beds for irrigated rice-wheat and alternative cropping systems in north-west India and south-east Australia
	Indonesia
ADP/2005/031	Linking smallholders and agribusiness, social capital and rural development in eastern Indonesia
ADP/2005/005	Crawford Fund Masterclass—CGE modelling
ADP/2004/032	Identification of policy responses to minimise negative socio-economic impacts of an avian influenza epidemic in Indonesia
ADP/2004/028	Social capital and rural development in eastern Indonesia
ADP/2002/105	Economic and market analysis of the live reef fish food trade in Asia-Pacific
ADP/2002/012	Technical change in Thai and Indonesian agriculture: measurement, socio-economic impact and policy implications
ADP/2000/100	Contract farming, smallholders, and rural development in East Java, Bali and Lombok
ADP/2000/072	Improving resource-use efficiency in the coconut industry of North Sulawesi and its national implications
AH/2005/107	Food safety research in Indonesia scoping study
AH/2004/074	Large-scale production of a vaccine and diagnostic reagents for Jembrana disease in Indonesia
AH/2004/040	The epidemiology, pathogenesis and control of highly pathogenic avian influenza (HPAI) in ducks in Indonesia and Vietnam
AH/2004/020	The development of a national surveillance system for classical swine fever, avian influenza, and foot-and-mouth disease in Indonesia
AH/2000/083	Development of a vaccine for the control of Gumboro in village and small poultry holdings in Indonesia

AH/2000/009	Development of diagnostic and control methodologies for animal trypanosomiasis (Surra) in Papua New Guinea, Indonesia, the Philippines and Australia
CP/2005/167	Optimising the productivity of the potato/Brassica cropping system in Central and West Java
CP/2005/035	Survey toolbox for plant pests—a practical manual for surveillance of agricultural crops and forests
CP/2004/034	Diagnosis and management of wilt diseases of banana in Indonesia
CP/2003/036	Managing pest fruit flies to enhance quarantine services and upgrade fruit and vegetable production in Indonesia
CP/2000/102	Selection for improved quality and resistance to *Phytophthora* pod rot, cocoa pod borer and vascular-streak dieback in cocoa in Indonesia
CP/2000/094	Diagnosis and control of soilborne fungal diseases of plants in Indonesia
CP/2000/043	Huanglongbing management for Indonesia, Vietnam and Australia
CP/1997/017	Reducing aflatoxin in peanuts using agronomic management and bio-control strategies in Indonesia and Australia
CP/1996/140	Biological threats to *Saccharum* germplasm and sugar production in Papua New Guinea, Indonesia and Australia
CP/1996/091	Biological control of *Chromolaena odorata* in Indonesia, Papua New Guinea and the Philippines
FIS/2005/176	Masterclass—Aquatic animal health
FIS/2005/028	Technical training and capacity-building program for the restoration of tsunami-impacted brackishwater aquaculture ponds
FIS/2005/025	Fisheries rehabilitation in tsunami-affected Indonesia: Community needs assessment and resource status
FIS/2005/024	Masterclass
FIS/2005/009	Technical capacity-building and research support for the reconstruction of tsunami-affected, brackishwater aquaculture ponds in Aceh
FIS/2003/037	Artisanal shark and ray fisheries in Eastern Indonesia and their relationships with Australian resources
FIS/2003/027	Planning tools for environmentally sustainable tropical finfish cage culture in Indonesia and northern Australia
FIS/2002/111	Culture, capture conflicts: sustaining fish production and livelihoods in Indonesian reservoirs
FIS/2002/077	Improved hatchery and growout technology for marine finfish in the Asia-Pacific region
FIS/2002/076	Land capability assessment and classification for sustainable pond-based aquaculture systems
FIS/2002/075	Application of PCR for improved shrimp health management in the Asian region
FIS/2002/074	Capacity development to monitor, analyse and report on Indonesian tuna fisheries
FIS/2002/019	Management and policy frameworks for illegal, unreported and unregulated (IUU) Fishing in Indonesian and Philippine waters
FIS/2000/065	Assessing the potential for low-cost formulated diets for mud crab aquaculture in Australia, Indonesia and Vietnam
FIS/2000/061	Development and delivery of practical disease-control programs for small-scale shrimp farmers in Indonesia, Thailand and Australia
FST/2006/015	Kupang Workshop 2006
FST/2005/054	Seed distribution of Australian Trees—limited extension
FST/2005/048	Feasibility of establishing an essential oils industry based on plantations in eastern Indonesia
FST/2004/058	Realising genetic gains in Indonesian and Australian plantations through water and nutrient management

FST/2003/048	Management of fungal root rot in plantation acacias in Indonesia
FST/2003/025	Community partnerships for plantation forestry: enhancing rural incomes from forestry in eastern Indonesia and Australia
FST/2000/123	Heart rots in plantation hardwoods in Indonesia and southeast Australia
HORT/1998/061	Coconut tissue culture for clonal propagation and safe germplasm exchange
LWR/2005/090	Western NAD soil and crop project design
LWR/2005/004	Management of soil fertility for restoring cropping in tsunami-affected areas of Nanggroe Aceh Darussalam Province, Indonesia
LPS/2004/023	Strategies to increase growth of the weaned Bali calf
LPS/2004/005	Improving smallholder crop–livestock systems in eastern Indonesia
PLIA/2002/066	Economic potential of land-use change and forestry for carbon sequestration and poverty reduction
SFS/2003/060	Implementation of rodent management in intensive irrigated rice production systems in Indonesia and Vietnam
SMCN/2005/059	Modelling water and solute processes and scenarios for optimisation of permanent raised bed systems in China, India, Pakistan and Indonesia
SMCN/2002/033	Seasonal climate forecasting for better irrigation system management in Lombok
SMCN/1999/005	Improved soil management on rainfed vertisols in Nusa Tenggara
	Iraq
HORT/2004/010	Building integrated pest management capacity in Iraq initially concentrating on control of jasmine whitefly in the citrus/date system of central Iraq
	Kiribati
AH/2001/054	The identification of constraints and possible remedies to livestock production by zoonotic diseases in the South Pacific
FIS/2005/029	Marketing options and opportunities for seaweed in the Pacific
FIS/2005/026	SPC support for ACIAR Seaweed Marketing Consultancy
FIS/2001/075	Sustainable aquaculture development in Pacific Islands region and northern Australia
FIS/1997/031	Pearl oyster resource development in the western Pacific
LWR/2001/050	Equitable groundwater management for the development of atolls and small islands
PLIA/2005/150	A review of the policy and economic environment in the South Pacific and implications for the adoption of ACIAR project outcomes: a scoping study
SFS/2001/036	Maximising the economic benefits to Pacific Island Nations from management of migratory tuna stocks
SMCN/2001/038	Management of animal waste to improve the productivity of Pacific farming systems
	Democratic People's Republic of Korea
HORT/2002/062	The development of integrated pest management for Brassica crops in the Democratic People's Republic of Korea and its improvement in Australia
SMCN/2001/048	Legumes and reduced tillage for rice and maize based cropping in the Democratic People's Republic of Korea
	Lao PDR
ASEM/2005/008	Lao Agricultural Research Fund (LARF) Pilot
ASEM/2001/107	Accelerating the impacts of participatory research and extension on shifting cultivation farming systems in Lao PDR
AH/2003/001	Management of CSF and FMD at the village level in Lao PDR
CIM/1999/048	Increased productivity of rice-based cropping systems in Lao PDR, Cambodia and Australia

CP/2001/027	Adaptation of low-chill temperate fruits to Australia, Thailand, Lao PDR and Vietnam
FIS/2005/176	Masterclass—Aquatic animal health
FIS/2005/030	Dissemination of findings on the 'best practise approach' to culture-based fisheries through a series of workshops in selected developing countries in Asia
FIS/2003/003	Stock structure of two important Mekong River carp species *(Henicorynchus* spp.)
FST/2005/180	Laos teak/non-timber forest products agroforestry scoping study
FST/2002/112	Domestication of Meliaceae species in Southeast Asia and Australia, particularly management of the problem of *Hypsipyla robusta* attack
PLIA/2006/012	Livestock health and vaccines in Cambodia and Lao PDR: scoping study and economic assessment
PLIA/2000/165	Facilitating farmer uptake of ACIAR project results: World Vision collaborative program
SFS/2004/016	A systems approach to rodent management in upland environments in Lao PDR
	Malaysia
FIS/2005/025	Fisheries rehabilitation in tsunami-affected Indonesia: Community needs assessment and resource status
PHT/1994/045	Control of ripening in papaya and mango by genetic engineering
	Marshall Islands
SFS/2001/036	Maximising the economic benefits to Pacific Island Nations from management of migratory tuna stocks
	Nauru
SFS/2001/036	Maximising the economic benefits to Pacific Island Nations from management of migratory tuna stocks
	Nepal
CIM/1999/064	Lentil and lathyrus in the cropping systems of Nepal: improving crop establishment and yield of relay and post-rice-sown pulses in the terai and mid-hills
	Pakistan
HORT/2005/154	Assessment of mango diseases, pest and production problems in Pakistan
HORT/1995/003	Control of gemini virus diseases of cotton and tomato in Pakistan and Australia
PLIA/2005/159	A constraints analysis of mango supply chain improvement in Pakistan
SMCN/2005/059	Modelling water and solute processes and scenarios for optimisation of permanent raised bed systems in China, India, Pakistan and Indonesia
SMCN/2004/035	Technology for direct drilling into rice and other heavy stubbles in Pakistan and Australia
SMCN/2002/034	Refinement and adoption of permanent raised bed technology for the irrigated maize–wheat cropping system in Pakistan
SMCN/2000/013	Sustainable agriculture in saline environments through serial biological concentration
	Palau
SFS/2001/036	Maximising the economic benefits to Pacific Island Nations from management of migratory tuna stocks
	Papua New Guinea
ASEM/2005/126	Sweet potato workshop in Papua New Guinea
ASEM/2005/044	Sweet potato marketing in Papua New Guinea
ASEM/2004/077	Postgraduate Scholarship Scheme for UNITECH, University of Lae, Papua New Guinea
ASEM/2004/042	Assessing and extending schemes to enhance the profitability of the Papua New Guinea coffee industry via price premiums for quality
ASEM/2004/041	Productivity and marketing enhancement for peanut in Papua New Guinea and Australia

ASEM/2004/017	Assessment and improvement of quality management during postharvest processing and storage of coffee in Papua New Guinea
ASEM/2004/011	Evaluating domestic tuna fisheries projects
ASEM/2003/015	Enhancing Papua New Guinea smallholder cocoa production through greater adoption of disease control practices
ASEM/2003/010	Farmer evaluation and multiplication of sweet potato varieties on the North Coast of Papua New Guinea
ASEM/2002/050	Economic performance and management of the Gulf of Papua prawn fishery
ASEM/2002/014	Improving productivity and the participation of youth and women in the Papua New Guinea cocoa, coconut and oil palm industries
ASEM/2001/055	Improving yield and economic viability of peanut production in Papua New Guinea and Australia using integrated management and modelling approaches
ASEM/2001/037	Improving the marketing system for fresh produce of the highlands of Papua New Guinea
ASEM/2001/016	Microbial contaminants associated with sago processing and storage in Papua New Guinea
ASEM/2000/162	Scientific communication in Papua New Guinea
AH/2001/054	The identification of constraints and possible remedies to livestock production by zoonotic diseases in the South Pacific
AH/2000/009	Development of diagnostic and control methodologies for animal trypanosomiasis (Surra) in Papua New Guinea, Indonesia, the Philippines and Australia
CP/2006/017	Management of *Eumetopina flavipes*: the vector of ramu stunt disease of sugarcane in Papua New Guinea
CP/2004/071	Reducing pest and disease impact on yield in selected Papua New Guinea sweet potato production systems
CP/2004/064	Biological control of 'mile-a-minute' *(Mikania micrantha)* in Papua New Guinea and Fiji
CP/2004/001	TaroPest: A computer-based information and diagnostics package for taro pests of the South Pacific
CP/2003/042	Fruit fly management in Papua New Guinea
CP/2003/029	Management of potato late blight in Papua New Guinea
CP/2002/013	Biology, damage levels and control of red-banded mango caterpillar in Papua New Guinea and Australia
CP/2001/032	Impact and management of *Oribius* weevils in Papua New Guinea
CP/2000/044	Taro beetle management in Papua New Guinea and Fiji
CP/1996/140	Biological threats to *Saccharum* germplasm and sugar production in Papua New Guinea, Indonesia and Australia
CP/1996/091	Biological control of *Chromolaena odorata* in Indonesia, Papua New Guinea and the Philippines
CP/1994/043	Virus indexing and DNA fingerprinting for the international movement and conservation of taro germplasm
FIS/2006/001	Increasing capacity for regional fish feed manufacture in Papua New Guinea
FIS/2005/096	Assessment of the impact of the Papua New Guinea purse seine fishery on tuna stocks, with special focus on the impact of fish aggregation devices (FADs)
FIS/2005/026	SPC support for ACIAR Seaweed Marketing Consultancy
FIS/2005/024	Masterclass
FIS/2005/022	Cross-institutional exchange. Work placement at the Highlands Aquaculture Extension and Development Centre (HAQDEC), Aiyura, Eastern Highlands Province, Papua New Guinea

FIS/2004/065	Culture of promising indigenous fish species and bioremediation for barramundi aquaculture in northern Australia and Papua New Guinea
FIS/2002/056	Biology and status of the prawn stocks and trawl fishery in the Gulf of Papua
FIS/2001/083	Inland aquaculture in Papua New Guinea: improving fingerling supply and fish nutrition for smallholder farms
FIS/2001/075	Sustainable aquaculture development in Pacific Islands region and northern Australia
FST/2005/050	Papua New Guinea agroforestry systems—scoping study
FST/2005/049	*Mastotermes* scoping study in Papua New Guinea
FST/2004/055	Domestication and commercialisation of *Canarium indicum* in Papua New Guinea
FST/2004/009	Facilitating the availability and use of improved germplasm for forestry and agroforestry in Papua New Guinea
FST/2003/049	Review of portable sawmills in the Pacific: identifying the factors for success
FST/2002/010	Domestication and commercialisation of multi-purpose indigenous trees and shrubs for food and other products in Papua New Guinea, the Solomon Islands and Queensland: a feasibility study with special reference to canarium nut
FST/1998/118	Planning methods for sustainable management of timber stocks in Papua New Guinea's forests
FST/1998/113	Development of a sustainable, community-based essential oil industry in the Western Province of Papua New Guinea using the region's woody-plant species
HORT/1998/061	Coconut tissue culture for clonal propagation and safe germplasm exchange
LPS/2001/077	Poultry feeding systems in Papua New Guinea
PLIA/2005/148	Papua New Guinea coffee and cocoa policy linkages scoping study
PHT/2005/016	Cocoa quality in Papua New Guinea
SFS/2001/036	Maximising the economic benefits to Pacific Island Nations from management of migratory tuna stocks
SMCN/2005/043	Analysis of biophysical and socio-economic constraints to soil fertility management in the Papua New Guinea Highlands
SMCN/2000/046	Overcoming magnesium deficiency in oil palm crops on volcanic ash soils of Papua New Guinea
SMCN/1998/028	Diagnosis and correction of nutritional disorders of yams
	Philippines
ASEM/2005/062	Linking smallholder vegetable producers in the Philippines to urban markets—a scoping study
ASEM/2005/058	CATP Better practice workshop series
ASEM/2005/017	Information, knowledge, and training gaps in the postharvest sector of the Philippines grain industry
ASEM/2005/002	Community Agricultural Technology Program (CATP)
ASEM/2003/052	Improving financial returns to smallholder tree farmers in the Philippines
ASEM/2003/011	Herbicide use strategies and weed management options in Filipino and Australian cropping
ASEM/2003/009	Bridging the gap between seasonal climate forecasts and decision-makers in agriculture
ASEM/2002/051	Sustaining and growing landcare systems in the Philippines and Australia
ASEM/2001/108	Improving delivery of extension services in the Philippines
ASEM/2000/107	Future prospects for smallholder poultry producers in the Philippines: ducks and native chickens

AH/2000/009	Development of diagnostic and control methodologies for animal trypanosomiasis (Surra) in Papua New Guinea, Indonesia, the Philippines and Australia
CP/2005/035	Survey toolbox for plant pests—a practical manual for surveillance of agricultural crops and forests
CP/1996/091	Biological control of *Chromolaena odorata* in Indonesia, Papua New Guinea and the Philippines
FIS/2006/026	Bêche-de-mer hatchery training, Philippines
FIS/2005/024	Masterclass
FIS/2002/077	Improved hatchery and growout technology for marine finfish in the Asia-Pacific region
FIS/2002/019	Management and policy frameworks for illegal, unreported and unregulated (IUU) Fishing in Indonesian and Philippine waters
HORT/2006/006	Development of an embryo culture manual and an embryo transplantation technique for coconut germplasm movement and seedling production of elite coconut types
HORT/2003/071	Integrated pest management and supply chain improvement for mangoes in the Philippines and Australia
HORT/2001/049	Development of PRSV-P resistant papaya genotypes by introgression of genes from wild *Carica* species
HORT/2000/127	Improving and maintaining productivity of bamboo for quality timber and shoots in Australia and the Philippines
HORT/1998/061	Coconut tissue culture for clonal propagation and safe germplasm exchange
HORT/1997/094	Management of postharvest diseases of sub-tropical and tropical fruit using their natural resistance mechanisms
LWR/2005/117	Income generation from irrigated horticulture on sloping lands in the Philippines—a feasibility study
LWR/2004/069	Minimising agricultural pollution to enhance water quality in Laguna de Bay (Philippines) and Mt Lofty Ranges (Australia)
LWR/2003/006	Enhancing agricultural production in the Philippines by sustainable use of shallow groundwater
LWR/2001/003	Integrated watershed management for sustainable soil and water resources management of the Inabanga watershed, Bohol Island, Philippines
LPS/1998/025	Performance evaluation and genetic improvement of ruminant animals in the Philippines
PLIA/2005/151	Philippine policy linkage scoping study
PHT/1994/045	Control of ripening in papaya and mango by genetic engineering
SMCN/2000/114	Evaluating biofumigation for soil-borne disease management in tropical vegetable production
	Samoa
CP/1994/043	Virus indexing and DNA fingerprinting for the international movement and conservation of taro germplasm
FIS/2001/085	Integration of broodstock replenishment with community-based management to restore trochus fisheries
FIS/2001/075	Sustainable aquaculture development in Pacific Islands region and northern Australia
HORT/2004/063	Integrated pest management in a sustainable production system for Brassica crops in Fiji and Samoa
PLIA/2005/150	A review of the policy and economic environment in the South Pacific and implications for the adoption of ACIAR project outcomes: a scoping study
SFS/2001/036	Maximising the economic benefits to Pacific Island Nations from management of migratory tuna stocks
SFS/2001/023	Horticulture industry development for market-remote communities

	Solomon Islands
ASEM/2004/011	Evaluating domestic tuna fisheries projects
FIS/2005/026	SPC support for ACIAR Seaweed Marketing Consultancy
FIS/2001/075	Sustainable aquaculture development in Pacific Islands region and northern Australia
FIS/1997/031	Pearl oyster resource development in the western Pacific
FST/2004/055	Domestication and commercialisation of *Canarium indicum* in Papua New Guinea
FST/2003/049	Review of portable sawmills in the Pacific: identifying the factors for success
FST/2002/010	Domestication and commercialisation of multi-purpose indigenous trees and shrubs for food and other products in Papua New Guinea, the Solomon Islands and Queensland: a feasibility study with special reference to canarium nut
LPS/2003/054	Feeding village poultry in the Solomon Islands
PLIA/2005/150	A review of the policy and economic environment in the South Pacific and implications for the adoption of ACIAR project outcomes: a scoping study
SFS/2003/047	Improved plant protection in the Solomon Islands
SFS/2001/036	Maximising the economic benefits to Pacific Island Nations from management of migratory tuna stocks
	South Africa
FST/2003/002	Development and evaluation of sterile triploids and polyploid breeding methodologies for commercial species of *Acacia* in Vietnam, South Africa and Australia
FST/1996/124	High performance eucalypts and interspecific hybrids for marginal lands in south and eastern South Africa and south-eastern Australia
LPS/2004/022	Pasture development for community livestock production in the Eastern Cape Province of South Africa
LPS/2002/081	Development of emerging farmer crop–livestock systems in northern South Africa
LPS/1999/036	Developing profitable beef business systems for previously disadvantaged farmers in South Africa
SMCN/2006/045	Modelling minimum residue thresholds for soil conservation benefits in tropical, semi-arid cropping systems
	South Pacific general
FIS/2001/075	Sustainable aquaculture development in Pacific Islands region and northern Australia
SFS/2005/140	Participatory needs assessment for capacity-building in extension (Pacific Islands)
	Sri Lanka
HORT/1997/094	Management of postharvest diseases of sub-tropical and tropical fruit using their natural resistance mechanisms
	Thailand
ADP/2005/005	Crawford Fund Masterclass—CGE modelling
ADP/2002/012	Technical change in Thai and Indonesian agriculture: measurement, socio-economic impact and policy implications
ADP/2000/004	International food safety regulation and processed food exports from developing countries: a comparative study of India and Thailand
CP/2005/035	Survey toolbox for plant pests—a practical manual for surveillance of agricultural crops and forests
CP/2001/027	Adaptation of low-chill temperate fruits to Australia, Thailand, Lao PDR and Vietnam
FIS/2005/030	Dissemination of findings on the 'best practise approach' to culture-based fisheries through a series of workshops in selected developing countries in Asia
FIS/2005/027	Regional workshop on low value and trash fish in the Asia-Pacific region
FIS/2003/003	Stock structure of two important Mekong River carp species *(Henicorynchus* spp.)

FIS/2002/077	Improved hatchery and growout technology for marine finfish in the Asia-Pacific region
FIS/2002/075	Application of PCR for improved shrimp health management in the Asian region
FIS/2000/061	Development and delivery of practical disease control programs for small-scale shrimp farmers in Indonesia, Thailand and Australia
FST/2002/112	Domestication of Meliaceae species in Southeast Asia and Australia, particularly management of the problem of *Hypsipyla robusta* attack
FST/1994/019	Genetic diversity and propagation of mangroves
LWR/1998/119	Impact of heavy metals on sustainability of fertilisation and waste recycling in peri-urban and intensive agriculture in south-east Asia
LPS/2005/052	The development of cattle and buffalo breeding strategies and activities based on BREEDPLAN in Thailand
PLIA/2000/165	Facilitating farmer uptake of ACIAR project results: World Vision collaborative program
	Tonga
AH/2001/054	The identification of constraints and possible remedies to livestock production by zoonotic diseases in the South Pacific
CP/2005/034	Whitefly biological control in Tonga
FIS/2005/029	Marketing options and opportunities for seaweed in the Pacific
FIS/2001/075	Sustainable aquaculture development in Pacific Islands region and northern Australia
HORT/2003/046	Integrated control of powdery mildew and other disease, weed and insect problems in squash in Tonga and Australia
LWR/2001/050	Equitable groundwater management for the development of atolls and small islands
PLIA/2005/150	A review of the policy and economic environment in the South Pacific and implications for the adoption of ACIAR project outcomes: a scoping study
SMCN/2001/038	Management of animal waste to improve the productivity of Pacific farming systems
SMCN/1998/028	Diagnosis and correction of nutritional disorders of yams
	Tuvalu
SFS/2001/036	Maximising the economic benefits to Pacific Island Nations from management of migratory tuna stocks
SMCN/2001/038	Management of animal waste to improve the productivity of Pacific farming systems
	Vanuatu
FIS/2005/029	Marketing options and opportunities for seaweed in the Pacific
FIS/2005/026	SPC support for ACIAR Seaweed Marketing Consultancy
FIS/2001/085	Integration of broodstock replenishment with community-based management to restore trochus fisheries
FIS/2001/075	Sustainable aquaculture development in Pacific Islands region and northern Australia
FST/2004/053	Establishing forest pest detection systems in South Pacific countries and Australia
FST/2002/097	Identification of optimum genetic resources for establishment of local species of sandalwood for plantations and agroforests in Vanuatu and Cape York Peninsula
PLIA/2005/150	A review of the policy and economic environment in the South Pacific and implications for the adoption of ACIAR project outcomes: a scoping study
SFS/2001/036	Maximising the economic benefits to Pacific Island Nations from management of migratory tuna stocks
SMCN/1998/028	Diagnosis and correction of nutritional disorders of yams

	Vietnam
ADP/2005/006	Scoping study on trade policy reform in Vietnam
ADP/2005/005	Crawford Fund Masterclass—CGE modelling
ADP/2002/015	Managing groundwater access in Tay Nguyen (Central Highlands) Vietnam
ADP/2001/066	Strengthening agricultural market information activities in Vietnam
ADP/2000/018	The economics of developing reservoir aquaculture in Vietnam
ADP/1997/092	Impacts of alternative policy options on the agricultural sector in Vietnam
AH/2004/040	The epidemiology, pathogenesis and control of highly pathogenic avian influenza (HPAI) in ducks in Indonesia and Vietnam
CIM/1995/130	Soybean variety adaptation and improvement in Vietnam and Australia
CP/2005/053	Plant disease diagnostic manual
CP/2005/035	Survey toolbox for plant pests—a practical manual for surveillance of agricultural crops and forests
CP/2002/115	Diseases of crops in the central provinces of Vietnam: diagnosis, extension and control
CP/2002/086	Improving postharvest quality of temperate fruits in Vietnam and Australia
CP/2001/027	Adaptation of low-chill temperate fruits to Australia, Thailand, Lao PDR and Vietnam
CP/2000/043	Huanglongbing management for Indonesia, Vietnam and Australia
CP/1998/005	Managing pest fruit flies to increase production of fruit and vegetable crops in Vietnam
FIS/2005/176	Masterclass—Aquatic animal health
FIS/2005/030	Dissemination of findings on the 'best practise approach' to culture-based fisheries through a series of workshops in selected developing countries in Asia
FIS/2005/024	Masterclass
FIS/2003/003	Stock structure of two important Mekong River carp species *(Henicorynchus* spp.)
FIS/2002/077	Improved hatchery and growout technology for marine finfish in the Asia-Pacific region
FIS/2002/068	Improving feeds and feeding for small scale aquaculture in Vietnam and Cambodia
FIS/2001/058	Sustainable tropical spiny lobster aquaculture in Vietnam and Australia
FIS/2001/013	Culture-based and capture fisheries development and management in reservoirs in Vietnam
FIS/2000/065	Assessing the potential for low-cost formulated diets for mud crab aquaculture in Australia, Indonesia and Vietnam
FST/2003/002	Development and evaluation of sterile triploids and polyploid breeding methodologies for commercial species of *Acacia* in Vietnam, South Africa and Australia
FST/2002/112	Domestication of Meliaceae species in Southeast Asia and Australia, particularly management of the problem of *Hypsipyla robusta* attack
FST/2001/021	Improving the value chain for plantation-grown eucalypt sawn wood in China, Vietnam and Australia: sawing and drying
FST/2000/003	Mixed species plantations of high-value trees for timber production and enhanced community services in Vietnam and Australia
FST/1999/095	Improving the value chain for plantation-grown eucalypt sawn wood in China, Vietnam and Australia: genetics and silviculture
FST/1994/019	Genetic diversity and propagation of mangroves
HORT/1998/061	Coconut tissue culture for clonal propagation and safe germplasm exchange
LWR/2002/085	Utilising basic soil data for the sustainable management of upland soils in Vietnam and Australia

LWR/2002/073	Efficient nutrient use in rice production in Vietnam achieved using inoculant biofertilisers
LWR/1998/119	Impact of heavy metals on sustainability of fertilisation and waste recycling in peri-urban and intensive agriculture in Southeast Asia
LPS/2004/073	Capacity-building on cattle production at Dong Giang district, Quang Nam province, Vietnam
LPS/2002/079	Utilisation of local ingredients in commercial feeds for pigs
LPS/2002/078	Improved beef production in central Vietnam
PLIA/2002/103	Enhancing project impact and science capability through ongoing evaluation
PLIA/2000/165	Facilitating farmer uptake of ACIAR project results: World Vision collaborative program
PHT/1998/137	Integrating effective phosphine fumigation practices into grain storage systems in China, Vietnam and Australia
SFS/2003/060	Implementation of rodent management in intensive irrigated rice production systems in Indonesia and Vietnam

Multilateral projects

ADP/2001/105	Can decentralisation work for forests and the poor? Policy research to promote sustainable forest management, equitable economic development, and secure local livelihoods in Indonesia
ADP/2002/114	Rural poor and smallholders in western China under WTO: a regional and community-level analysis
ADP/2004/044	Economic analysis of technical barriers limiting agricultural trade of China
ADP/2004/045	Exploring alternative futures for agricultural knowledge, science and technology (KST)
ADP/2005/041	Trade and agricultural development in developing countries – China, India
AH/1998/054	Poverty alleviation and food security through improving the sweet potato–pig systems in Indonesia and Vietnam
ASEM/2004/047	Sustainable management of coffee green scales in Papua New Guinea
CIM/1998/014	Increasing yield potential in wheat: complementing conventional breeding by application of novel physiological and germplasm strategies
CIM/2002/106	Fertilisation-independent formation of embryo, endosperm and pericarp for apomictic hybrid rice
CIM/2003/066	Enhancing the adoption of improved cassava production and utilisation systems in Indonesia and East Timor
CIM/2003/067	Ensuring productivity and food security through sustainable control of yellow rust of wheat in Asia
CIM/2004/002	Wheat and maize productivity improvement in Afghanistan
CIM/2004/003	Plant health management for faba bean, chickpea and lentils
CIM/2004/004	Plant genetic resource conservation, documentation and utilisation in central Asia and the Caucasus
CIM/2004/024	Better crop germplasm and management for improved production of wheat, barley and pulse and forage legumes in Iraq

CP/2000/002	Development of advanced technologies for germplasm conservation of tropical fruit species
CP/2004/048	Integrated disease management (IDM) for anthracnose, *Phytophthora* blight and whitefly-transmitted geminiviruses in chilli pepper in Indonesia
CP/2005/136	Mitigating the threat of banana *Fusarium* wilt: understanding the agroecological distribution of pathogenic forms and developing disease management strategies
CP/2006/051	Cocoa pod borer scoping study in Papua New Guinea
FIS/1999/025	Optimal release strategies for restocking and stock enhancement of the tropical sea cucumber, sandfish (*Holothuria scabra*)
FIS/2002/036	Development of the Aquaculture Compendium
FIS/2003/051	Improving sustainability and profitability of village sea cucumber fisheries in Solomon Islands
FST/1999/035	The impact of changing agroforestry mosaics on catchment water yield and quality in Southeast Asia
LPS/1999/062	Improving the quality of pearl millet residues for livestock
LPS/2004/046	Forage legumes for supplementing village pigs in Lao PDR
LWR/2000/030	Growing more rice with less water: increasing water productivity in rice-based cropping systems
PLIA/2000/039	Impact of migration and/or off-farm employment on roles of women and appropriate technologies in Asian and Australian mixed farming systems
SFS/2001/068	Technical support for regional plant genetic resources development in the Pacific
SMCN/2000/173	Improved fertiliser recommendations and policy for dry regions of southern Africa
SMCN/2003/026	Water allocation in the Krishna River Basin to improve water productivity in agriculture

Multilateral projects, those that have an International Agricultural Research Centre as the project leader (commissioned organisation) and are active in a single country are included in this list only, not in the country list above.

*Project Information for 2005–06

In 2005–06 ACIAR introduced a new project category of Small Research Activities, aimed at utilising scoping studies to rapidly but more completely identify key researchable issues ahead of implementation of major projects; the overall number of projects has therefore increased.

Effective 2006, ACIAR's Postharvest projects (Program prefix PHT) have been moved into five other ACIAR programs, including: Crop Improvement and Management; Crop Protection; Agricultural Systems Economics and Management; Horticulture; Smallholder Farming Systems. Only completed projects from the former Postharvest program and a few miscellaneous publications are now listed with PHT project titles. For further information, visit the website www.aciar.gov.au

Appendix 4: ACIAR publications 2005–06

Monographs	
No. 118	*Integrating knowledge for river basin management: Progress in Thailand*. Eds Anthony J Jakeman, Rebecca A Letcher, Santhad Rojanasoonthon, Susan Cuddy & Anthony Scott. 2005. 223 pp.
No. 119	*Guidelines for surveillance for plant pests in Asia and the Pacific.* T McMaugh. 2005. 192 pp.
No. 120	*Better-practice approaches for culture-based fisheries development in Asia*. Eds SS De Silva, US Amarasinghe & TTT Nguyen. 2006. 96 pp.
No. 121	*Planters and their components: Types, attributes, functional requirements, classification and description*. Eds JR Murray, JN Tullberg, and BB Basnet. 2006. 178 pp.
No. 122	*Gardens of Oceania*. Eds. A Walter and V Lebot. 2006. 328 pp.
No. 123	*Agricultural development and land policy in Vietnam.* Eds SP Marsh, TG MacAulay, and PV Hung. 2006. 272 pp.
Proceedings	
No. 121	*Evaluation and performance of permanent raised bed cropping systems in Asia, Australia and Mexico* (proceedings of a workshop held in Griffith, New South Wales, Australia, 1–3 March 2005). Eds. CH Roth, RA Fischer & CA Meisner. 2005. 210 pp.
No. 123	*Agricultural Water in China* (proceedings of workshop held in Beijing, China, 14 September 2005). Eds Ian RWillet & Zhanyi Gao. 2006. 160 pp.
Technical Reports	
No. 62	*Pest and disease incursions: risks, threats and management in Papua New Guinea.* TV Price. 2006. 199 pp.
No. 63	*Controlled pollination methods for Melaleuca alternifolia (Maiden & Betche) Cheel.* Liliana Baskorowati. 2006. 16 pp.
Impact Assessment Series Reports	
No. 35	*Review of the returns to ACIAR's bilateral R&D investments.* Eds. DA Raitzer & R Lindner. August 2005. 62 pp.
No. 36	*Impacts of mud crab hatchery technology in Vietnam.* Bob Lindner. October 2005. 66 pp.
No. 37	*Management of fruit flies in the Pacific.* Ross McLeod. November 2005. 56 pp.
No 38	*Review of ACIAR's animal health research*. ACIAR. August 2006. 100 pp.
No 39	*Benefits to Australia from ACIAR-funded research*. David Pearce, Michael Monck, Kevin Chadwick & James Corbishley. August 2006.100pp.
No.40	*Zero tillage for weed control in India: the contribution to poverty alleviation.* David Pearce & James Corbishley. September 2006. 45pp.
No 41	*ACIAR and public funding of R&D: submission to the Productivity Commission study on public support for science and innovation*. ACIAR. August 2006. 50pp.
Working Papers	
No. 58	*Scaling out impacts: A study of three methods for introducing forage technologies to villages in Lao PDR.* Eds J Millar, V Photakoun & J Connell. 2005. 36 pp.
No. 59	*Survey of the mineral status of livestock in the Tibet Autonomous Region in China.* Eds Nyima Tashi, Luo Xugang, Yu Shunxiang & G Judson. 2005. 36 pp.
No. 60	*Economics and marketing of the live reef fish trade in Asia-Pacific.* Eds B Johnston & B Yeeting. 2006. 163 pp.
No. 61	*The Seaweed Industry in the Pacific Islands.* Denis J McHugh. 2006. 52 pp.

Corporate publications

- *ACIAR Annual Report 2004–05. October 2005.*
- *ACIAR Annual Operational Plan 2006–07. June 2006.*
- *Adoption of ACIAR project outputs: Studies of projects completed in 2000–2001. Eds V McWaters, S Hearn & R Taylor. October 2005.*
- *Adoption of ACIAR project outputs: Studies of projects completed in 2001–2002. Ed V McWaters. September 2006*
- *Country profiles:*
  - *Indonesia (November 2005)*
  - *Vietnam (November 2005)*
  - *Pacific Island Countries (November 2005)*
  - *Papua New Guinea (November 2005)*
  - *China (November 2005)*
  - *Philippines (November 2005)*
  - *Cambodia, Laos and Thailand (November 2005)*
  - *South Asia (November 2005)*
  - *East Timor (November 2005)*
- *Building on the John Allwright fellowship scheme—a survey of participants in the small grants scheme for former fellows. E Flowers, S Harvey & J Skerritt. 2006.*
- *Working with ACIAR now and in the future – ACIAR's response to the results of a survey of Australian stakeholders. 2006.*
- *ACIAR Publications Catalogue 2006*
- *The Gift that Grows—companion brochure to IAS 35. August 2005*
- Partners in Research for Development magazine.
  - *July 2005*
  - *October 2005*
  - *Summer 2005–2006*
  - *Autumn 2006.*

Appendix 5: ACIAR staffing statistics

At 30 June 2006 the Centre employed 69 employees, of whom 48 are employed under the *Public Service Act 1999* and are located in Canberra and 21 are at overseas missions and embassies. ACIAR has one male Chief of Division Grade 1 employee, which is equivalent to SES Band 1.

Non-Public Service Act Staff in Australia
Four people based in New South Wales provide services under contract for the Fisheries Program and one person in Canberra is engaged on a part-time basis through an employment agency.

Staff turnover
Six employees ceased employment with the Centre during 2005–06. The table below shows a comparison of employee turnover over the past four years.

Non-APS employees employed overseas at 30 June 2006
ACIAR employs 21 (20.5 FTE) contract and locally engaged staff in Australian overseas missions to provide program support locally, as detailed in the adjacent table.

EEO abbreviations
NESB 1: Non-English speaking background, first generation
NESB 2: Non-English speaking background, second generation
ATSI: Aboriginal and Torres Strait Islander peoples
PWD: People with disabilities

Staff employed under the Public Service Act 1999 at June 2006**

	Ongoing staff	Non-ongoing staff	Total
Full-time			
Male	11	10	21
Female	17	0	17
Part-time			
Male	1	3	4
Female	4	2	6
Total	33	15	**48**

***Excludes three inoperative employees*

	2002–03	2003–04	2004–05	2005–06
Retrenched	2	1	1	1
Promotions/transfers	0	1	2	0
End of contract	4	1	0	0
Resigned	3	4	6	1
Retired	1	3	1	3
Leave without pay	2	1	1	0
Temporary movement	0	0	1	1
Total	**12**	**11**	**12**	**6**

Post	Male	Female	Full-time	Part-time	**Total**
Bangkok	1	2	3	0	3
Beijing	1	1	2	0	2
Hanoi	1	3	3	1	4
Jakarta	2	2	4	0	4
Manila	1	2	3	0	3
New Delhi	1	2	3	0	3
Port Moresby	0	2	2	0	2
Total	7	14	20	1	21

Classification	**M**	**F**	**NESB 1**	**NESB 2**	**ATSI**	**PWD**	**Total**
Director	1	0	0	0	0	0	1
Chief of Division Grade 1	1	0	0	0	0	0	1
Executive Level 2 (Senior Principal Research Scientist)	15	0	2*	0	0	0	15
Executive Level 2 (other)	2	1	0	0	0	0	3
Executive Level 1	2	1	0	0	0	0	3
APS L6	0	4	1*	1*	0	0	4
APS L5	1	4	3*	0	0	0	5
APS L4	3	11	0	1*	0	0	14
APS L3	0	1	0	0	0	0	1
APS L2	0	1	0	0	0	0	1
Total	25	23	6*	2*	0	0	48

This table includes non-ongoing staff but excludes inoperative staff.

**Not included in total adding across to final column.*

Salary ranges for ACIAR employees by classification structure

ACIAR broadband	APS classification	ACIAR local designations and salary			# Staff by	Ongoing/ non-ongoing		Male/ female	
Band 3	EL 2	EL2 (A)	Program Manager	98,170	1	1	0	1	0
				96,191					
				94,210					
				92,229					
				90,250					
		EL2 (B)	Unit Manager 2	91,866	2	2	0	1	0
				88,459					
				85,055					
				81,650					
				78,246					
	EL 1	EL1	Unit Manager 1	75,863	3	3	0	2	1
				73,994					
				72,125					
				70,256					
Band 2	APS 6	APS 6	APS 6	62,953	4	3	1	0	5
				60,914					
				58,878					
				56,840					
				54,803					
	APS 5	APS 5	APS 5	53,803	5	5	0	1	4
				52,785					
				51,762					
				50,741					
	APS 4	APS 4	APS 4	49,395	14	14	0	3	11
				48,094					
				46,794					
				45,492					
Band 1	APS 3	APS 3	APS 3	44,055	1	1	0	0	1
				42,976					
				41,895					
				40,817					
	APS 2	APS 2	APS 2	39,739	1	0	1	0	1
				38,438					
				37,137					
				35,836					
	APS 1	APS 1	APS 1	34,998	0	0	0	0	0
				33,886					
				32,777					
				31,667					

Research Program Manager Structure[1]

Excludes inoperative staff on LWOP and Executive. All located in Canberra

APS classification		ACIAR local designations and salary		# Staff by classification	Ongoing/ non-ongoing		Male/ female	
EL 2 RPM Band	SPRS	Research Program Manager/Senior Principal Research Scientist	126,690	15	3	12	15	0
			123,190					
			119,689					
			116,191					
			112,690					
	PRS	Research Program Manager/Principal Research Scientist	109,935	0	0	0	0	0
			106,994					
			104,050					
			101,110					
	SRS	Research Program Manager/ Senior Research Scientist	98,170	0	0	0	0	0
			96,191					
			94,210					
			92,229					
			90,250					

[1] Due to the small number of staff employed at some classification levels (less than five employees) ACIAR has aggregated numbers of staff by classification groupings to ensure that salary ranges paid to individuals cannot be identified.

Inquiries concerning access to documents or other FOI matters should be directed to:

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Australian Centre for International Agricultural Research
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Phone: (02) 6217 0500
Fax: (02) 6217 0501
E-mail: aciar@aciar.gov.au

Appendix 6: ACIAR Freedom of Information

The *Freedom of Information Act 1982* (FOI Act) gives individuals a means to obtain access to Government-held documents, excluding those where exemptions are in place. Government departments and agencies have reporting responsibilities under the FOI Act, in relation to FOI requests. The following statement is made in accordance with Section 8 of the Act.

ACIAR received one request in 2005–06 regarding the supply of documents or information as prescribed under the provisions of the FOI Act. No requests are outstanding.

ACIAR received no requests, made with reference to the FOI Act, for publications produced by the Centre. The requirements of the *Privacy Act 1988* are abided by in the collection of requests for available publications and in relation to its website.

Administration of the FOI Act

Responsibility for determinations relating to the granting, withholding or deferring of access to particular documents rests with ACIAR. The Central Office of the Department of Foreign Affairs and Trade assists ACIAR in administering FOI. Returns to the Attorney General's Department are coordinated and prepared through the Centre.

ACIAR's Canberra headquarters and some overseas posts hold documents, with many pre–1990 documents being held in archival custody. These may be obtained under the *Archives Act 1983*.

Public access

No documents are held by ACIAR that are open to the public through a public register or otherwise. Publications, including scientific publications of ACIAR-supported research, can be inspected and copies obtained from the Centre's office, with many also available electronically through the ACIAR website (www.aciar.gov.au). A number of other documents are freely available online in accordance with the Government Online initiative.

Freely available documents that may be requested, and increasingly are available through the ACIAR website, include research-related publications, information sheets on projects, scientific project working papers, the annual report, *Partners in Research for Development* magazine, and brochures and fact sheets relating to ACIAR activities.

Organisation, function and powers

ACIAR's organisation, functions and powers are included at Appendix 1 of this report.

Outside participation

When setting research priorities ACIAR consults stakeholders both within and outside Australia through formal and informal communication. Project development processes include opportunities for discussion and inputs from a range of scientists and related organisations, such as universities, departments of agriculture and natural resource management, and other research providers.

The Centre's Policy Advisory Council provides a formal mechanism through which feedback from Australian and international stakeholders can be provided. The Council acts as an advisory body to the Minister for Foreign Affairs and meets once a year. The Directors of ACIAR and AusAID sit on the Council as ex officio members.

Categories	Document types
General	• Cables, minutes, memoranda, file notes and other documents concerning international agricultural research activities and projects • Working files with submissions, reports and correspondence on program and project administration, appointment of members to the Policy Advisory Council and Board of Management, and Centre management • Submissions to portfolio Ministers, the Director and senior officers • Ministerial and agency correspondence • Speeches and press statements on international agricultural research in the aid program Computer disk storage of statistical and other information material
Major policy and procedural documents	• Agenda papers for, and minutes of, meetings of the Board of Management and Policy Advisory Council • Proposals for ACIAR research projects and records of decisions made in-house and by the Board of Management in respect to such proposals • Documents for the development, evaluation, administration and outcomes of ACIAR's research projects • Documents for the administration of ACIAR fellowship schemes • Policy documents and submissions relating to the aid program and scientific research issues • Memoranda of understanding, exchanges of letters and other agreements with foreign governments, and agreements with Australian institutions, relating to international agricultural research activities • Briefs for Australian delegations and Ministers proceeding overseas
Parliamentary matters	• Briefings for Ministers on possible parliamentary questions • Records of appearances by ACIAR officers before the JSCFADT and other parliamentary committees
Management policies and procedures	• Documents on human resource management and personnel policy and practices, including recruitment, staff development, counselling, performance management, EEO, OH&S, industrial relations and workplace bargaining • Documents relating to financial administration and services, including estimates, financial and accounting operations, procurement, contractors, information technology, debtors and payment of claims in Australia and overseas • Documents relating to strategic and corporate planning

Environment Protection and Biodiversity Conservation Act 1999

Appendix 7: Ecologically sustainable development and environmental performance

The principles of ecologically sustainable development (ESD) are outlined in the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* (section 3A). These principles underpin ACIAR's activities in meeting its obligations as specified under section 160 of the EPBC Act. The following report is provided in accordance with section 516A of the Act.

How the activities of the organisation, and the administration of legislation by the organisation, accord with the principles of ESD (s516A(6)(a))

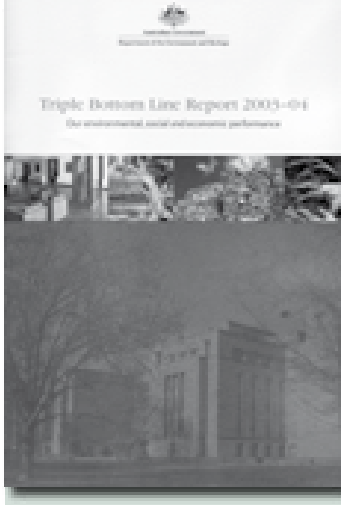
ACIAR's project development guidelines include triggers to ensure that any projects developed which result in significant environmental impacts follow all due processes under the EPBC Act. Organisations developing projects, either as the commissioned (lead) agency or as a collaborator, must fulfil all relevant obligations under the EPBC Act. All obligations under international arrangements to which Australia is a signatory (for example the Convention on Biological Diversity) must also be fulfilled.

Processes for commissioned organisations, and where relevant collaborating organisations, when completing project proposal proformas, include:

1 documentation of possible negative environmental outcomes from a project, within the context of Environment Australia's *EPBC Administrative Guidelines on Significance* (EPBC Guidelines)
2 where such outcomes may exist, project proponents must demonstrate that all relevant EPBC obligations have been fulfilled
3 all relevant obligations under international arrangements to which Australia is a signatory, specifically for biological resources, must have been met and properly documented
4 letters of approval relating to the use of experimental animals and/or GMOs must be provided, along with
5 letters confirming compliance with regulations relating to germplasm transfer, quarantine requirements, biosafety, etc.

Project proposals that pass these processes and meet obligations are then subject to the following:

1 in-house assessment by the relevant Research Program Manager (RPM). This determines if environmental impacts outlined in the proposal, having reference to, amongst other documents, the EPBC Guidelines, require action. If informal consultation with the EPBC Referrals Unit is required, RPMs are empowered to seek and document whether potential impacts are sufficient to warrant a formal referral through the Department of Environment and Heritage (DEH).
2 examination by ACIAR's formal In-house Review (IHR), to assess



all aspects and recommend their approval. At this point a recommendation to contact DEH to consult on potential impacts, either formally or informally, may be made. Such recommendations must then be actioned and signed off.

3 formal approval by the Board of Management, after projects have been considered by IHR. The Board may seek further information on environmental impacts by referring the project back to management.

Training activities, both within projects and also through targeted short courses, help equip partner-country researchers with both the means and the mindset to aim for sustainability, and this is reinforced through project implementation.

How the outcomes specified in a relevant Appropriations Act contribute to ESD (s516A(6)(b))

Section 5 of the ACIAR Act outlines the mandate and functions of the Centre. This includes the formulation of policies to deliver against this mandate. Agricultural research is linked explicitly with sustainability. The link is maintained and implemented in key planning documents—the 2001–06 Corporate Plan and the Annual Operational Plan. At the operational level project development, evaluation and monitoring delivers on this mandate.

ACIAR recognises through its Corporate Plan the following trends in its operating environment:

- an increasing emphasis on livelihood improvement and ecologically sustainable development, and
- the potential for climate change … to adversely impact on terrestrial and coastal agriculture and natural systems.

The strategic need to respond to these factors by aligning the research program with Australian Government priorities, including the principles of ESD established under the EPBC Act, runs through the Corporate Plan. The Centre's Annual Operational Plans outline relevant research priorities that encourage more productive and sustainable agriculture in developing countries and Australia. Where and how these outcomes and activities coincide with the National Research Priorities is included in this report.

Effect of the organisation's activities on the environment (s516A(6)(c))

Examples of projects with environmental benefits include:

- **Fisheries**—sustainable management of cross-border fishing stocks, including migratory tuna in the Pacific, Indonesian tuna fisheries and sharks and rays in the Indian Ocean, planning tools for environmentally sustainable tropical finfish cage culturing in Indonesia and Australia, a suite of projects developing aquaculture technologies to improve rearing of marine species from birth to minimise capture of juvenile fish.
- **Land and Water Resources**—developing new approaches to managing and alleviating the affects of salinity and soil acidification

in India, Pakistan, Thailand, Laos and Australia, including reducing salinity resulting from the disposal of tannery effluent in India, investigating the use of seasonal climate forecasting for improved water management, assessing the suitability of lands for cropping uses and diversification in Cambodia, Vietnam and Australia, minimising pollutants in waterways in the Philippines, China and Australia, and assessing the impacts of re-vegetation programs in China and Australia.

- **Agricultural Systems Economics and Development Policy**—examining policy and institutional frameworks and their impacts on water management in China and Vietnam, sustaining and growing the adoption of Landcare systems in the Philippines and Australia, minimising the use of herbicides through the development and dissemination of alternatives to land managers and responsible agencies in the Philippines.
- **Forestry**—improvements in breeding technologies for Australian species, such as eucalypts and acacias, widely utilised for forestry plantations in Australia and parts of Asia, improving disease and pest surveillance methodologies, improving germplasm usage and management in PNG and elsewhere, and assessing the impacts of, and benefits arising from community-industry partnerships when engaging in plantation forestry.
- **Crop Improvement and Pest Management**—improving the productivity and sustainability of farming systems through the use of alternative cropping methods that minimise soil disturbance and erosion, the collection and conservation of unique crop and legume germplasm, control options for weeds and pests threatening to reduce crop productivity both outside and potentially within Australia, and improved breeding technologies for the staple foods wheat and rice.

ACIAR projects target research to address problems in developing countries that may also yield results applicable to environmental management in Australia. Such benefits are either a secondary objective or are the result of research having application within Australian settings.

Measures being taken by the organisation to minimise the impact of its activities on the environment (s516A(6)(d))

Rather than implement a formal Environmental Management System ACIAR has chosen to adopt an informal system for managing environmental impacts. The decision to utilise an informal system, built upon the EMS framework initially circulated to Government Departments and agencies, was taken due to the Centre's size and the most cost-effective approach available. By utilising the 'initial environmental review' a plan of action and subsequent follow-up actions were developed and implemented. The framework has been used to ensure environmental performance within ACIAR's Canberra premises is as effective as possible.

As the sole building tenant ACIAR is responsible for the management of all infrastructure and implementation of policies to deliver sound environmental management at its Canberra premises. Like all Government agencies and Departments daily operations generate waste and consume electricity, water and materials. Within this context environmental management goals are as follows:

Resource	Target for 2007–08/compared with 2004–05
Energy	Reduction in energy consumption of light and power by 10%
Waste	Reduction in waste going to landfill by 90%
Water	Reduction in water consumption by 10%
Materials	Reduction in paper usage (reams) by 20%

Resource	Usage		Target
	2004–05	**2005–06**	**2007–08**
Energy (kilowatt hours)	300,264	292,391	270,000
Water (kilolitres)	1,581	1,333	1,430
Paper (reams)	1,098	1,080	880

Mechanisms, if any, for reviewing and increasing the effectiveness of these measures (s516A(6)(e))

Formal reporting guidelines on environmental management and associated activities are used for an internal review of environment management processes. These include:

- *National Government waste reduction and purchasing guidelines (2004)*
- *Environmental Purchasing Guide (2004)*
- *Environmental Purchasing Checklist (2004)*
- *Energy Use in Commonwealth Operations (annual publication),* and
- *ANAO Green Office Procurement Survey*.

Specific activities undertaken in 2005–06 along with their returns include:

- **Waste**—extending the waste recycling to cover all paper, plastic, toner cartridges, rechargeable batteries. All are now correctly disposed of, either by accredited suppliers or by staff, to appropriate recycling facilities. The Centre aims to reduce waste disposal to landfills by 90 per cent by 2008.

  Two professional waste management companies have been engaged to ensure waste materials, including paper and toner cartridges, are correctly disposed of for use in recycling activities. In addition cardboard is disposed of at accredited waste recycling facilities. Waste recycling bins are in place throughout the organisation.

- **Energy**—electricity monitoring of tenant use (light and power) and central services (air conditioning and mechanical devices) as part of a regular series of energy audits has helped reduce consumption. Energy consumption of light and power is targeted to be reduced by 10 per cent over the next three years.

ACIAR's energy usage in 2005–06 (electricity is used, no natural gas or other fuels are used) was 292,391 kilowatt hours (kwh), compared to 300,264 kwh in 2004–05. Electricity consumption comprises tenant usage (light and power) and central services (air conditioning and other mechanical devices). Ten per cent of the electricity consumed is allocated to ACTEW's GreenPower initiative, funding the development of environmentally friendly energy options.

- **Water**—a reduction in water consumption by 10 per cent by 2008 has been implemented with consumption falling in 2005–06.

  Water usage was 1333 kilolitres in 2005–06 compared to 1581 kilolitres in 2004–05. A significant factor in this change was the strengthening and continuation of water restrictions in the ACT, coupled with the first full year of a water-reducing garden on the property ACIAR leases.

- **Material**—printer upgrades have given a high weighting to double-sided printing capacities. Recycled paper (using 80 per cent recycled material) now accounts for 95 per cent of all paper purchases, helping ACIAR meet its goal of a 20 per cent reduction in paper use.

  Double-sided printing and photocopying have been set as default settings on high-use printers and copiers. Press clips are circulated electronically, along with other appropriate reports and documents. Ninety five per cent of paper purchased is recycled paper. These policies have seen paper use lowered from 1098 reams in 2004–05 to 1080 reams during 2005–06. ACIAR has developed an internal portal (intranet site) to disseminate documents to staff electronically.

Appendix 8: Compliance checklist

Part of Report	Description	Requirement	Page
	Letter of transmittal	Mandatory	i
	Table of contents	Mandatory	iii
	Index	Mandatory	216
	Glossary	Mandatory	214
	Contact officer(s)	Mandatory	ifc*
	Internet home page address and Internet address for report	Mandatory	ifc*
Review by Director	Review by Director	Mandatory	5
	Summary of significant issues and developments	Suggested	1/9
	Overview of department's performance and financial results	Suggested	1/9 114/115
	Outlook for following year	Suggested	3, 5/6
	Significant issues and developments – portfolio	Portfolio departments – suggested	n.a.
ACIAR overview	Overview description	Mandatory	11/101
	Role and functions	Mandatory	180
	Organisational structure	Mandatory	181
	Outcome and output structure	Mandatory	182
	Where outcome and output structures differ from PBS format, details of variation and reasons for change	Mandatory	n.a.
	Portfolio structure	Portfolio departments – mandatory	n.a.
Report on performance	Review of performance during the year in relation to outputs and contribution to outcomes	Mandatory	162
	Actual performance in relation to performance targets set out in PBS/ PAES	Mandatory	159
	Performance of purchaser/ provider arrangements	If applicable, mandatory	n.a.
	Where performance targets differ from the PBS/ PAES, + details of both former and new targets, and reasons for the change	Mandatory	159/161

** Inside front cover*

Part of Report	Description	Requirement	Page
	Narrative discussion and analysis of performance	Mandatory	11/101
	Trend information	Suggested	v/vii
	Factors, events or trends influencing performance	Suggested	1/9
	Significant changes in nature of principal functions/ services	Suggested	n.a.
	Performance against service charter customer service standards, complaints data, and ACIAR's response to complaints	If applicable, mandatory	164
	Social justice and equity impacts	Suggested	n.a.
	Discussion and analysis of ACIAR's financial performance	Mandatory	114/115
	Discussion of any significant changes from the prior year or from budget	Suggested	n.a.
	Summary resource tables by outcomes	Mandatory	162
	Developments since the end of the financial year that have affected or may significantly affect ACIAR's operations or financial results in future	If applicable, Mandatory	n.a.
Management accountability			
Corporate Governance	Statement of the main corporate governance practices in place	Mandatory	103/107
	Names of the senior executive and their responsibilities	Suggested	ibc*
	Senior management committees and their roles	Suggested	109/111
	Corporate and operational planning and associated performance reporting and review	Suggested	11/101, 153/170
	Approach adopted to identifying areas of significant financial or operational risk and arrangements in place to manage risks	Suggested	109

** Inside back cover*

Part of Report	Description	Requirement	Page
	Agency heads are required to certify that their agency comply with the Commonwealth Fraud control Guidelines	Mandatory	109
	Policy and practices on the establishment and maintenance of appropriate ethical standards	Suggested	106
	How nature and amount of remuneration for senior executive service employees officers is determined	Suggested	107, 172
External Scrutiny	Significant developments in external scrutiny	Mandatory	176
	Judicial decisions and decisions of administrative tribunals	Mandatory	176
	Reports by the Auditor-General, a Parliamentary Committee or the Commonwealth Ombudsman	Mandatory	176
Management of Human Resources	Assessment of effectiveness in managing and developing human resources to achieve departmental objectives	Mandatory	172/175
	Workforce planning, staff turnover and retention	Suggested	172/175, 200/201
	Impact and features of certified agreements and AWAs	Suggested	174
	Training and development undertaken and its impact	Suggested	173
	Occupational health and safety performance	Suggested	173
	Productivity gains	Suggested	174
	Statistics on staffing	Mandatory	174, 200/201
	Certified agreements and AWAs	Mandatory	174
	Performance pay	Mandatory	172/173
	Contracts exempt from Purchasing and Disposal Gazette	Mandatory	176/178.
Assets management	Assessment of effectiveness of assets management	If applicable, mandatory	n.a.

Part of Report	Description	Requirement	Page
Purchasing	Assessment of purchasing against core policies and principles	Mandatory	176/178
Consultants	The annual report must include a summary statement detailing the number of new consultancy services contracts let during the year; the total actual expenditure on all new consultancy services contracts let during the year (inclusive of GST); the number of ongoing consultancy contracts that were active in the reporting year; and the total actual expenditure in the reporting year on the ongoing consultancy contracts (inclusive of GST). (Additional information as in Attachment D to be available on the Internet or published as an appendix to the report. Information must be presented in accordance with the proforma as set out in Attachment D.)	Mandatory	177/178
Competitive Tendering and Contracting	Competitive tendering and contracting contracts let and outcomes	Mandatory	177/178
	Absence of contractual provisions allowing access by the Auditor-General	Mandatory	177
Exempt contracts	Contracts exempt from the Purchasing and Disposal Gazette		176/177
Commonwealth Disability Strategy	Report on performance in implementing the Commonwealth Disability Strategy	Mandatory	173
Financial Statements	Financial Statements	Mandatory	117/152
Other Information	Occupational health and safety (section 74 of the *Occupational Health and Safety (Commonwealth Employment) Act 1991*)	Mandatory	173

Part of Report	Description	Requirement	Page
	Freedom of Information (subsection 8(1) of the *Freedom of Information Act 1982*)	Mandatory	202
	Advertising and Market Research (Section 311A of the *Commonwealth Electoral Act 1918*)	Mandatory	178
	Ecologically sustainable development and environmental performance (Section 516A of the *Environment Protection and Biodiversity Conservation Act 1999*)	Mandatory	204/208
Other	Discretionary Grants	Mandatory	178
	Correction of material errors in previous annual report	If applicable, mandatory	n.a.

List of acronyms and abbreviations

ACIAR	Australian Centre for International Agricultural Research
AIPRD	Australia Indonesia Partnership for Reconstruction and Development
ANAO	Australian National Audit Office
AOP	Annual Operational Plan (of ACIAR)
APAARI	Asia-Pacific Association of Agricultural Research Institutes
APEC	Asia-Pacific Economic Cooperation
APS	Australian Public Service
APSIM	Agricultural Production Systems sIMulation (model)
ASLP	Australia-Pakistan Agriculture Linkages Program
ATSE	Academy of Technological Sciences and Engineering (Australia)
ATSI	Aboriginal and Torres Strait Islander peoples
AusAID	Australian Agency for International Development
AVRDC	Asian Vegetable Research and Development Center (Taiwan)
AYAD	Australian Youth Ambassadors for Development
BGM	Botrytis Grey Mould
BOM	Board of Management (of ACIAR)
CABI	Centre for Agriculture and Biosciences International (UK)
CARD	Capacity-building for Agriculture and Rural Development (Vietnam)
CARDI	Cambodian Agricultural Research and Development Institute
CARF	Cambodian Agricultural Research Fund
CD-ROM	Computer Disk-Read Only Memory
CDS	Commonwealth Disability Strategy
CEO	Chief Executive Officer
CGE	Computable General Equilibrium (economic model)
CGIAR	Consultative Group on International Agricultural Research
CIAT	International Center for Tropical Agriculture (Colombia)
CIFOR	Center for International Forestry Research (Indonesia)
CIMMYT	International Maize and Wheat Improvement Center (Mexico)
CIP	International Potato Centre (Peru)
CPGs	Commonwealth Procurement Guidelines
CSF	classical swine fever
CSIRO	Commonwealth Scientific and Industrial Research Organisation (Australia)
DAFF	Department of Agriculture, Fisheries and Forestry (Australia)
DEST	Department of Education, Science and Training (Australia)
DNA	deoxyribonucleic acid (genetic material)
DPRK	Democratic People's Republic of Korea
EEO	equal employment opportunity
ELISA	enzyme linked immunosorbent assay
EPBC	Environment Protection and Biodiversity Conservation (Act)
ESD	Ecologically Sustainable Development
FAO	Food and Agriculture Organisation (of the United Nations)
FMA (Act)	Financial Management and Accountability (Act 1997)
FMD	foot-and-mouth disease
FOI	Freedom of Information

FTE	full time equivalent (staff)
GDP	Gross Domestic Product
GIS	Geographic Information System
GxE	Genotype by Environment (studies)
GIS	Geographic Information System
GMO	Genetically Modified Organism
GST	Goods and Services Tax (Australia)
ha	hectare
IARCs	International Agricultural Research Centres
IAU	Impact Assessment Unit (ACIAR Program)
ICARDA	International Centre for Agricultural Research in the Dry Areas (Syria)
ICRAF	World Agroforestry Centre (Kenya)
ICRISAT	International Crops Research Institute for the Semi-arid Tropics (India)
ICT	information and communication technologies
IDM	Integrated Disease Management
IFPRI	International Food Policy Research Institute (USA)
IHR	In-House Review (ACIAR)
ILRI	International Livestock Research Institute (Kenya)
IPGRI	International Plant Genetic Resources Institute (Italy)
IPM	Integrated Pest Management
IRO	Independent Research Organisations
IRRI	International Rice Research Institute (Philippines)
IWMI	International Water Management Institute
JSCFADT	Joint Standing Committee on Foreign Affairs, Defence and Trade
KPI	key performance indicator
NESB	non English speaking background
NFF	National Farmers Federation
NGO	Non government organisation
NRP	National Research Priorities (Australia)
OHS	Occupational health and safety
PAC	Policy Advisory Council (of ACIAR)
PIC	Pacific Island countries
PLIA	Policy Linkage and Impact Assessment (ACIAR Program)
PM&C	Department of the Prime Minister and Cabinet
PWD	People with disabilities (EEO classification)
PNG	Papua New Guinea
R&D	Research and Development
RPM	Research Program Manager (ACIAR)
RSA	Republic of South Africa
SADI	Smallholder Agribusiness Development Initiative
SES	Senior Executive Service (of APS)
SPC	Secretariat of the Pacific Community
USDA	United States Department of Agriculture
White Paper	White Paper on the Australian Government's Overseas Aid Program, April 2006
WTO	World Trade Organization

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