

Southeast Asia

Southeast Asia

| | |
|-------------|----|
| Indonesia | 23 |
| Vietnam | 24 |
| Philippines | 34 |
| East Timor | 40 |
| Cambodia | 45 |
| Lao PDR | 47 |
| Thailand | 51 |
| Burma | 54 |

ACIAR Regional Coordinator



Dr John Skerritt
Phone: 02 6217 0510
skerritt@aciar.gov.au



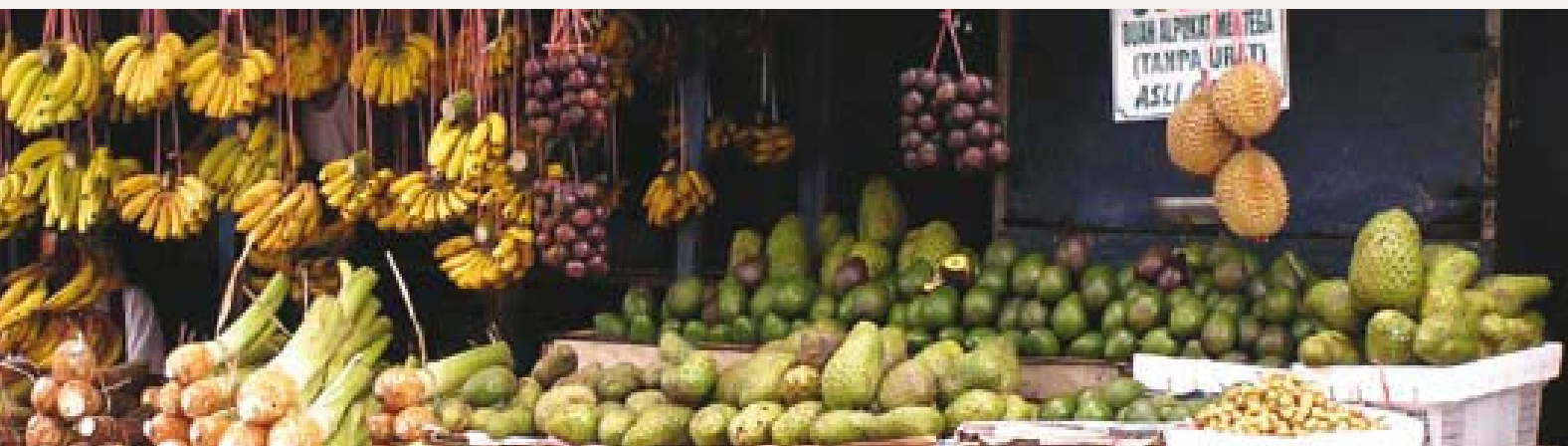
Generations of Indonesian farming families benefit from increased incomes

Indonesia

| | | | |
|------------------------------|---------------|-----------------------------|-----------|
| GNI per capita | 1,280 | Bilateral actual 2005–06 | \$5.18 m |
| Population | 220.6 million | Bilateral estimate 2006–07* | \$6.01 m |
| Population 2015/2050 | 246.8/284.6 m | Bilateral budget 2007–08* | \$10.71 m |
| Active bilateral projects | 78 | Bilateral + multilateral | \$11.94 m |
| Active multilateral projects | 6 | budget 2007–08* | |

* Includes AusAID Australia–Indonesia Partnership funding of \$0.96 m in 2006–07 and \$0.78 m in 2007–08 (Aceh) and \$2.45 m in 2006–07 and \$4.84 m in 2007–08 (Smallholder Agribusiness Development Initiative).

Country Manager
Mr John Murray, ACIAR Country Manager,
Indonesia.



Mitigating the threat of fungal diseases increases fruit and vegetable yield

Key program managers

Mr David Shearer, Agribusiness

Dr Simon Hearn, Agricultural Development Policy

Dr Peter Rolfe, Animal Health

Dr Jon Tanner, Livestock Production Systems

Dr TK Lim, Crop Protection

Mr Barney Smith, Fisheries

Dr Russell Haines, Forestry

Smallholder Agribusiness Development Initiative (SADI):

Dr John Skerritt, Director, Support for Market-Driven Adaptive Research

Dr Peter Horne, Subprogram Manager, Support for Market-Driven Adaptive Research

Dr Robert Caudwell, Institutional Development Adviser

Key performance indicators (2007–08)

- Successful implementation of the adaptive research component of the Smallholder Agribusiness Development Initiative. At least eight new projects started in eastern Indonesia, identified through province-level priority setting workshops
- Evidence of contribution of ACIAR projects designed to the Australian-Indonesian collaborative effort on improved fisheries management and illegal fishing
- Evidence of information flow from animal health projects into Indonesian Government policy making on avian influenza
- Enhanced 'best-management' practices developed and implemented across several aquaculture production systems
- Improved seed systems assessed by the Indonesian potato industry

- Better soil management methods for tsunami-affected soils recommended by BPTP and Dinas groups and in use by farmer groups in Aceh
- 40% of new projects designed with potential for significant farmer or policy maker impacts within five years of completion

Medium-term strategy

ACIAR's Indonesia program emphasises the application of agricultural policy and technical research and development to support economic growth from agriculture, forestry and fisheries in Java and parts of Sumatra and eastern Indonesia. The program will assist in increasing farmers' incomes through shifting emphasis from factor-driven production agriculture to the development of integrated agribusinesses. It will maintain a focus on high-value commodities (for which there is strong market demand) that are identified as priorities by the Indonesian Government and for which major constraints require attention through research.

In addition to supporting research on production and productivity enhancement, ACIAR will also address related pest and disease management (including shared biosecurity concerns), postharvest processing and market development issues. Protection of the resource base for agriculture will be assisted by research collaboration on aspects of crop and livestock bio-security and sustainable forestry and fisheries management and through policy research on effective engagement in markets. In 2005, ACIAR commenced a range of training and technical projects to assist in

fisheries and agricultural rehabilitation of the provinces of north Sumatra and Aceh, affected by the December 2004 tsunami.

ACIAR and Indonesian partners will involve end users such as extension groups, the private sector and non-government organisations during the development and implementation of projects. ACIAR will encourage linkages between research agencies in agriculture, forestry and fisheries and policy/implementation directorate-generals, and will support cooperation between central institutes and provincially based adaptive research agencies and planning authorities.

The emphasis of capacity building activities is to support the Indonesian Government's efforts to develop a demand-driven agricultural research system, through training on research management (including research prioritisation, project evaluation and impact assessment); experimental design and analysis; economics/social science for biophysical scientists; participatory agricultural research and extension skills training and agribusiness, including supply chain management.

Position

The country's proximity and strategic importance to Australia, and a large proportion of its population in poverty, mean that Indonesia's prominence in ACIAR's program will continue. A key challenge for ACIAR and its partner agencies in Indonesia is to secure practical outcomes for farming communities from the considerable research investment. Several current projects focus on the extension of results from ACIAR projects, while the Smallholder Agribusiness Development Initiative provides additional avenues for greater market and community inputs to the planning and utilisation of research results. Another opportunity for cooperation with AusAID is through the Australia – Nusa Tenggara Assistance for Regional Autonomy (ANTARA) program in eastern Indonesia, in line with the increased emphasis on regional economic development in Indonesia across the broader Australian aid program. We will work with our Indonesian partners to involve end users, such as extension groups and the private sector, during the development of projects to more closely integrate project personnel in project activities at the farming community level, and to integrate researchers and policymakers where appropriate. We will increase our emphasis on communicating the outcomes of ACIAR projects and linkage with major Indonesian government, donor and industry programs. Formal linkages with at least two major World Bank programs have been established.

The regional balance of investments is influenced by Australian expertise and alignment with the Australian aid program. Continued collaboration with research and development providers and policymakers in Java and western Sumatra is important. This is especially the case for agricultural policy research, bio-security collaboration,

and horticultural and aquaculture research. Indonesia has a strategic position for Australia in trans-boundary plant and animal diseases given its close proximity. Eastern Indonesia also remains a high priority for ACIAR. The program includes activities in Nusa Tenggara Timur, Nusa Tenggara Barat, south and south-east Sulawesi under both SADI-SMAR and the main ACIAR program. In response to the December 2004 tsunami, ACIAR commenced a number of projects in affected communities in Aceh.

ACIAR will encourage linkages between the research agencies in agriculture, forestry and fisheries and the policy/implementation directorate-generals in the same ministries, where appropriate, as well as with other Ministries such as the Ministry of Trade. ACIAR will support linkages between the research capacity in Java and Sumatra and eastern Indonesian adaptive research agencies and planning authorities. In addition, there will be a greater involvement of private sector and other non-government partners in the program.

Animal health projects will value, develop and test surveillance systems that are applicable for all livestock diseases (but with most application to highly infectious viral agents) and assist in the development of rapid and appropriate responses once diseases are detected. Targeted research will provide the knowledge base to utilise tools, such as vaccines, most effectively. Increasingly the impediments to effective disease control are the regulatory and policy environment, particularly development of the cooperation needed to undertake regional initiatives. Opportunities to improve these will be explored. The knowledge gained will be used by provincial and central governments to implement wider control programs. Endemic livestock diseases will also be targeted where there are clear production losses affecting incomes, and a clearly defined pathway to utilisation of research results. ACIAR also supports a number of targeted research activities as part of the Australian aid program's commitment to reduce the threat of Highly Pathogenic Avian Influenza in Indonesia and elsewhere in the region.

Fisheries projects have had significant impacts, including the management of shrimp diseases, rehabilitation of degraded or unproductive shrimp ponds on acid sulfate soils, mariculture of high-value fish and crustaceans, restocking of depleted fisheries, management of illegal, unreported and unregulated (IUU) fishing, and monitoring and harmonising management of shared fish stocks. ACIAR will continue to maintain a large fisheries program in Indonesia and will continue to seek opportunities for Australia-Indonesia collaboration on efforts to address IUU fishing. In both fisheries and forestry programs there will be an increased emphasis on balancing environmental and employment issues at a regional level.

In forestry, ACIAR will emphasise both community-based agroforestry systems for income generation in eastern Indonesia and improvement of the sustainability and value

capture from major plantation species, including acacia and teak.

Indonesia is an increasingly important partner in several ACIAR projects, delivered in conjunction with the international agricultural research centres. In Indonesia those involved are the International Food Policy Research Institute (IFPRI), Centre for International Forestry Research (CIFOR), the World Agroforestry Centre (ICRAF), the International Potato Centre (CIP) and the Asian Vegetable R&D Centre (AVRDC).

Relationship to the Australian government country strategy

The goal of Australia's development cooperation program with Indonesia is to assist that country to reduce poverty and achieve sustainable development by focusing effort on four key objectives: improving economic management; supporting the transition to democracy; enhancing security and stability; increasing the accessibility and quality of basic

social services. A new whole-of Government strategy will be finalised in mid-2007. In 2007-08, the focus of the program will be on increasing and sustaining economic management and growth including addressing environmental challenges; supporting the transition to democracy; enhancing human security and stability; and increasing the accessibility and quality of basic social services.

ACIAR's program in Indonesia relates to the first priority theme and has an emphasis on promoting economic growth from the agricultural, fisheries and forestry sectors, with R&D cooperation particularly supporting the themes of private sector development, rural productivity and human resource development. Cooperation in agricultural development policy work aims to assist in economic-reform aspects of governance and better designing and targeting poverty-focused programs. ACIAR also supports (both directly, and with support from the Australian-Indonesian Partnership, Aceh in agricultural, aquaculture and fisheries reconstruction.

ACIAR's participation in the Australia-Indonesia Partnership

The Australian-Indonesian Partnership, comprising \$500 million in grants and \$500 million in highly concessional loans over five years, was announced in January 2005. The Partnership supports Indonesia's reconstruction and development efforts, both in and beyond tsunami-affected areas. Assistance will involve long-term sustained cooperation focused on economic and social development projects and Indonesia's programs of reform and democratisation.

ACIAR manages the design and delivery of components of two major regional development programs:

1. Smallholder Agribusiness Development Initiative (SADI)

SADI aims to improve rural sector productivity and growth in four eastern provinces—Nusa Tenggara Timur, Nusa Tenggara Barat, south-east Sulawesi and south Sulawesi. It will improve incomes and productivity for farmers and agribusiness in response to market opportunities, through a process that is underpinned by improved adaptive R&D capacity. SADI, a 10-year program with an initial funding commitment from the Australian Government of \$38 m for the July 2006 – December 2009 period, comprises three subprograms, each of which also build on existing activities in Indonesia:

- Enhanced smallholder production and marketing (implemented by the Kecamatan Development Program Secretariat of the Ministry of Home Affairs, supported by the World Bank)
- Strengthened private sector agribusiness and small to medium enterprise development (implemented by the International Finance Corporation)
- Support for market-driven adaptive research (SMAR, implemented by ACIAR, through project offices in Makassar and Bogor).

The purpose of SADI is to develop strengthened province-based agricultural R&D capacity that is market- and client-driven and

to effectively transfer knowledge to end users. A feature of this subprogram is its integration with other subprograms on enhanced smallholder production and marketing and strengthened private sector agribusiness development.

There are three delivery components of the ACIAR-SADI subprogram. The **first**, Adaptive Research and Development will fund province-based organisations funded to implement high priority demand-driven R&D projects with international technical support. Priorities for these projects are being identified through workshops of industry, farmer groups, government and researchers and through institutional and market assessments. A second component, will establish improved linkages and more effective knowledge transfer processes between R&D providers and extension providers. New extension media and methods to assist in dissemination of R&D outcomes will be piloted in the field. The third component, on institutional development, will assist with the development of optimal R&D planning and budget allocation policies and procedures, assist in human resources development and upgrade infrastructure and equipment

2. Rural livelihoods components of the Aceh Reconstruction program

ACIAR and AusAID are also cooperating on the rehabilitation of the Regional Brackishwater Aquaculture Development Centre (RBADC) at Ujung Batee, which is the technology development and extension centre for aquaculture in Aceh. The centre suffered extensive damage in the tsunami. AusAID will manage the physical infrastructure/construction component while ACIAR is managing training and re-establishment of aquaculture R&D at the site. A second co-funded activity 'Restoration of annual cropping in tsunami-affected areas of Nanggroe Aceh Darussalam Province' links closely with two other ACIAR-funded projects on restoration of cropping systems in Aceh.

Indicative priorities

Priorities for collaborative agricultural research between Australia and Indonesia were discussed in February 2007 during consultations between ACIAR and representatives of relevant Government ministries and agencies, universities, the Indonesia Institute of Sciences (LIPI), NGOs the private sector and farmers' associations. More detailed consultations were also held in four eastern Indonesian provinces in November 2006. A full list of agreed priorities from the meetings is available at www.aciar.gov.au under *Partner country priorities/Indonesia*.

In eastern Indonesia there are opportunities to capitalise on linkages between central research institutions (mainly based in Java) and institutions undertaking location-specific adaptive research that directly addresses farmers' needs. ACIAR made additional investments in Indonesia to assist in fisheries and agricultural rehabilitation of Aceh after the December 2004 tsunami.

More follow-up activities that enhance the transfer of technology of earlier ACIAR projects will be pursued, and opportunities for greater involvement of industry explored. In 2007–08 the collaborative program will emphasise animal health and production, crop protection (especially integrated with horticultural crop production), forestry, fisheries and agricultural policy research. Agreed thematic areas for cooperation are:

Subprogram 1: Improved policies to underpin agribusiness development

- Policy requirements for improved access for smallholders into developing markets (including trading relationships and agricultural financial services) in both intensive and less intensive production systems
- Local and national structural adjustment (rural transformation) of policy requirements to support agricultural diversification, including the assessment of policy requirements to achieve production change and meet market requirements
- Policies and institutional structures to foster new and competitive trading relationships, benefiting the smallholder
- Analysis of policy requirements to support fisheries production, postharvest management, processing and marketing of fisheries products
- Understanding the basis and effects of farmer population movement, including impacts of land tenure, farm size and food pricing policies
- Risk identification, policy and supply chain interventions to underpin improved systems for the safety of poultry, cultured seafood and vegetable products

Subprogram 2: Biosecurity cooperation and pest and disease management

2.1 Livestock biosecurity

- Defining the economic and social cost of livestock diseases and establishing effective disease surveillance

and control policies and systems, particularly in low-input systems

- Detection and management of risks of disease transfer with movement of livestock
- Improved understanding of avian influenza virus behaviour in ducks as well as village and commercial poultry, with and without vaccination
- Establishment of the importance of zoonotic diseases, including rabies, anthrax, Japanese encephalitis and cysticercosis

2.2 Crop and forestry biosecurity

- Technical and policy requirements for the establishment of pest-free areas or areas of low pest prevalence
- Capacity development in quarantine and disinfestation of plant products
- Improved management of major pests and diseases of bananas
- Pest and disease management for plantation forests

Subprogram 3: Research to underpin the development of competitive horticultural agribusinesses

- Quality improvement and value-addition in mangoes, including through the management of fruit flies and fungal diseases
- Improving value-addition and marketability for mangosteen through the management of physiological disorders, pest control and better shelf life
- Development of clonal rootstocks and postharvest management and packaging systems for avocado
- Better production and pest management systems for shallot
- More efficient seed and production systems for mushroom
- Development of postharvest handling systems for tropical ornamental horticultural crops
- Postharvest handling and value-addition to selected tropical spices and indigenous vegetables

Subprogram 4: Profitable smallholder aquaculture and agroforestry systems

4.1 Smallholder aquaculture

- Policy and planning options to guide the expansion and intensification of the aquaculture industry, including the development and application of decision support tools and planning frameworks to assist farmers, planners and policy makers, particularly at local levels
- Delivery of more reliable diagnostic services to farmers for viral disease of shrimp through improved application of PCR technology
- Control and management of new or emerging viral threats, including taura syndrome, koi herpes virus, viral nervous necrosis and other marine finfish diseases
- Development of cost-effective formulated feeds for high-value species, with reduced reliance on fish-based protein

- Extension of 'Better Management Practices' production packages (through the development of farmer groups) enhanced to include market issues such as product quality, food safety and supply chains to increase market performance

4.2 Agroforestry systems

- Understanding incentives for small-scale community plantings, including;
 - policies and institutions (effectiveness of regulations, impact of land tenure, models for conflict resolution, effective size of the management units for profitable agroforestry and community forestry) and
 - analysis of systems and markets that produce intermediate returns.
 - best practice models for outgrower schemes to secure market access for smallholders
- Matching community forestry sites to species in variable environments such as West Timor, including;
 - site classification (soil and climate), selection of species combinations and improved planting materials taking markets and cultural preferences into account,
 - silvicultural systems adapted for small-scale plantings, including agro-silvopastoral systems
 - development of replicable extension models for small-scale plantations.

Subprogram 5: Sustainable utilisation and management of fisheries and forestry resources

5.1 Fisheries resources

- Assessment of alternate, innovative assessment and management frameworks which address the problem of resource data limitations and pilot these in selected shared and common-interest fisheries
- The establishment of effective co-management arrangements between fishers and the cage aquaculture industry in inland reservoirs and open water bodies
- Better management of Illegal Unregulated Unreported (IUU) fishing in seas managed by Indonesia alone, with attention to improving existing reporting and regulation shortcomings, and the analysis of institutional and regulatory frameworks and linkages between different levels of government
- Regional cooperation in the monitoring of shark and rays landed from the Indian ocean and shark fin export-import data to obtain a better understanding of regional trade flows
- Supply chain economic assessment and policy analysis on optimal utilisation of fisheries industrial processing facilities in Indonesia
- Quality and safety assessment and improvement of fishery products starting from catching, handling, processing and marketing in order to reduce losses and to improve product competitiveness

5.2 Forestry resources

- Policy options and economic assessment of smallholder forestry options for addressing climate change mitigation
- Improved post-decentralisation forest governance and administration through action research at the provincial and district level
- Application of improved silvicultural strategies and governance arrangements to appropriately sited plantation species (acacia, teak and mahogany, and potentially other valuable, fast growing species)
- Capturing more value from forestry plantation species through improved processing technologies and development of new products matched to appropriate markets

Subprogram 6: Profitable agribusiness systems for eastern Indonesia

This subprogram integrates key thematic areas for cooperation (including livestock, horticultural crop production, community forestry and aquaculture) with a geographical focus on eastern Indonesia. On-farm water management for the development of competitive agricultural industries and improvement of the capacity of eastern Indonesian R&D providers to support market-driven adaptive research are two cross-cutting themes. Some specific areas of emphasis within eastern Indonesia are:

6.1 Crop-ruminant livestock systems

- Understanding policies to increase Indonesian sufficiency in beef production, including factors affecting adoption of improved forages, off-take of productive cows, improving reproduction rates and market linkages
- Development of sustainable systems that integrate livestock with crops for the dry tropics of Eastern Indonesia and smallholder plantation areas
- Enhancement of Bali cattle and goat productivity and meeting market specifications through improved management of feed and reproduction

6.2 Productive and profitable smallholder estate crops

- Market analysis and development for cashew nut, cocoa, coffee and coconut
- Production systems integrating field crops and livestock into plantation crops
- Management of pests and diseases for cashew nut, cocoa, coconut, coffee and sugarcane
- Market analysis of biofuel production systems, especially of on-farm and small-scale processing of biofuel as an alternative energy source for household needs.

6.3 Improving productivity and profitability of field crop systems in seasonally dry areas

- Locally adapted postharvest technology for field crops

- Improving uptake of existing technologies (nutrient management, plant varieties, integrated pest management, soil conservation) in rain-fed rice systems and development of other components of the rotation
- Market development and the fostering of technology uptake in irrigated rice systems
- Development of more water-efficient maize cropping systems that are better linked to input and output markets

Subprogram 7: Technical cooperation to underpin post-tsunami rehabilitation of agriculture and fisheries

- Redevelopment of human capacity and infrastructure for brackishwater aquaculture of shrimp and finfish in Aceh
- Restoration of tsunami-affected soils, farming systems and seed supply systems to improve field crop and vegetable production

Current project portfolio

(Possible new projects commencing in 2007-08 shown as 'proposed')

Subprogram 1: Improved policies to underpin agribusiness development

| | |
|--|---|
| ADP/2005/068 (Multilateral, proposed) | The implication of plausible trade futures for structural adjustment in Indonesia (IFPRI) |
| ADP/2005/070 | Trade liberalisation impacts on small-holder incomes, employment, productivity and public good needs in Indonesia and China |
| ADP/2006/145 (Multilateral, proposed) | Impact of changing agricultural markets on small-farm participation and poverty: cases from India, Vietnam, and Indonesia |
| AGB/2002/012 | Technical change in Thai and Indonesian agriculture: measurement and socio-economic impact |
| AGB/2004/028 | Social capital and rural development in Eastern Indonesia |
| AGB/2006/008 (proposed) | Improve the efficiency of property rights to promote the development of the vanilla industry of North Sulawesi |
| AGB/2005/066 | Trade-related industry adjustment policies to optimise impacts for smallholders, including in Eastern Indonesia |
| AH/2004/032 | Identification of policy responses to minimise negative socio-economic impacts of an avian influenza epidemic in Indonesia |
| PLIA/2006/135 (proposed) | Trends in world agriculture to 2030 in India, China and Indonesia |

Subprogram 2: Biosecurity cooperation and pest and disease management in agriculture and plantation forests

Animal diseases

| | |
|---------------------------|--|
| AH/2000/083 | Development of a vaccine for the control of Gumboro in village and small poultry holdings in Indonesia |
| AH/2004/020 | The development of a national surveillance system for classical swine fever, avian influenza and foot and mouth disease in Indonesia |
| AH/2004/032 | Identification of policy responses to minimise negative socio-economic impacts of an avian influenza epidemic in Indonesia |
| AH/2004/040 | The epidemiology, pathogenesis and control of highly-pathogenic avian influenza (HPAI) in ducks in Indonesia and Vietnam |
| AH/2004/074 | Large-scale production of a vaccine and diagnostic reagents for Jembrana disease in Indonesia |
| AH/2006/038 | Feeding papaya fruits and betel nuts to reduce parasite burdens and increase growth rate in pigs |
| AH/2006/050 | Control and characterisation of highly pathogenic avian influenza strains in poultry in Indonesia |
| AH/2006/156 (proposed) | Risk assessment of livestock movements for disease transmission in Eastern Indonesia and Eastern Australia |
| AH/2006/162 | Commercialisation of an Infectious Bursal Disease vaccine |
| AH/2006/163 | Establishment of priorities for zoonotic disease management and research in Indonesia |
| AH/2006/164 | Animal health policy in Indonesia |
| AH/2006/165 (proposed) | Economic analysis of animal health systems in Indonesia |
| AH/2006/166 (proposed) | Implementation of national disease control in Indonesia |
| AH/2006/167 (proposed) | Reproductive diseases of cattle in Indonesia |
| AH/2006/169 (proposed) | Improved bio-security for small-scale commercial poultry production in Indonesia |

Crop and forest pests and diseases

| | |
|-------------------------------|--|
| ADP/2003/060 | Implementation of rodent management in intensive irrigated rice production systems in Indonesia and Vietnam |
| CP/2000/043 | Huanglongbing management for Indonesia, Vietnam and Australia |
| CP/2000/094 | Diagnosis and control of soilborne fungal diseases of plants in Indonesia |
| CP/2003/036 | Managing pest fruit flies to enhance quarantine services and upgrade fruit and vegetable production in Indonesia |
| CP/2004/034 | Diagnosis and management of wilt diseases of banana in Indonesia |
| CP/2004/048 (Multilateral) | Integrated disease management (IDM) for anthracnose, Phytophthora blight and whitefly transmitted Gemini viruses in chilli pepper in Indonesia (AVRDC) |
| CP/2005/136 (Multilateral) | Mitigating the threat of banana Fusarium wilt: understanding the agro-ecological distribution of pathogenic forms and developing management strategies (IPGRI) |
| CP/2006/147 (proposed) | Integrated pest management of sugarcane stem borers and insect vectors of virus diseases in sugarcane in Indonesia |
| FST/2003/048 | Management of fungal root rot in plantation acacias in Indonesia |

Subprogram 3: Research to underpin development of competitive horticultural agribusinesses

| | |
|---|---|
| AGB/2006/115 (Multilateral, proposed) | Linking horticulture crop farmers to markets in West and Central Java, Indonesia (CIP) |
| CP/2005/167 | Optimising the productivity of the potato/Brassica cropping system in central and West Java |
| CP/2006/146 (proposed) | Management of pest infestation and fruit disorders of mangosteen fruit |

Subprogram 4: Productive smallholder aquaculture and agroforestry systems

Shrimp

| | |
|--------------|--|
| FIS/2002/075 | Application of PCR for improved shrimp health management in the Asian region |
| FIS/2002/076 | Land capability assessment and classification for sustainable pond-based aquaculture systems |
| FIS/2005/169 | Improving productivity and profitability of smallholder shrimp aquaculture and related agri-business in Indonesia |
| FIS/2006/144 | Strengthening mechanisms to maximise benefits to small-holder shrimp farmer groups adopting better management practices (BMPs) |

Finfish

| | |
|----------------------------|--|
| FIS/2002/077 | Improved hatchery and growout technology for marine finfish in the Asia-Pacific region |
| FIS/2002/111 | Culture, capture conflicts: sustaining fish production and livelihoods in Indonesian reservoirs |
| FIS/2003/027 | Planning tools for environmentally sustainable tropical finfish cage culture in Indonesia and northern Australia |
| FIS/2005/137 (proposed) | Control of Viral Nervous Necrosis (VNN) in finfish broodstock |

Mud crab and Sandfish

| | |
|---|--|
| FIS/2000/065 | Assessing the potential for low cost formulated diets for mud crab aquaculture in Australia, Indonesia and Vietnam |
| FIS/2006/126 (Multilateral, proposed) | Developing pond aquaculture for sandfish in Asia-Pacific (WorldFish) |
| FIS/2006/140 (proposed) | Mudcrab aquaculture in Indonesia |

Subprogram 5: Sustainable utilisation and management of fisheries and forestry resources

Fisheries resources

| | |
|----------------------------|--|
| FIS/2002/019 | Management and policy frameworks for illegal, unreported and unregulated (IUU) fishing in Indonesian and Philippine waters |
| FIS/2002/074 | Capacity development to monitor, analyse and report on Indonesian tuna fisheries |
| FIS/2002/105 | Economic and market analysis of the live reef fish food trade in Asia-Pacific |
| FIS 2006/142 (proposed) | Developing frameworks for resource assessment and management of illegal, unreported and unregulated (IUU) fishing in Indonesia |

Forestry resources

| | |
|----------------------------|--|
| FST/2003/025 | Community partnerships for plantation forestry: enhancing rural incomes from forestry in Eastern Indonesia and Australia |
| FST/2004/058 | Realising genetic gains in Indonesian and Australian plantations through water and nutrient management |
| FST/2005/054 | Seed distribution of Australian Trees – Limited Extension |
| FST/2005/177 | Improving economic outcomes for small-holders growing teak in agroforestry systems in Indonesia |
| FST/2006/117 (proposed) | Capturing more value from Indonesian forest plantations through enhanced timber processing and manufacturing options |

Subprogram 6: Profitable agribusiness systems for Eastern Indonesia

Smallholder Agribusiness Development Initiative (SADI) projects shown as “SMAR”

Crop-livestock systems and marketing

| | |
|-------------------------------|--|
| AH/1998/054 (Multilateral) | Poverty alleviation and food security through improving the sweet potato-pig systems in Indonesia (CIP) |
| FST/2006/009 (proposed) | Integrated timber-forage-livestock agroforestry systems for economic diversification in West Timor farming communities |
| LPS/2004/005 | Improving smallholder crop–livestock systems in eastern Indonesia |
| LPS/2004/023 | Strategies to increase the growth of the weaned Bali calf |
| LPS/2006/005 | Evaluating strategies to improve calf survival in West Timor villages |
| SMAR/2006/003 | Integrating forage legumes into the maize cropping systems of West Timor |
| SMAR/2006/061 | Boosting beef production in South Sulawesi using a farming systems approach |
| SMAR/2006/096 | Scaling-up herd management strategies in crop-livestock systems in Lombok, Indonesia |
| SMAR/2007/013 | Opportunities to use cocoa pods and forages to address feed gaps in the dry season in Southeast Sulawesi |
| SMAR/2007/195 | Smallholder commercial pig production in NTT - opportunities for better market integration |
| SMAR/2007/201 | Improving goat production in integrated estate cropping systems in South Sulawesi |
| SMAR/2007/202 | Understanding beef marketing channels across Eastern Indonesia |
| SMAR/2007/205 | Cost and benefit assessment of better feeding and watering during inter-island shipping of Bali cattle |

Field and horticultural crop production, processing and marketing

| | |
|--------------------------------|--|
| CIM/2003/066 (Multilateral) | Enhancing the adoption of improved cassava production and utilisation systems in Indonesia and East Timor |
| SMAR/2007/042 | A DAFF and ACIAR joint feasibility study to understand the vegetable value chains in Eastern Indonesia to enhance future collaboration |
| SMAR/2007/193 | Pre-and post harvest quality management and marketing of tropical tree fruits (mango, mangosteen, rambutan, durian) from Nusa Tenggara Barat |
| SMAR/2007/196 | Market development for citrus in Eastern Indonesia |
| SMAR/2007/203 | Integrated passionfruit production and processing systems for South Sulawesi |
| SMAR/2007/213 | Development of the maize industry for animal feed in Eastern Indonesia |
| SMAR/2007/214 | Study on addressing constraints to rice production in South and Southeast Sulawesi |
| SMAR/2007/216 | Addressing constraints to rice production in S and SE Sulawesi |
| SMAR/2007/217 | Overcoming yield constraints in cassava in SE Sulawesi |
| SMAR/2007/218 | Transformation of peanut and mungbean production to address market requirements in NTB and NTT |
| SMAR/2007/221 | Meeting market specifications for high value potato production in NTB and South Sulawesi |

Estate crops and forest products

| | |
|---------------|--|
| SMAR/2005/074 | Improving cocoa production through farmer involvement in demonstration trials of potentially superior and pest/disease resistant genotypes and integrated management practices |
| SMAR/2006/011 | Evaluation of non-timber forest product species as potential elements of agroforestry systems in Eastern Indonesian farming communities |
| SMAR/2006/080 | West Timor integrated timber-forage-livestock agroforestry (scoping study) |
| SMAR/2007/200 | Securing the profitability of Toraja (S Sulawesi) coffee |
| SMAR/2007/204 | Improving the productivity of the cashew industry in Eastern Indonesia |

| | |
|---------------|--|
| SMAR/2007/206 | Optimization of production and marketing from coconut, cashew nut, candle nut, cocoa and coffee plantations in NTT |
| SMAR/2007/229 | Opportunities for teak industry development in SE Sulawesi (scoping study) |

Aquaculture and mariculture

| | |
|---------------|---|
| SMAR/2007/222 | Development of simple seaweed press system for smallholders (scoping study) |
| SMAR/2007/223 | Understanding characteristics (and potential markets) of the nutrient components of seaweed extract |
| SMAR/2007/224 | Development of a model nursery for abalone in SE Sulawesi |
| SMAR/2007/225 | Assessing mariculture market constraints and potential in SE Sulawesi |
| SMAR/2007/226 | Investigation of contract farming options for shrimp production (scoping study) |
| SMAR/2007/227 | Polyculture systems for profitable mudcrab production in S and SE Sulawesi (scoping study) |
| SMAR/2007/228 | Improving lobster growout and nutrition in NTB (scoping study) |

Cross-cutting studies

| | |
|---------------|---|
| AGB/2004/028 | Social capital and rural development in eastern Indonesia |
| LWR/2005/059 | Modelling water and solute processes and scenarios for optimisation of permanent raised bed systems in China, India, Pakistan and Indonesia |
| SMAR/2007/199 | Agribusiness benchmarking in Eastern Indonesia |
| SMAR/2007/219 | Identifying economic and social constraints for water management in vegetable production in NTB and NTT |
| SMCN/2002/033 | Seasonal climate forecasting for better irrigation system management in Lombok |

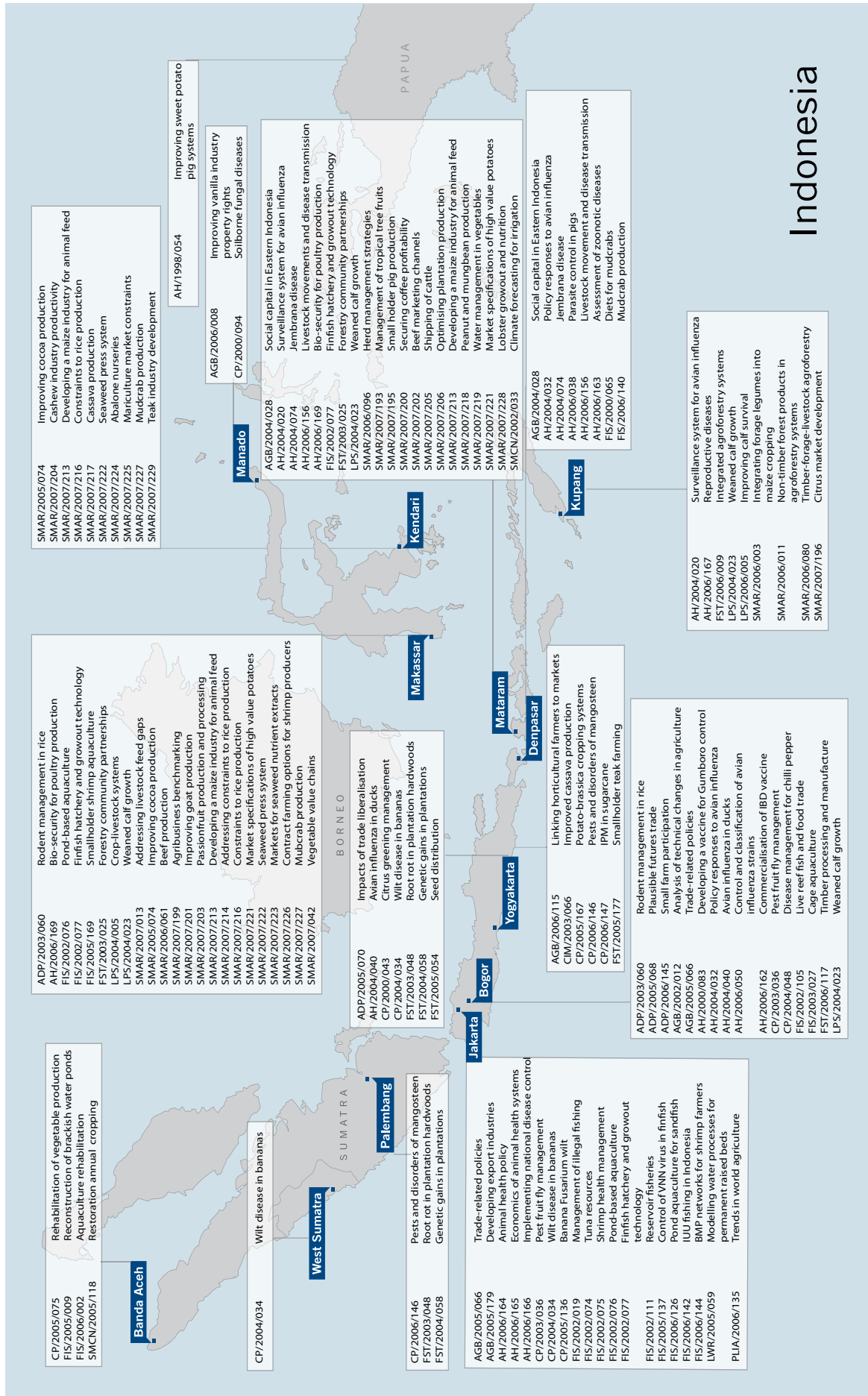
Subprogram 7: Technical cooperation to underpin post-tsunami rehabilitation of agriculture and fisheries

| | |
|-------------------------------|---|
| CP/2005/075 (Multilateral) | Integrated soil and crop management for rehabilitation of vegetable production in the Tsunami-affected areas of (NAD) Province, Indonesia (AVRDC) |
| FIS/2005/009 | Technical capacity building and research support for the reconstruction of tsunami-affected brackishwater ponds in Aceh |
| FIS/2006/002 | Aceh Aquaculture Rehabilitation Project |
| SMCN/2005/118 | Restoration of annual cropping in tsunami-affected areas of Nanggroe Aceh Darussalam Province, Indonesia |



Village fishermen benefit from understanding fishing resources

Active projects in Indonesia



Indonesia

Vietnam

| | |
|------------------------------|------------------|
| GNI per capita (\$US) | 620 |
| Population | 83.1 million |
| Population 2015/2050 | 95/116.7 million |
| Active bilateral projects | 30 |
| Active multilateral projects | 2 |

| | |
|---|----------|
| Bilateral actual 2005–06 | \$2.82 m |
| Bilateral estimate 2006–07 | \$3.14 m |
| Bilateral budget 2007–08 | \$2.85 m |
| Bilateral + Multilateral budget 2007–08 | \$3.15 m |

Country Manager
Mr Geoff Morris, ACIAR Country Manager, Vietnam



Village women in the Vietnamese highlands

Key program managers

Dr TK Lim, Crop Protection

Mr Barney Smith, Fisheries

Dr Russell Haines, Forestry

Dr Gamini Keerthisinghe, Soil Management and Crop Nutrition

Dr Jon Tanner, Livestock Production Systems

Key performance indicators (2007–08)

- Linkages between ACIAR-funded research and AusAID-funded development continues to be fostered
- New training and information exchange activities in biosafety and biotechnology regulation undertaken
- NGO and community organisation linkages established in at least three projects, including enhancing the role of women in production and utilisation of horticultural crops
- Programmatic shift to emphasis on better processing technologies for two timber species leads to development of higher-value forest products
- Enhancement of quarantine capabilities in fumigation and plant disease diagnosis
- Enhancement of Vietnamese capacity in aquaculture of high-value species (encompassing shrimps, mud crabs and oysters)
- 40% of new projects designed to have significant farmer or policymaker impacts within five years of completion

Medium-term strategy

ACIAR's Vietnam strategy emphasises research to assist the enhancement of smallholder incomes. This is achieved through fostering the development of higher value crop and livestock products, as well as improving market access through the improvement of the safety and quality of agricultural products and strengthening biosecurity. The latter is particularly important following the accession of Vietnam to the World Trade Organisation. Fisheries research cooperation will focus on aquaculture and mariculture, while forestry cooperation will have an increased emphasis on higher value products and value-addition. Natural resource management research will focus on sustainable cultivation systems for poor soils in central Vietnam and on water conservation. More rapidly responsive approaches to work on commodity-specific policies, markets and rural adjustment will be trialled. Close linkages to AusAID-funded programs (Collaboration for Agriculture and Rural Development (CARD) and the Quang Ngai Rural Development program) will continue.

Position

ACIAR's program in Vietnam commenced in 1993 and, since that time, a significant program in forestry, land and water resources, animal sciences, crop sciences, fisheries and postharvest technology has emerged. While training remains very important there has been an evolution from a predominant emphasis on capacity building to one of 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, non-chemical rodent control in rice crops, fast-growing acacias, introduction of improved acacia forest germplasm, better irrigation management, improved soil fertility management and better control of citrus pests. Some of the technologies arising from these projects are being applied and capacity developed in R&D and extension through the AusAID CARD program.

Several new projects focus on extension or adaptation of outputs from earlier ACIAR projects in Vietnam and elsewhere in the region. While most of ACIAR's program is currently based in greater Ho Chi Minh City and Hanoi because of the location of research institutes and policy-makers and the national relevance of much of the portfolio, at the February 2004 country consultation, and at subsequent meetings during 2005 and 2006, it was agreed that emphasis on central Vietnam, particularly central coastal regions should increase. ACIAR projects will also support the "four pillars" of development for Vietnam, with respect to development of science and technology and the consequences of infrastructure and small-medium enterprise development for agricultural production and marketing. ACIAR will maintain the flexibility to assist Vietnam with "burning issues" such as avian influenza and control of brown plant hopper in rice.

ACIAR will also continue to seek greater involvement of the private sector and NGOs in projects, linkages with other R&D activities and donors, and development of closer linkages between Vietnamese research and extension organisations. There will also be an increased emphasis on implementation of the results of earlier ACIAR-funded research, including developing manuals and other communication materials.

During 2007–08, new project opportunities will be explored in selected areas of agricultural development policy (including biotechnology and biosafety policy), crop protection and horticulture, livestock production, forestry and fisheries.

Relationship to the AusAID Vietnam strategy

AusAID's program in Vietnam has two strategic objectives. Within the first, 'Broad-based growth by strengthening the governance of the institutions required for a competitive market economy', there is emphasis on two sub-objectives: improved private sector operating environment and the facilitation of internal and international economic integration. Within the second, 'Improved livelihoods for the rural poor focusing on the Mekong Delta and Central Coast', there is emphasis on four sub-objectives: increase rural productivity, develop human capital, reduce vulnerability to environmental and economic shocks, and strengthen the capacity and accountability of government and the participation of the poor in their governance. In 2007-08, assistance will focus on strengthening the

governance of institutions required for a competitive market economy and improving the livelihoods of the rural poor.

ACIAR's Vietnam program complements AusAID's strategy in both focal areas by supporting underpinning research and development interventions. Major emphases are on collaborative investigation of better policy options and interventions for meeting market specifications and opportunities as well as technical cooperation to improve market access through the improvement of the safety and quality of agricultural and fisheries products. Although much of the program is necessarily based in Ho Chi Minh City or Hanoi and surrounding provinces because of the location of most of the research institutes and policy-makers, and the national relevance of particular projects, there is strong emphasis on central coastal regions and the Mekong Delta, with half of the projects in the portfolio working in these regions. ACIAR is also integrating its work closely with Government of Vietnam programs and other donors where possible.

Indicative priorities

ACIAR has a program of consultations with partner countries on a four-year rolling basis to establish priorities for research collaboration. The most recent such consultation with Vietnam was held in February 2004; the full record of consultation is at www.aciar.gov.au under Partner country priorities/Vietnam. In addition, annual consultations are held with partner organisations to discuss program strategies and new projects.

The majority of ACIAR-supported informal and postgraduate research degree training will continue to be delivered within the context of active projects. However, ACIAR will also support short-course training in selected areas, which may include: experimental design and statistical analysis; research management; research monitoring and evaluation; scientific proposal/grant writing and project design; biotechnology (including priority setting and regulatory and biosafety policy); writing for scientific, extension, farmer and government audiences; and collection and analysis of market information.

Indicative priorities are grouped under the following programmatic themes:

Subprogram 1: Increasing market competitiveness of Vietnamese agricultural and fisheries products

A: Better policy interventions for meeting market specifications and opportunities

- Assessment of impacts of trade agreements, including sanitary and phytosanitary standards and market access
- Policy options for optimising market-oriented production to deliver improved returns to smallholders
- Policy and regulatory approaches to underpin the production of genetically modified crops

B: Enhanced quality and reduced losses in crops and forest products

- Enhancement of quarantine capacity (in fumigation and disease diagnosis)
- Management of pests of perennial crops of central Vietnam
- Integration of practical fruit fly strategies with the management of other insect pests
- Reducing preharvest and postharvest losses and ensuring quality in smallholder systems for fruit, vegetables and grains
- Interventions to enhance the safety and marketability of horticultural crops (including indigenous vegetables)
- Improvement of plantation wood processing efficiency, especially for small eucalypts and acacias through small-scale sawing, drying, preservation, and use of composites

C: Competitive and sustainable aquaculture and livestock production

- Cost-effective and environmentally friendly aquaculture feeds
- Profitable and environmentally responsible grow-out technologies for marine cage culture and pond culture

in sandy coastal areas

- Transferring existing knowledge from ACIAR fisheries projects in other countries
- Smallholder pig production systems including nutrition, housing, waste management, health and marketing
- Smallholder production of ruminants within crop–livestock systems

Sub-program 2: Optimising water and soil management for sustainable production, particularly on degraded lands in central Vietnam

- Development of technologies for fast-growing forest plantations for high and sustainable productivity on degraded soils
- Use of tree species with high timber and non-timber forest product values for rehabilitation of natural forests
- Sustainable land-use practices and cultivation techniques to develop agriculture and agroforestry on poor sandy soils in central coastal Vietnam
- Application of water-saving technology and nutrient management systems in crop production

Current project portfolio

(Possible new projects commencing in 2007–08 shown as 'proposed')

Subprogram 1: Increasing market competitiveness of Vietnamese agricultural and fisheries products

A: Better policy interventions for meeting market specifications and opportunities

| | |
|---|---|
| ADP/2005/113 (proposed) | Vietnam WTO accession and structural adjustment implications |
| ADP/2006/145 (Multilateral, proposed) | Impact of changing agricultural markets on small-farm participation and poverty: cases from India, Vietnam, and Indonesia (IFPRI) |
| AH/2004/040 | The epidemiology, pathogenesis and control of highly pathogenic avian influenza (HPAI) in ducks in Indonesia and Vietnam |
| LPS/2005/063 (Multilateral) | Improving the competitiveness of pig producers in an adjusting Vietnam market |
| PLIA/2000/039 (Multilateral) | Impact of migration and/or off-farm employment on roles of women and appropriate technologies in Asian and Australian mixed farming systems (IRR) |
| PLIA/2002/103 | Enhancing project impact and science capability through ongoing evaluation |

B: Enhanced quality and reduced losses in crops and forest products

| | |
|---------------------------|---|
| ADP/2003/060 | Implementation of rodent management in intensive irrigated rice production systems in Indonesia and Vietnam |
| CP/1998/005 | Managing pest fruit flies to increase production of fruit and vegetable crops in Vietnam |
| CP/2000/043 | Huanglongbing management for Indonesia, Vietnam and Australia |
| CP/2002/086 | Improving postharvest quality of temperate fruits in Vietnam and Australia |
| CP/2002/115 | Diseases of crops in the central provinces of Vietnam: diagnosis, extension and control |
| CP/2006/066 (proposed) | Improving productivity and fruit quality of sweet persimmon in Vietnam and Australia |
| CP/2006/083 | Effective phosphine fumigation—technology transfer |
| CP/2006/084 | Targeting crop protection research and development (R&D) towards social change amongst ethnic minority communities in central Vietnam |

| | |
|----------------------------|--|
| CP/2006/112 (proposed) | Enhancing the safe production and promotion of indigenous Vietnamese vegetables by women |
| CP/2006/113 | Scoping study to review the role of women and assess constraints in the production of indigenous Vietnamese vegetables |
| CP/2007/187 | Technical support facility for commercialisation of protein bait production in north Vietnam |
| CP/2007/211 | Rice brown planthopper scoping studies in Vietnam |
| FST/2001/021 | Improving the value chain for plantation-grown eucalypt sawn wood in China, Vietnam and Australia: sawing and drying |
| FST/2002/112 | Domestication of <i>Meliaceae</i> species in South-East Asia and Australia, particularly management of the problem of <i>Hypsipyla robusta</i> attack |
| FST/2003/002 | Development and evaluation of sterile triploids and polyploidy breeding methodologies for commercial species of <i>Acacia</i> in Vietnam, South Africa and Australia |
| FST/2006/085 (proposed) | Timber processing opportunities with <i>Melaleuca</i> and mangrove in Vietnam |
| SMCN/2002/073 | Efficient nutrient use in rice production in Vietnam achieved using inoculant biofertilisers |

C: Competitive and sustainable aquaculture and livestock production

| | |
|---|--|
| AH/2004/040 | The epidemiology, pathogenesis and control of Highly Pathogenic Avian Influenza (HPAI) in ducks in Indonesia and Vietnam |
| FIS/2000/018 | The economics of development reservoir aquaculture in Vietnam |
| FIS/2000/065 | Assessing the potential for low-cost formulated diets for mud crab aquaculture in Australia, Indonesia and Vietnam |
| FIS/2001/058 | Sustainable tropical spiny lobster aquaculture in Vietnam and Australia |
| FIS/2002/068 | Improving feeds and feeding for small scale aquaculture in Vietnam and Cambodia |
| FIS/2002/077 | Improved hatchery and grow-out technology for marine finfish in the Asia–Pacific region |
| FIS/2005/114 | Building mollusc hatchery production capacity in Vietnam and Australia |
| FIS/2005/115 (proposed) | Improved reliability of PCR screening for shrimp diseases in Vietnam |
| FIS/2006/098 (proposed) | Mud crab aquaculture in Vietnam: feeds and feeding strategies for industry growth |
| FIS/2006/099 (proposed) | Capacity building and technology transfer in applied population genetics of aquatic species |
| FIS/2006/126 (Multilateral, proposed) | Developing pond aquaculture for sandfish in Asia–Pacific (WorldFish) |
| FIS/2006/141 | Increasing uptake of aquaculture nutrition research in Vietnam |
| FIS/2006/144 | Strengthening mechanisms to maximise benefits to small-holder shrimp farmer groups adopting better management practices (BMPs) |
| LPS/2002/078 | Improved beef production in central Vietnam |
| LPS/2002/079 | Utilisation of local ingredients in commercial feeds for pigs |
| LPS/2004/073 | Capacity building on cattle production at Dong Giang district in Quang Nam Province |
| LPS/2005/063 (Multilateral) | Improving the competitiveness of pig producers in an adjusting Vietnam market |
| LPS/2006/069 (proposed) | Development of smallholder cattle production in the south-eastern region of Vietnam |

Sub-program 2: Optimising water and soil management for sustainable production, particularly on degraded lands

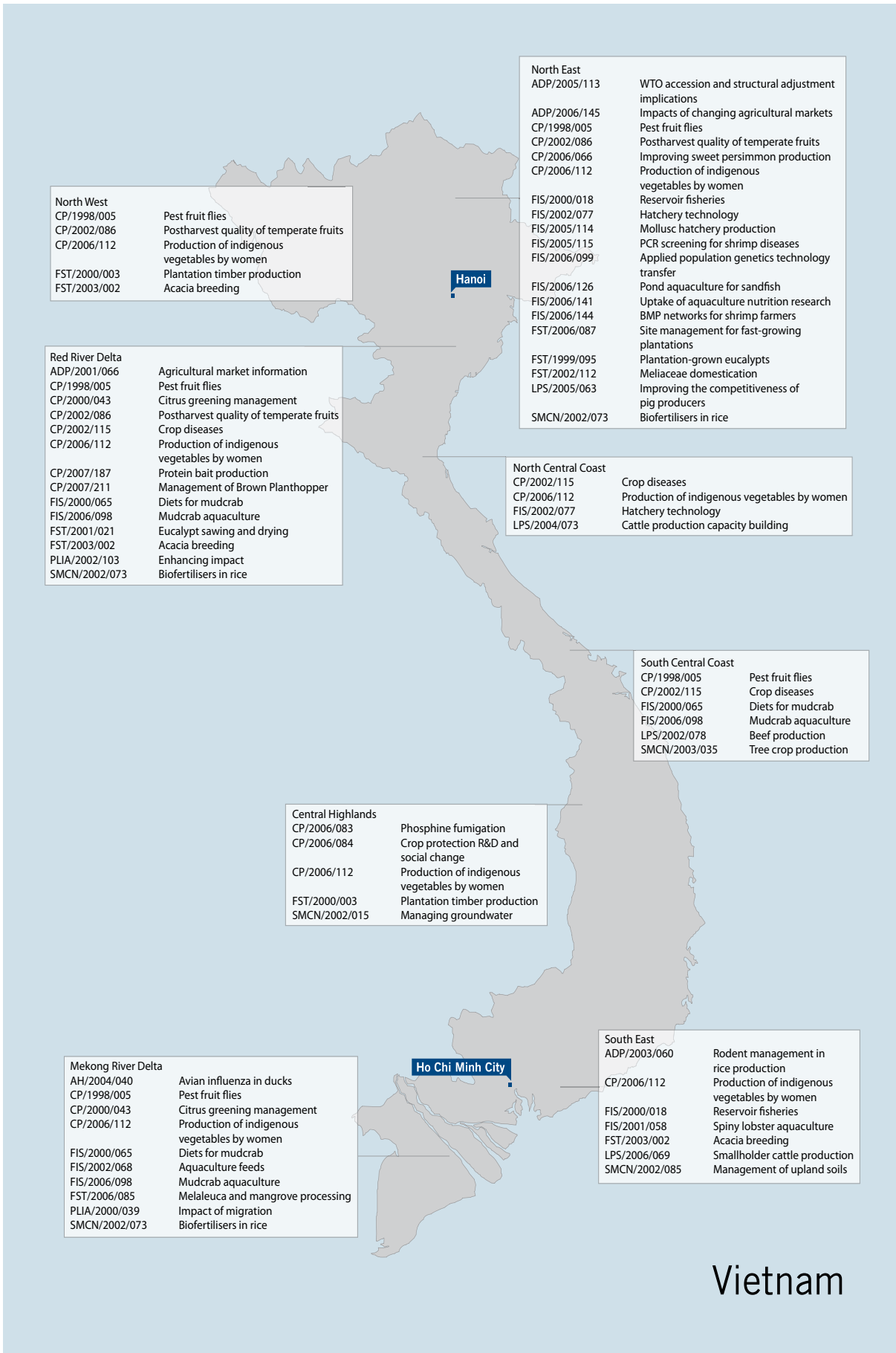
| | |
|--------------|--|
| FST/1999/095 | Improving the value chain for plantation-grown eucalypt sawn wood in China, Vietnam and Australia: genetics and silviculture |
| FST/2000/003 | Mixed species plantations of high-value trees for timber production and enhanced community services in Vietnam and Australia |
| FST/2001/021 | Improving the value chain for plantation-grown eucalypt sawn wood in China, Vietnam and Australia: sawing and drying |

| | |
|-----------------------------|--|
| FST/2002/112 | Domestication of <i>Meliaceae</i> species in South-East Asia and Australia, particularly management of the problem of <i>Hypsipyla robusta</i> attack |
| FST/2003/002 | Development and evaluation of sterile triploids and organisation breeding methodologies for commercial species of <i>Acacia</i> in Vietnam, South Africa and Australia |
| FST/2006/087 (proposed) | Improved site management for fast-growing plantations in Vietnam |
| SMCN/2002/015 | Managing groundwater access in Tay Nguyen (Central Highlands) Vietnam |
| SMCN/2002/085 | Utilising basic soil data for the sustainable management of upland soils in Vietnam and Australia |
| SMCN/2003/035 (proposed) | Improving the utilisation of water and soil resources for tree crop production in coastal areas of Vietnam and New South Wales |



An enormous variety of fruits and vegetables available at road side markets

Active projects in Vietnam



Vietnam

Philippines

| | | | |
|------------------------------|--------------------|---|----------|
| GNI per capita (\$US) | 1,300 | Bilateral actual 2005–06 | \$2.58 m |
| Population | 81.6 million | Bilateral estimate 2006–07* | \$2.94 m |
| Population 2015/2050 | 96.8/127.1 million | Bilateral budget 2007–08* | \$3.49 m |
| Active bilateral projects | 16 | Bilateral + multilateral budget 2007–08 | \$4.25 m |
| Active multilateral projects | 3 | | |

*Includes AusAID funding of \$0.32 m (estimate 2006–07) and \$0.39 m (budget 2007–08)

Country Manager
 Ms Cecilia Homado,
 ACIAR Country Manager, Philippines



Tree seedling production at a nursery in Lantapan, Philippines

Key program managers

Dr Caroline Lemerle, Agricultural Systems Economics and Management

Mr Barney Smith, Fisheries

Mr Les Baxter, Horticulture

Dr Gamini Keerthisinghe, Soil Management and Crop Nutrition

Dr Jeff Davis, Policy Linkages and Impact Assessment

Key performance indicators (2007–08)

- Strategy for future investment in community-based resource management/agribusiness programs developed and implemented
- At least two major vegetable supply chains analysed and improvements identified and communicated
- New project investments aiming to increase income generation from aquaculture designed and implemented
- Scoping study on critical policy/regulatory constraints to technology adoption completed and published
- 40% of new projects to have significant farmer or policymaker impacts within five years of completion

Medium-term strategy

The main aim of ACIAR cooperation is to assist the Philippines to increase the productivity, marketability and international competitiveness for Philippine agricultural products, taking into account the impacts of trade liberalisation. Underlying competitiveness drives the need to improve agricultural productivity to raise rural incomes through more effective extension of research results and responding to market opportunities with higher quality commodities produced at a competitive cost. Specific opportunities may come through research for development and marketing of products from aquaculture, horticulture,

forestry and livestock enterprises and farmer-driven improvements in agricultural systems.

A significant proportion of Philippines farming is carried out in fragile sloping environments or sensitive watersheds, and it is important that intensification of agricultural productivity does not come at the expense of degradation. Efficient use of water will assume increased importance. ACIAR's Philippines program will increasingly emphasise involvement of local partners such as local government units, non-government organisations (NGOs) and farmer community groups in projects, in order to increase prospects for sustainable adoption of the results of research. It will also promote projects that implement the results of earlier ACIAR-supported research in the Philippines. Linkages of regionally based delivery organisations with research organisations and policymakers based centrally in Manila and Los Baños will be fostered. There will be greater emphasis on the southern Philippines, within a limited number of focal provinces in Regions X and XI (Mindanao) and Regions VI, VII and VIII (Visayas).

Position

ACIAR's program in the Philippines has been active since 1983. Initially the program had several projects dedicated to research on soil management issues: nutrient management, erosion control, rice cropping systems, biological nitrogen fixation and tree establishment on degraded land. Research on postharvest storage of grain and giant clam culture was also important. During the 1990s research cooperation shifted towards livestock management and biotechnology. A shift in project location, to emphasise the poorer areas of

Mindanao and the Visayas, but maintaining strong links to research and development expertise in Manila and Los Baños, will continue.

Improving uptake of research in the Philippines is a major priority and, in collaboration with Philippines partners, ACIAR has increased its emphasis on better understanding extension processes and involving farmer and community groups in projects. In recent times there has been encouraging success with the adaptation of the Landcare approach in Mindanao, management of catchments in the Visayas island of Bohol and in the uptake of methods for successful tree establishment on degraded lands. New research projects should be underpinned by design processes that involve the end-users of the research and address their needs. Project design should also accommodate the additional challenges that have arisen from the devolution of the management and governance of extension responsibilities to local government units, and the comparatively weak research–extension linkages that often currently exist.

With the main aim of ACIAR cooperation being to assist the Philippines to increase the marketability, international competitiveness and market access for Philippine agricultural products, ACIAR and AusAID have initiated some jointly funded activities—some in the areas of postharvest technology, disinfestation and pest management in fruits such as mango, others in scaling out of the Landcare approach to farmer-driven natural resource management. During 2006 a new initiative, Community Agricultural Technology Program (CATP), to link ACIAR-generated technologies and Philippines research providers with non-government and community-based organisations commenced.

One major international agricultural research organisation, the International Rice Research Institute (IRRI), is headquartered in Los Baños, Philippines. ACIAR provides core funding to IRRI and also supports additional initiatives aimed at maintaining rice productivity. The regional office of the International Network for the Improvement of Banana and Plantain (INIBAP), a network of the International Plant Genetic Resources Institute (IPGRI), is also headquartered in the Philippines.

Relationship to the Australia–Philippines Development Assistance Strategy 2007–11

Australia's objective under the new Australia–Philippines Development Assistance Strategy (2007–11) is to 'make a contribution to improving the prospects for economic growth, poverty reduction and national stability in the Philippines'. The program will focus on three pillars: economic growth, basic education and national stability and human security.

ACIAR will contribute to the strategy particularly through the first (and largest) pillar, which includes engagement with the Philippine Government on policy issues and supporting

'local economic development in poor areas so that the rural population shares in the benefits of a stronger national economy'. Linkages between the biophysical, economic and market development research support by ACIAR will be made with the new AusAID Rural and Private Sector Development Program, as well as between ACIAR projects and the AusAID funded Philippines–Australia Community Assistance Program.

Thematic priorities

ACIAR has a program of consultations with key partner countries on a four-year rolling basis to establish priorities for research collaboration. The most recent such consultation with the Philippines was held in March 2006; a record of the consultation is available on our website, www.aciar.gov.au under Partner country priorities/Philippines.

Most ACIAR-supported informal and postgraduate research degree training will remain within the context of active projects. However, ACIAR will also support short-training courses that strengthen capacity to apply results of research to fit the needs of farmers and policymakers. Training will comprise the following courses: economics and social science for biophysical scientists; participatory agricultural research/extension; project evaluation and impact assessment; research business management and commercialisation; information and communication technology for R&D; training in supply chain management. Agreed priorities for collaborative research and development programs are listed under thematic areas:

Subprogram 1: Increasing the market competitiveness of Philippines agricultural products

A: Better systems and policies for meeting market specifications

- Identification of farmer incentives for adoption of grains and horticultural postharvest systems improvements
- Facilitation of uptake of postharvest technologies for durable commodities
- Development of new quality management and food safety standards and systems for horticultural products, including organic products
- Economic analysis of marketing chains and channels for perishables, including determination of consumer preferences
- Improving alliances between fruit and vegetable suppliers, processors, institutional buyers and marketers
- Analysis of best practices for financial service schemes for small farmers

B: Higher returns from horticultural products

- Protected cropping technologies and reduction of inputs for production of crucifers, salad vegetables and strawberry

- Nutrient and pesticide management, particularly fertigation systems, to save costs and reduce residues in vegetables and fruit
- Selection and clonal propagation of new quality mango strains and control of major pests and diseases (fruit fly, pulp weevil and anthracnose)
- Shelf life extension, product development, packaging, quality and sanitary and phytosanitary standards for markets for crucifers and salad vegetables, jackfruit, mango and new tropical fruit crops
- Management of bacterial wilt and other soil-borne diseases in solanaceous and crucifer vegetables
- More efficient production systems for disease-free seed potato (Mindanao)
- Collection and evaluation of germplasm and development of cultural packages for jackfruit, new tropical fruit crops and native vegetables (Visayas)
- Application of control methods for phytophthora in durian and diamondback moth in Brassicas (Mindanao)
- Improvements to postharvest shelf life and handling of salad and semi-temperate vegetables and strawberry (Mindanao)
- Integration of vegetable production into agroforestry systems (Luzon)

C: Competitive and sustainable aquaculture production

- Mariculture-based strategies to provide livelihoods and enhance locally managed fisheries with an initial emphasis on sea cucumbers
- Assessment of the impacts of mariculture on community livelihoods of small fishers
- Review of opportunities and constraints in the supply chain for key aquaculture products, particularly grouper and mud crab
- Management of Viral Nervous Necrosis of marine finfish
- Integrated use and management of on-farm ponds and small water impoundments for freshwater fish production
- Opportunities for application of the results from ACIAR aquaculture projects in other countries to the Philippines

Current projects

(Possible new projects commencing in 2007–08 shown as 'proposed')

Subprogram 1: Increasing the market competitiveness of Philippines agricultural products

A: Better systems and policies for meeting market specifications

| | |
|--------------------------------|--|
| ASEM/2003/009 | Bridging the gap between seasonal climate forecasts and decision-makers in agriculture |
| ASEM/2003/053 (proposed) | Linking smallholder vegetable producers in the Philippines to urban markets |
| ASEM/2006/091 (proposed) | Enhancing tree seedling supply via economic and policy changes in the Philippines nursery sector |
| CIM/2006/176 (Multilateral) | Developing molecular markers to enable selection against chalk in rice |

Subprogram 2: Farmer-based land and water resource management for profitable and sustainable agriculture

- Catchment-scale adaptation of Landcare-type activities for soil and water conservation and improved incomes
- Water resource management (including groundwater and water harvesting) for high-value vegetable and fruit crops
- Valuation and financing mechanisms for environmental services in watersheds for soil and water conservation
- Integrated nutrient management for low-input farming systems
- Utilisation of urban waste and treated wastewater for peri-urban agriculture
- Market identification and utilisation of industrial trees and fast-growing agroforestry species
- Propagation systems for indigenous trees for soil and water conservation

Subprogram 3: Addressing regulatory, policy and technical constraints to the adoption of research outputs

- Development of simple replicable financial/business models for agribusiness development of small farms
- Application of better extension models for packaging earlier research results (e.g. on livestock production and health, horticulture, aquaculture and agroforestry)
- Identifying and addressing local and national policy constraints to adoption of research, including:
 - land use, land tenure, taxation and transportation policies
 - sanitary and phytosanitary standards
 - intellectual property rights
- Policy constraints to agroforestry development on small farms
- Policy constraints to the control and management of illegal, unregulated and unreported (IUU) fishing

B: Higher returns from horticultural products

| | |
|--------------------------|---|
| ASEM/2003/053 (proposed) | Linking smallholder vegetable producers in the Philippines to urban markets |
| HORT/2001/049 | Development of PRSP-V resistant papaya genotypes by introgression of genes from wild <i>Carica</i> species |
| HORT/2003/071 | Integrated pest management and supply chain improvement for mangoes in the Philippines and Australia |
| HORT/2005/071 (proposed) | Integrated crop management for the control of bacterial wilt in potatoes in Mindanao and Australia |
| 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/2006/093 (proposed) | Development of a protected cropping system to enhance year-round production of high quality vegetables and strawberries in the Philippines |
| HORT/2006/110 (proposed) | Development of Integrated Pest Management (IPM) for the control of Phytophthora in Durian and Jackfruit in the Philippines |
| HORT/2006/111 | Horticulture export produce food safety and quality assurance in the Philippines—scoping study |
| HORT/2007/210 | Detection surveys for mango seed and pulp weevils in Sarangani and Davao del Sur, Mindanao, Philippines |

C: Competitive and sustainable aquaculture production

| | |
|-----------------------------|---|
| FIS/2003/033 | Integrated fisheries resource management (Rinconada Lakes, Philippines and New South Wales, Australia) |
| FIS/2003/059 (Multilateral) | Sea ranching and restocking sandfish in Asia-Pacific (WorldFish) |
| FIS/2006/143 (proposed) | Application of aquaculture technologies in the Philippines |
| FIS/2007/045 | Evaluation of production technology, product quality and market potential for the development of bivalve mollusc aquaculture in the Philippines |

Subprogram 2: Farmer-based land and water resource management for profitable and sustainable agriculture

| | |
|---------------|---|
| ASEM/2006/059 | Community agricultural technology program: phase 2 |
| SMCN/2003/006 | Enhancing agricultural production in the Philippines by sustainable use of shallow groundwater |
| SMCN/2003/011 | Herbicide use strategies and weed management options in Philippines and Australian cropping |
| SMCN/2004/069 | Minimising agricultural pollution to enhance water quality in Laguna de Bay (Philippines) and Mt Lofty Ranges (Australia) |
| SMCN/2004/078 | Evaluation and adoption of improved farming practices on soil and water resources, Bohol Island, the Philippines |

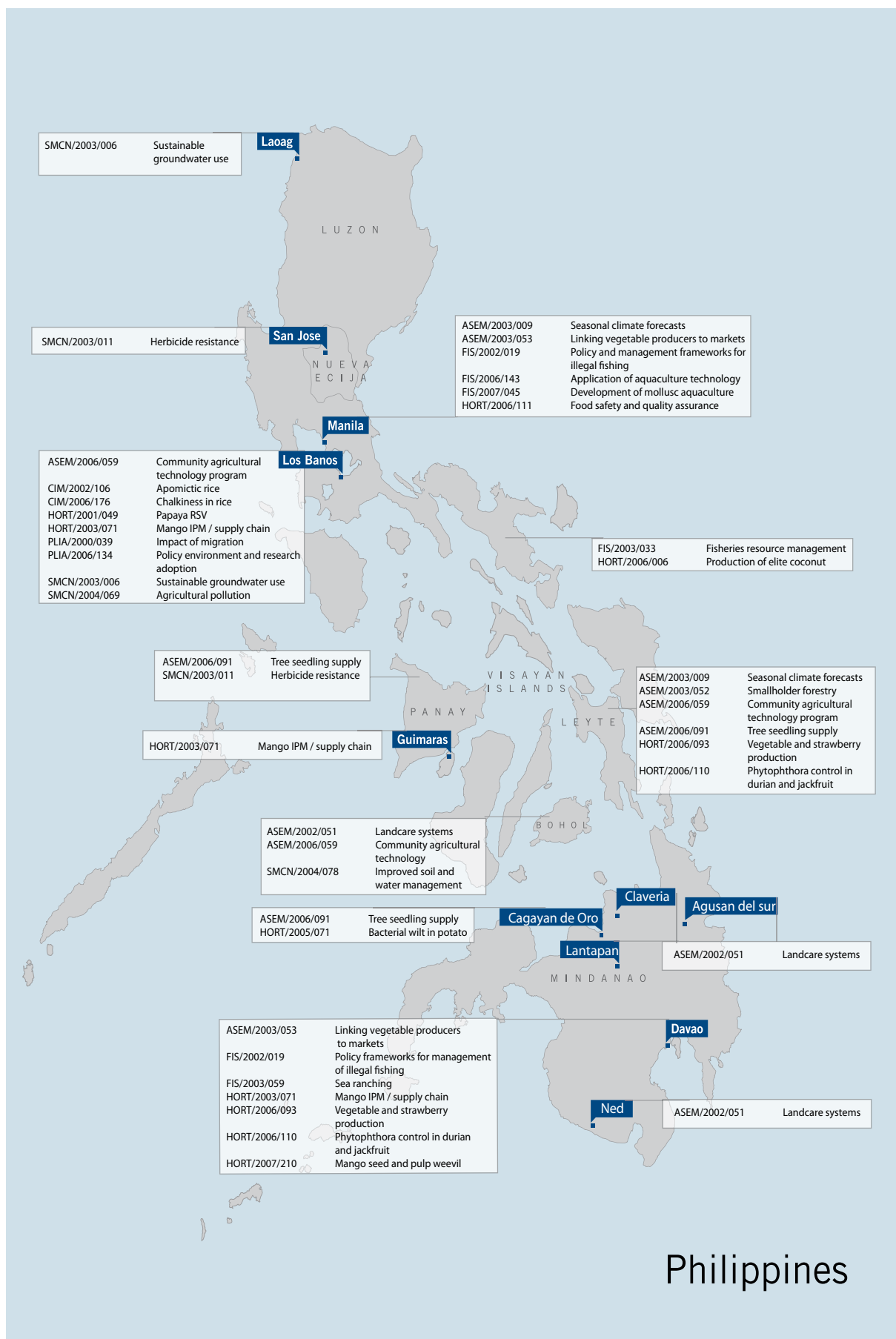
Subprogram 3: Addressing regulatory, policy and technical constraints to the adoption of research outputs

| | |
|------------------------------|--|
| ASEM/2002/051 | Sustaining and growing Landcare systems in the Philippines and Australia |
| ASEM/2003/052 | Improved financial returns to smallholder tree farmers in the Philippines |
| FIS/2002/019 | Management and policy frameworks for illegal, unreported and unregulated (IUU) fishing in Indonesian and Philippine waters |
| PLIA/2000/039 (Multilateral) | Impact of migration and/or off-farm employment on roles of women and appropriate technologies in Asian and Australian mixed farming systems (IRRI) |
| PLIA/2006/134 (proposed) | Policy environment and adoption of research case study from scoping study—Philippines |

Other

| | |
|-----------------------------|--|
| CIM/2002/106 (Multilateral) | Fertilisation-independent formation of embryo, endosperm and pericarp for apomictic hybrid rice (IRRI) |
|-----------------------------|--|

Active projects in the Philippines



Philippines

East Timor

Key program managers

Dr Peter Rolfe, Animal Health
 Dr Paul Fox, Crop Improvement and Management
 Dr Jon Tanner, Livestock Production Systems

| | | | |
|------------------------------|-----------------|-----------------------------|----------|
| GNI per capita (\$US) | 750 | Bilateral actual 2005–06 | \$1.87 m |
| Population | 0.9 million | Bilateral estimate 2006–07* | \$1.86 m |
| Population 2015/2050 | 1.5/3.3 million | Bilateral budget 2007–08* | \$2.07 m |
| Active bilateral projects | 4 | Bilateral + multilateral | |
| Active multilateral projects | 0 | budget 2007–08* | \$2.07 m |

*Includes AusAID co-investment of \$1.28 m (estimate 2006–07) and \$1.57 m (budget 2007–08) in 'Seeds of Life 2' project



Locally produced peanuts and fruit at a roadside stall near Baucau

Key performance indicators (2007–08)

- On-going success in the implementation of jointly funded ACIAR–AusAID 'Seeds of Life 2' program in close partnership with Ministry of Agriculture, Forestry and Fisheries
- At least four demand-driven small projects commissioned to leading agricultural researchers

Medium-term strategy

ACIAR has a program in East Timor focused on food security, poverty reduction, and capacity building. These are immediate needs for East Timor to support recovery from the trauma of the 1999 independence struggle and the development of a new nation. The focus is on applied assistance as R&D capacity and infrastructure are being developed. The outcomes from the initial projects on introduction and evaluation of higher-yielding staple crops and on rehabilitation of the University agriculture faculty will provide a base for further development efforts supported by Australia (ACIAR and AusAID) and other donors and aligned with the Sector Investment Programs of the East Timor Government.

Position

Agriculture provides livelihoods for more than 80% of East Timorese. The similarities of East Timorese and northern Australian environments offer Australia a comparative advantage in applying its research, development and extension skills to assist this new country. ACIAR began collaboration with East Timorese institutions in 2000. Current projects aim to help achieve food security, reduce poverty and build local agricultural research capacity. Two ACIAR projects commenced in early 2001:

- The Seeds of Life project which aims to improve crop production through introduction, testing and

distribution of planting material of major staple crops that are better adapted to Timorese conditions and;

- The rehabilitation of the agriculture faculty at the National University of East Timor.

The first phase of the Seeds of Life project has now concluded. A number of improved varieties of staple food crops have been identified in field trials in a variety of lowland and highland settings around East Timor. Suitable varieties of sweet potato, maize, rice, peanut and cassava have been identified. Many of these have been tested or are in the process of being tested in farmer participatory research. Some varieties appear well adapted to local conditions, have tolerance or resistance to pests and diseases and have demonstrated a sufficient level of tolerance to drought and soil stresses.

A major successor program, 'Seeds of Life 2' is being co-funded by AusAID and ACIAR and delivered in close partnership with the East Timor Ministry of Agriculture, Forestry and Fisheries (MAFF). The program, which has a budget of almost \$8 m over five years, commenced in late 2005. It is expected to continue the introduction and evaluation of improved crop varieties while devoting more resources to seed production, the identification of improved crop management techniques, farmer participatory extension of identified cropping improvements, and the training of MAFF and other staff in seed production as well as crop research and extension. Five international CGIAR centres will continue to supply crop materials and expertise, while NGOs will be involved in the extension where possible. By project end, it is expected that many East Timorese farmers will have adopted improved varieties and cropping technologies, and that the MAFF will be able to manage field crop research and development activities with its own resources.

Rehabilitation of the Agriculture Faculty at the National University of East Timor has been important in providing facilities for applied agricultural research, and in training East Timorese in agriculture. The project team has developed a new agriculture curriculum that aims to equip students to identify and solve problems in a farming systems context. Laboratory facilities at the Hera Field Station have been restored to provide practical sessions for science and agriculture students. This facility is the only working agricultural laboratory in East Timor, and a number of foreign donors are also using the laboratory in their project activities.

New projects on Siam weed control and cassava production commenced in 2004–05 and in early 2006 a small R&D projects funding and management facility was established to support focused activities addressing high priorities in agriculture.

Relationship to the Australia – East Timor Development strategy

The overarching goal of the Australia – East Timor Development Assistance Strategy 2007–11 is to assist in the building of a stable and prosperous East Timor. The strategy focuses on three areas of Australian support: building a functioning and effective state, strengthening economic development and management, and improving the delivery of basic services. There is a specific intent to increase the impact of the program in rural areas. ACIAR's program in East Timor focuses on the third aspect of this strategy (with AusAID co-funding the largest project in the ACIAR portfolio, Seeds of Life 2): supporting rural livelihoods and food security. The focus on building the capacity of the Ministry of Agriculture, Forestry and Fisheries and the University of Timor Lorosae contributes to both this objective and the second objective (economic development

and management), particularly in terms of capacity building to deliver tertiary education and agricultural extension and research service delivery. In line with the overall Australia – East Timor Development Strategy, ACIAR's program has a strong emphasis on providing both formal and informal training opportunities for East Timorese researchers and extensionists.

Indicative priorities

Priorities for collaboration are determined through discussions, interactions and visits between scientists and research managers from East Timor, ACIAR and Australian research institutions. ACIAR and AusAID also sponsored an international conference in East Timor in October 2002, which discussed priorities for collaboration in cropping, livestock, fisheries and forestry. We will address a small number of priorities within this framework, and partner capacity will be crucial in determining future collaboration. While the program will remain small, further assistance may be considered in special areas of need, particularly addressing food security, resource protection and capacity development.

The program will continue to emphasise applied research and the development of local capacity for applied research and development to underpin the reduction of food insecurity. Possible new areas for collaboration to be developed in 2007–08 may include:

- addressing constraints on production and the analysis and improvement of market chains for major commodities
- development of feed resource and reproductive management strategies for cattle and goats
- land capacity assessment and mapping to reduce risk in cropping and grazing
- integrated control of weeds affecting food crop production and grazing.

Current project portfolio

| | |
|--------------|---|
| CIM/2003/014 | Seeds of Life 2 |
| CIM/2003/066 | Enhancing the adoption of improved cassava production and utilisation systems in Indonesia and East Timor |
| LPS/2003/004 | Building agricultural knowledge and R&D capacity in Timor Leste: a small projects facility |
| LPS/2003/028 | Biological control of two major weeds affecting crop and livestock production in East Timor |



East Timorese children helping the Seeds of Life team at Betano

Cambodia

| | | | |
|------------------------------|-----------------|-----------------------------|----------|
| GNI per capita (\$US) | 380 | Bilateral actual 2005–06 | \$1.44 m |
| Population | 13.8 million | Bilateral estimate 2006–07* | \$1.51 m |
| Population 2015/2050 | 17.1/26 million | Bilateral budget 2007–08* | \$1.64 m |
| Active bilateral projects | 8 | Bilateral + multilateral | |
| Active multilateral projects | 0 | budget 2007–08 | \$1.64 m |

*Includes AusAID funding of \$0.2 m (estimate 2006–07)

Country Manager
Ms Chiraporn Sunpakit, ACIAR Regional
Manager Cambodia, Lao PDR, Thailand and
Burma



Planting rice seedlings in Cambodia

Key program managers

Dr Caroline Lemerle, Agricultural Systems Economics and Management

Dr Peter Rolfe, Animal Health

Dr Paul Fox, Crop Improvement and Management

Mr Les Baxter, Horticulture

Key performance indicators for 2007–08

- Linkages developed between Cambodian research and extension organisations in ACIAR projects and the new AusAID Cambodian Agriculture Value Chain Program, and strategies for the institutionalisation and continuation of CARF assessed
- Field crop diversification fostered through commencement of trials on suitability of maize and legumes following rice in lowland farming systems and characterisation of marketing systems for these products. Processes that improve profitability for Cambodian farmers and traders assessed and modified
- Contribution to better vegetable production systems in Cambodia through evidence of farmer adoption of improved tomato and chilli varieties
- Initial analysis of transboundary livestock disease threats completed
- 40% of new projects designed to have significant farmer or policymaker impacts within five years of completion

Medium-term strategy

ACIAR's strategy in Cambodia has two thrusts: firstly to support applied research that underpins agricultural diversification, particularly into non-rice field and horticultural crops and into ruminant livestock, and

secondly to support research that aims to increase and secure the productivity of rice-based farming systems. As markets develop in Cambodia, ACIAR will place greater emphasis on research to underpin the development of suitable supply chains.

Maintaining and increasing rice yields remains critical to improving food security and incomes in Cambodia. Rice security and income from rice enable farmers to invest in higher-value activities such as vegetables, fisheries or livestock. Increasing rice yields can reduce the area under rice cultivation, making more farm land available for higher-value agricultural activities. The ACIAR program has a strong emphasis on building Cambodian research capacity and encourages the development of collaborative linkages between Cambodian organisations.

Position

The Cambodian agricultural production environment is, in general, much more harsh than the fertile lowlands of other South–East Asian countries. Soils are generally poor, and most of the agriculture (three quarters) is rain-fed. The predominance of rice-based farming systems on infertile soils means that Cambodia has rather low agricultural productivity on both a labour and land area basis. Many farmers are able to produce only a single crop per year, and this brings the combined problems of low productivity, volatile yields and strong seasonality. These factors have contributed to poor market linkages with lack of investment in plantations and in contract farming and other arrangements. Average rice yields are only just over 2T per ha (in comparison with a national average of 5T per ha for

Vietnam). The overwhelming driver for most Cambodian smallholder farmers is to secure their household food production (which essentially means rice security) to avoid annual hungry periods. Before diversification strategies can be investigated and implemented such security is critical. For this reason, the ACIAR research program has pursued the twin objectives of assisting with rice security (managing constraints and threats to rice production) as well as supporting research to foster agricultural diversification. Agriculture accounts for about 30–40% of the Cambodian GDP—only 3% of exports but 70% of employment. There is significant year-to-year variation in production, highlighting the dependence of Cambodian farming on rain-fed systems.

The suite of current, proposed and completed projects is targeted at research to improve rice productivity, assessing land suitability for a second rice crop, and developing options for the production and marketing of non-rice crops. This includes production and marketing systems for other field crops such as maize and legumes in upland and lowland situations, and of production and marketing options for vegetables in areas with good access to markets. Cambodia's low population density, particularly in the uplands, should provide potential for increasing ruminant livestock production. Challenges remain in the supply of low cost animal feed and maintaining product quality. Smallholder livestock are important in the Cambodian agricultural economy, and ACIAR will support research to assist in the control of trans-boundary diseases and production, particularly of ruminants.

ACIAR will also provide additional funding for two further Cambodian Agricultural Research Fund (CARF) project rounds commencing in 2007. CARF was established in 2002 with AusAID and ACIAR funding to provide Cambodian scientists with an opportunity to identify priorities, design demand-driven agricultural research projects, compete for agricultural research funds and to lead the selected projects. Since 2002 over 40 projects, involving the Cambodian Agricultural R&D Institute (CARDI), Ministries, Universities and non-government organisations have been funded. Over the last few years, ACIAR has diversified its R&D provider base in Cambodia. CARDI is expected to continue to be a key research provider in the rice-based farming systems area. However, other partners are important in horticulture, livestock and economics, and in seeking community impacts from research.

Considerable progress has been made in developing the scientific expertise of a number of Australian-trained Cambodian researchers who are poised to contribute significantly to the development of Cambodian agriculture. ACIAR will also maintain an emphasis on short-course training in areas such as R&D priority-setting and management, enhancing research–extension linkages, scientific proposal and report writing in English, and experimental design and analysis. This will also include

training and technical assistance with the production of the Cambodian Journal of Agriculture.

Australia took a major role in assisting Cambodia on its path to democracy in the early 1990s and, in doing so, pledged to provide significant development assistance over the medium term. A new \$45m, five-year AusAID-funded Cambodia Agriculture Value Chain Program should commence in 2007/08, and ACIAR will endeavour to link several of its research projects to this program. Several other donor programs in Cambodia have an agricultural and rural development focus. Also, a National Agriculture and Water Strategy was recently developed, with donor input (www.twgaw.org). Where possible, linkages with other donor programs will be established by ACIAR.

Relationship to the AusAID Cambodia strategy

The Australia–Cambodia Development Cooperation strategy emphasises poverty reduction and sustainable development in Cambodia through three objectives: increasing productivity and incomes of the rural poor, improving health service delivery, and strengthening the rule of law.

The ACIAR program, through its two emphases (underpinning agricultural diversification, and supporting research that aims to increase the productivity of rice-based farming systems), directly supports the four thrusts of the first objective of AusAID's program, namely improved farming techniques, product processing, access to market information and addressing market policy constraints.

Indicative priorities

Priorities for ACIAR–Cambodia cooperation are established through meetings between ACIAR research program managers and executive staff and Cambodian agricultural R&D institutions, government departments and other organisations active in rural development in Cambodia. Priority development was also facilitated through the July 2006 visit by the ACIAR Board of Management to Cambodia.

New projects will be considered in the areas of field crop improvement and management, horticulture, animal health and production, and agricultural systems economics and management. Projects should fall under the following thematic programs:

Subprogram 1: Securing productivity of rice-based farming systems

- Improving the productivity of rain-fed and irrigated rice-based farming systems through better agronomy and management of pests and diseases
- Development of suitable rotations involving legumes and other crops

Subprogram 2: Income generation and better nutrition through agricultural diversification

- System and technology improvement to support crop diversification (economic analysis of non-rice crops, soil management, assessment of land suitability for different crops)
- Improving the efficiency of production, postharvest and marketing systems for fruits and vegetables
- Improving ruminant livestock health and production of ruminants
- Support for research and extension in other areas of agricultural diversification through the Cambodian Agricultural Research Fund

Current project portfolio

(Possible new projects commencing in 2007–08 shown as 'proposed')

Subprogram 1: Securing productivity of rice-based farming systems

| | |
|----------------------------|--|
| ASEM/2003/007 | CARF—Cambodian Agricultural Research Fund |
| CIM/2003/030 | Improving understanding and management of rice pathogens in Cambodia |
| CIM/2006/040 (proposed) | Crop diversification in lowland rice cropping areas in Cambodia |
| CIM/2007/027 | Development of conservation farming implements for two-wheeler tractors (power tillers) in Cambodia and Laos |

Subprogram 2: Income generation and better nutrition through agricultural diversification

| | |
|-----------------------------|--|
| AH/2002/099 | Development of a model for the control of fasciolosis in cattle and buffaloes in the Kingdom of Cambodia |
| AH/2003/008 (proposed) | Improved feeding systems for more efficient beef and draught cattle production in Cambodia |
| AH/2005/086 (proposed) | Best practice control of diseases in cattle, Cambodia |
| AH/2006/025 (proposed) | Improved risk assessment for transboundary disease in Laos and Cambodia |
| ASEM/2000/109 | Farming systems research for crop diversification in Cambodia and Australia |
| ASEM/2003/007 | CARF—Cambodian Agricultural Research Fund |
| ASEM/2003/012 | Improving the marketing system for maize and soybeans in Cambodia |
| ASEM/2006/130 (proposed) | Enhancing adoption of new farming systems in Cambodia and Australia |
| 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 |
| HORT/2006/107 (proposed) | Improved postharvest handling of vegetables in Cambodia |



Improved feeding systems for intensive aquaculture production has increased smallholder farmer incomes

Active projects in Cambodia



Lao PDR

| | | | |
|------------------------------|------------------|----------------------------|----------|
| GNI per capita (\$US) | 440 | Bilateral actual 2005–06 | \$0.77 m |
| Population | 5.8 million | Bilateral estimate 2006–07 | \$1.08 m |
| Population 2015/2050 | 7.3/11.6 million | Bilateral budget 2007–08 | \$1.41 m |
| Active bilateral projects | 11 | Bilateral + multilateral | |
| Active multilateral projects | 1 | budget 2007–08 | \$1.52 m |

Key program managers

Dr Caroline Lemerle, Agricultural Systems Economics and Management
Dr Peter Rolfe, Animal Health
Dr Paul Fox, Crop Improvement and Management
Mr Barney Smith, Fisheries
Dr Russell Haines, Forestry

Country Manager

Ms Chiraporn Sunpakit, ACIAR Regional Manager Cambodia, Lao PDR, Thailand and Burma



Small-holder farmers sell their produce at street markets

Key performance indicators (2007–08)

- New forestry program in Laos implemented, addressing value-addition through processing and improved agroforestry systems
- Validation of community extension processes in two provinces of northern Laos
- Options for optimising animal health vaccine delivery in Laos identified
- Major project on diversification of lowland rice-based cropping systems implemented in three provinces

Medium-term strategy

ACIAR's growing program in Laos emphasises crop, livestock, fisheries and forestry research to develop viable alternatives to shifting cultivation in the uplands through better crop and forest production and livestock health and production. It also has a focus on agricultural diversification to improve productivity of lowland farming systems. There is also a strong emphasis on assisting in capacity development for the research and extension systems. Where appropriate, research interventions are designed to complement larger donor programs on improving rice production, forestry and animal health and production.

Position

Distinguishing features of this landlocked country are low population density, high ethnic diversity, poor infrastructure, and geographical dispersion of people. Agriculture employs over 80% of the population and forms 53% of GDP, but at least one-third of the population remain below the poverty line. There has been a reasonably good economic recovery since 1999 after serious problems in mid to late 1990s

when there was major currency devaluation and triple digit inflation. Part of this was due to the Asian economic crisis which heavily affected the closely linked Thai economy. Major exports are garments, timber and wood products, gold re-exports, hydroelectric power and coffee. Despite overall national self-sufficiency, seasonal rice (and food) shortages occur regularly in many provinces and districts. Food security is still central to agricultural development in Laos. As the Thai economy develops, Laos is starting to exploit opportunities in specialist agricultural products required by Thailand and to utilise the Lao comparative advantage of low labour costs. Some newer ACIAR projects focus specifically on this issue.

Laos has tended to develop two agricultural economies in recent years—the lowland areas along the Mekong River (where, in many parts, access to markets in Thailand has stimulated agricultural development) and the uplands (where many farmers still practice 'slash-and-burn' shifting cultivation). The Lao PDR Government is expanding irrigation in lowland areas and working to find alternatives to slash-and-burn cultivation in the uplands. With increasing population pressures in the uplands, fallow periods have become unsustainably short. In both upland and lowland areas, diversification of production and greater integration of both agricultural systems with markets remain priorities but the areas of comparative advantage, market opportunities and research needs, generally differ. Lowland agriculture is remarkably rice-centric—at the national level; about 2.3 million tonnes of rice is produced compared with 120,000 tonnes of maize and 150,000 tonnes of sweet potato and much smaller amounts of legume crops.

Upland systems are often more diverse than lowland ones but are poorly connected to markets. Some simple approaches can be successful in reducing slash-and-burn agriculture, such as the introduction of better cut-and-carry forage production systems and the introduction of income-generating pond aquaculture and agroforestry in these regions. Forestry provided up to one-third of export revenue in the 1990s, but the government has since moved to limit harvesting of natural forests so income from log extraction has fallen. Laos remains by Asian standards a heavily forested country and long-term conservation of this natural resource is critical. More so than other Asian countries, the harvesting of non-timber forest products for food, fibre and medicine forms an important income and livelihood source for many rural households in Laos.

Smallholder livestock are important in the Lao economy. ACIAR research will assist in the control of infectious disease across and within countries (trans-boundary diseases) in partnership with regional disease control initiatives such as the OIE South-East Asian Foot and Mouth Disease Control Program. Improved risk assessment of disease transmission that occurs with trading and movement of livestock, disease surveillance systems and application of these to disease control programs will be important priorities. Projects may include cooperation with neighbouring countries that are involved in trade. There are opportunities in each country to improve village-based and small-scale commercial enterprises by limiting important constraints, one of which is disease.

Australia is the only country to have maintained unbroken diplomatic representation at the Ambassador level since Lao independence in 1953, and the significance of the unbroken relationship is appreciated at senior levels in Lao PDR. ACIAR has had a program in Laos since 1992, coinciding with the period of expansion of Australia's aid program to the Mekong countries.

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 scientific data analysis and scientific writing in English. In 2006, in collaboration with the National Agricultural and Forestry Research Institute, ACIAR implemented a small grants scheme to enable Lao researchers to develop skills in the design and management of agricultural research projects. In 2007–08 a number of new projects will be implemented as ACIAR expands its Laos program where opportunities for research collaboration with a high likelihood of farmer impact exist.

Relationship to the AusAID Laos strategy

The AusAID program in Laos aims to assist the country to improve the pre-conditions for poverty reduction and sustainable development. It supports 'appropriate recipient government development priorities as well as donor coordination and harmonisation efforts, in order to maximise development impacts...'. Sectorally, the country strategy focuses on building Lao human capital by improving access to education, promoting the growth of the market economy by expanding access to private land titles and strengthening property rights, and reducing the vulnerability of the poor by reducing the impact of natural disasters and unexploded ordnance.

The overall purpose of the ACIAR program (poverty reduction and sustainable development) and strategic approach are similar. It can contribute to reducing the vulnerability of the poor to the impact of natural disasters and unexploded ordnance through enhanced livelihood opportunities. There is also a strong emphasis on assisting the Lao Government's own development priorities in agricultural research for development, and there is a particular effort in Laos to harmonise with other donor programs through supporting underpinning research. ACIAR's work can contribute to the development of the market economy by enhancing the productivity of smallholders who are able to trade some of their increased agricultural and forest product output. The program has a strong emphasis on capacity development and training in agricultural research and extension.

Indicative priorities

Priorities are determined through discussions, interactions and visits between scientists and senior research managers from Lao PDR, ACIAR and Australian institutions, including a visit in July 2006 by the ACIAR Board of Management. Future collaborations will continue to encourage linkages with other donor-funded programs and aim to extend the impact of previous ACIAR-funded projects in the region. In addition, ACIAR will continue to explore opportunities for linking Thai R&D providers and collaborators to ACIAR projects in Laos.

It is envisaged that new projects will be considered in the areas of animal health and production, forestry, fisheries and crop improvement and management to sustain crop diversification and reduce impacts of shifting cultivation. These projects are under the following themes:

Subprogram 1: Alternatives to shifting cultivation in upland regions

- Technical interventions to improve the profitability of low-input household farming systems as an alternative to shifting cultivation
- Enhancing the impact of earlier ACIAR project investments in livestock production and health at the farmer level

- Sustainable smallholder forestry, including through better silvicultural management of timber and non-timber forest species and through value-addition
 - Increasing production from smallholder riverine fisheries and pond aquaculture
 - Analysis of incentives for vaccine use, capacity for delivery and quality of available vaccines for classical swine fever and other diseases of cattle, pigs and poultry
 - Improvements to the policy and regulatory environment for regional disease control
- Subprogram 2: Agricultural diversification to improve productivity of lowland farming systems**
- Improved productivity of irrigated and rain-fed rice-based farming systems and diversification into other crops

Current project portfolio

(Possible new projects commencing in 2007–08 shown as 'proposed')

Subprogram 1: Alternatives to shifting cultivation in upland regions

| | |
|-------------------------------|--|
| ADP/2004/016 | A systems approach to rodent management in upland environments in Lao PDR |
| AH/2004/046 (Multilateral) | Forage legumes for supplementing village pigs in Lao PDR |
| AH/2006/159 (proposed) | Addressing cattle health system constraints in Laos |
| AH/2006/077 | Identifying research priorities for the development of the beef industry in Cambodia and Lao PDR with special reference to animal health interventions |
| AH/2006/097 | Diagnosis and epidemiology of foot and mouth disease in Lao PDR: collation of research results |
| AH/2006/161 (proposed) | Management of pig associated zoonosis in the Lao PDR |
| ASEM/2005/008 | Lao Agricultural Research Fund (pilot) |
| ASEM/2005/124 | Extension approaches to scaling out livestock production in northern Lao PDR |
| ASEM/2006/060 | Lao Agricultural Research Fund (LARF) |
| FIS/2005/078 | Culture-based fisheries development in Lao PDR |
| FIS/2006/183 (proposed) | Development of fish passage criteria for floodplain species of central Laos |
| FST/2002/112 | Domestication of <i>Meliaceae</i> species in South-East Asia and Australia, particularly management of the problem of <i>Hypsipyla robusta</i> attack |
| FST/2004/057 (proposed) | Optimising production of timber and non-timber forest products in Laos agroforestry systems |
| FST/2005/100 | Value-adding to Lao plantation timber products |

Subprogram 2: Agricultural diversification to improve productivity of lowland farming systems

| | |
|----------------------------|--|
| AH/2005/084 (proposed) | Improved supply and quality of livestock vaccines in Laos |
| AH/2006/159 (proposed) | Addressing cattle health system constraints in Laos |
| AH/2006/155 | Vaccine Business Development—Lao PDR |
| ASEM/2006/060 | Lao Agricultural Research Fund (LARF) |
| CIM/2006/041 (proposed) | Increased productivity and profitability of rice-based lowland cropping systems in Lao PDR |
| CIM/2007/027 | Development of conservation farming implements for two-wheeler tractors (power tillers) in Cambodia and Laos |
| FIS/2006/137 (proposed) | Analysis of the Dai and trap fishery in Laos |
| PLIA/2000/165 | Facilitating farmer uptake of ACIAR project results: World Vision collaborative program |

Thailand

| | | | |
|------------------------------|-------------------|----------------------------|----------|
| GNI per capita (\$US) | 2,720 | Bilateral actual 2005–06 | \$0.50 m |
| Population | 63.7 million | Bilateral estimate 2006–07 | \$0.24 m |
| Population 2015/2050 | 69.1/74.6 million | Bilateral budget 2007–08 | \$0.59 m |
| Active bilateral projects | 6 | Bilateral + multilateral | |
| Active multilateral projects | 1 | budget 2007–08 | \$0.62 m |

Key program manager

Dr Peter Rolfe, Animal Health
Dr Paul Fox, Crop Improvement and Management
Dr TK Lim, Crop Protection
Mr Barney Smith, Fisheries

Country Manager

Ms Chiraporn Sunpakit, ACIAR Regional Manager
Cambodia, Lao PDR, Thailand and Burma



Packing peaches

Key performance indicators (2006-07)

- New collaborative project developed with an NGO to enhance adoption of results of earlier ACIAR-funded research
- At least one new project developed on the basis of co-investment from Thai institutes and/or regional agricultural consortia
- New linkages between Thai and Lao partners in two ACIAR projects
- New collaborative biosecurity research program established in conjunction with relevant Thailand and Australian agencies

Medium-term strategy

The key influence in the ACIAR Thailand country program continues to be the transition of Thailand to an emerging economy status. As Thailand's own economic and research capacities have increased, the relationship will be less aid-driven and more of a co-investment partnership involving a wider spread of Australian agencies.

ACIAR's medium-term strategy will focus on three issues: implementation of the results of earlier projects, with relevance to the poorest farming communities; enhanced scientific and policy exchanges on bio-security research and systems implementation; and research to build onto joint endeavours to reduce and eliminate international agricultural protection and subsidisation.

In addressing this strategy ACIAR will work closely with Thailand partners to review joint funding on agreed projects. Opportunities for partnering with Thailand on a regional basis will be explored, particularly with respect to Laos. Active consideration will be given to enhanced private and public sector partnerships (including NGOs) to secure the adoption and implementation of collaborative projects.

Position

ACIAR has had a long-standing and fruitful collaborative research partnership with Thailand. As Thailand's own research capacity is growing and its role is changing from a donor recipient to a regional leader, a joint high-level forum was held in November 2006 (with funding from the Australia–Thailand Institute) to re-examine the broader agricultural research relationship. Eight themes were identified:

- R&D to support common interests in natural resource management and sustainable agriculture
- research to build onto joint endeavours to reduce and eliminate international agricultural protection and subsidisation
- enhanced scientific and policy exchanges on biosecurity research and implementation
- added attention to value-chain research and agribusiness development
- sharing experiences and systems knowledge in the application of biotechnology sciences and regulatory services
- continued engagement on agricultural research capacity building and education
- consideration of bio-energy prospects and scope for improved partnerships in a bilateral or wider context
- collaboration in the dissemination of research outputs, evaluation and assessments.

New areas for ACIAR cooperation in Thailand in 2007/08, based on further discussions, include:

- plant biosecurity, including molecular identification of quarantine pests
- development of fish passage technology
- avian influenza research with an emphasis on improving laboratory facilities, field diagnosis and small farmer management systems

- biosecurity and market development in the livestock sector
- working with poor communities to improve rice production on poor soils in north-east Thailand (NGO collaboration).

ACIAR funding on bilateral projects with Thailand will not change significantly in line with the increasing ability of Thai partners to co-invest in projects of mutual importance. Overall funding will increase moderately to accommodate joint funding of regional and trans-boundary projects with third countries.

Indicative priorities

ACIAR will continue to address the effective implementation of the results from earlier research projects with added attention to the involvement of NGOs. We will selectively focus on the current themes on a basis of co-investment. Bilateral and regional collaboration will be emphasised.

Issues for attention will cover trade policy and farm adjustment research; biosecurity challenges at national and international levels; and application of results from earlier ACIAR projects to benefit poorer farmers, particularly in north and north-eastern Thailand.

Current project portfolio

(Possible new projects commencing in 2007-08 shown as 'proposed'.)

| | |
|------------------------------|--|
| AGB/2002/012 | Technical change in Thai and Indonesian agriculture: measurement and socioeconomic impact and policy implications |
| CIM/2006/041 (proposed) | Crop intensification and yield improvement in lowland rice cropping areas in Lao PDR |
| CIM/2007/215 (proposed) | Improving field crop productivity in north-east Thailand: partnerships for implementation of the results of earlier ACIAR projects |
| CP/2006/170 (proposed) | Plant biosecurity: improved molecular identification tools for Thailand and Australia |
| FIS/2002/075 | Application of PCR for improved shrimp health management in the Asian region |
| FIS/2002/077 | Improved hatchery and grow-out technology for marine finfish in the Asia-Pacific region |
| FIS/2005/078 | Culture-based fisheries development in Lao PDR |
| FIS/2006/144 | Strengthening regional mechanisms to maximise benefits to small-holder shrimp farmer groups adopting better management practices (BMPs) |
| FIS/2006/183 (proposed) | Development of fish passage criteria for floodplain species of central Laos |
| FST/2002/112 | Domestication of Meliaceae species in South-East Asia and Australia, particularly management of the problem of <i>Hypsipyla robusta</i> attack |
| PLIA/2000/039 (Multilateral) | Impact of migration and/or off-farm employment on roles of women and appropriate technologies in Asian and Australian mixed farming systems (IRRI) |



A Thai fish farmer with his covered Udon Thani fish ponds

Burma

| | | | |
|------------------------------|-----------------|----------------------------|----------|
| GNI per capita (\$US) | n/a | Bilateral actual 2005–06 | \$0.21 m |
| Population | 50.5 million | Bilateral estimate 2006–07 | \$0.08 m |
| Population 2015/2050 | 55/63.7 million | Bilateral budget 2007–08 | \$0.0 m |
| Active bilateral projects | 0 | Bilateral + multilateral | |
| Active multilateral projects | 1 | budget 2007–08 | \$0.16 m |

Key program managers

Dr Peter Rolfe, Animal Health
Dr Gamini Keerthisinghe, Soil Management and Crop Nutrition

Country Manager

Ms Chiraporn Sunpakit, ACIAR Regional Manager
Cambodia, Lao PDR, Thailand and Burma



A hen with her chicks feeding on broken rice

Key performance indicator (2007–08)

- Selection and introduction of improved legume varieties and enhanced inoculation techniques suitable for the central dry zone of Burma

Medium-term strategy

ACIAR's strategy in Burma is to develop a small number of multilateral collaborative research projects that can have impact on improving nutrition and food security (either directly, or through enhancing farmers' cash incomes). Particular regard is given to the humanitarian needs of Burma in order to align the ACIAR program with the AusAID humanitarian aid focus in Burma. Projects are based in some similar agro-ecological zones to those in Australia—the central dry zone and tropical lowlands. There is a strong need for training due to the isolation of many of Burma's agricultural scientists from international cooperation over recent years.

Position

After exploratory visits in 2002 to determine the feasibility of collaborative research activities, ACIAR developed a small program with Burma with the first projects commencing in 2003. However, with the current international situation, development of new bilateral projects is on hold. In the interim, there have been limited opportunities for new activities to be pursued through multilateral organisations, and currently there is one ICRISAT-led project on improving productivity of legumes.

Current project portfolio

| | |
|---------------------------------|--|
| SMCN/2006/013 (Multilateral) | Increasing food security and farmer livelihoods through enhanced legume cultivation in the central dry zone of Myanmar (ICRISAT) |
|---------------------------------|--|

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.

Burma has already benefited through FAO from the spill-over of other ACIAR projects in the region, most notably vaccines against Newcastle disease in chickens and improved legume varieties and their inoculation.

Indicative priorities

ACIAR has no formal program of consultations with the government of Burma on priorities. Priorities are developed through visits by research program managers and other senior staff, meeting with leading agricultural R&D institutions and government bodies.

If the current international situation changed to allow an increase in future collaboration, it is likely to be in some of the following areas:

- improving the productivity of pulse (grain legume) and oilseed crops in semi-arid areas; these crops are important for year-round food security and nutrition and provide important cash income for small farmers
- minimisation of preharvest and possibly postharvest losses of rice
- management of serious diseases of smallholder livestock with implications locally and regionally.