




Australian Government
Australian Centre for
International Agricultural Research

ACIAR IN INDONESIA 2019-20





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This report should be attributed as
ACIAR in Indonesia 2019–20

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Cover: A farmer inspects vegetable seedlings in Aceh, Indonesia, where ACIAR supported a project evaluating cropping systems for dryland farming areas to improve productivity and livelihoods. ACIAR project SMCN/2012/103.
Photo: Patrick Cape, ACIAR

ACIAR IN INDONESIA 2019-20

This book is an excerpt of the
ACIAR Annual Operational Plan
2019-20. For the full document
please contact ACIAR or
visit www.aciar.gov.au



ACIAR

About ACIAR

Research that works for developing countries and Australia

200 agricultural
research-for-development projects

35 partner countries
throughout the Indo-Pacific

25 significant partnerships
in multilateral programs and
co-investment alliances

Responsible minister

ACIAR is part of the Australian Government's Foreign Affairs and Trade portfolio, and is accountable to the Minister for Foreign Affairs, Senator the Hon. Marise Payne.

Enabling legislation

ACIAR is established by the *Australian Centre for International Agricultural Research Act 1982*, as amended. Also established under the Act are the Commission for International Agricultural Research, and the Policy Advisory Council.

Governance

ACIAR has an executive management governance structure headed by the Chief Executive Officer.

Vision

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

Mission

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



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Preface



The Australian Centre for International Agricultural Research (ACIAR) is the Australian Government's specialist agricultural research-for-development agency, within the Australian aid program. ACIAR is established by the Australian Centre for International Agricultural Research Act 1982 and is an agency of the Foreign Affairs and Trade portfolio.

Our mission is to achieve more productive and sustainable agricultural systems, for the benefit of developing countries and Australia, through international agricultural research partnerships. We broker, facilitate, invest in and manage strategic partnerships in agricultural research-for-development in the Indo-Pacific region.

Global aggregate food supply has kept up with population growth over recent decades, however the Food and Agricultural Organization (FAO) of the United Nations estimates that the world needs to increase overall food production by around 50% by 2050 to feed the predicted global population of almost 10 billion people. As productivity growth flattens in the major staple crops, this is a big task. Moreover, need is not evenly distributed: Sub-Saharan Africa and South Asia need to more than double food production by 2050, compared with an average of 34% elsewhere.

Food security, however, cannot be considered in isolation from water security, energy security or biosecurity. These 'converging insecurities' are all amplified by climate change, the ultimate risk multiplier.

Another layer of complexity in the regions where we work is the 'triple burden' of nutrition facing many low- and middle-income countries, where acute hunger and malnutrition (including micronutrient deficiencies), co-exist with increasing levels of obesity, and associated diseases such as diabetes and heart disease.

Australia's world-leading agricultural innovation system is a strategic national capability that ACIAR is able to mobilise in international research partnerships to address food insecurity. Tackling shared challenges through agricultural research collaboration is a compelling element of Australian soft power in the Indo-Pacific region. Australia is well equipped to play a leading role within our region and globally, disproportionate to the size of our population or our economy.

Our work is organised across nine research areas: agribusiness, crops, livestock, horticulture, fisheries, forestry, social sciences, soil and land management, and water and climate. The ACIAR 10-Year Strategy 2018-2027 sets out how we intend to work with partners across the Indo-Pacific region to build the knowledge base to underpin six high-level development objectives:

- » food security and poverty reduction
- » natural resources and climate change
- » human health and nutrition
- » gender equity and women's empowerment
- » inclusive value chains
- » durable scientific and policy capability.

The ACIAR Gender Equity Policy and Strategy 2017-2022 informs the design and implementation of our research activities with partners, and our own internal organisation. Many ACIAR projects work towards improving women's access to resources and decision-making, as this is a direct route to reducing poverty and boosting food security at family, community and societal levels. There is increasing evidence, in both the public and private sectors, that organisations drawing equally on the talents of women and men at all levels outperform those that do not. Within ACIAR, the proportion of women in senior roles increased from 11% in 2016 to 63% by July 2019.

The knowledge base generated by ACIAR projects and programs empowers smallholder farmers, extension agents, scientists and policymakers to take on the intersecting challenges of growing more food and reducing poverty, using less land, water and energy.

Partnerships with other international research and development agencies are integral to our work. In recognition of the importance of these to our core business, our performance framework to government reports on the establishment and management of these relationships.

To ensure our work and achievements align with the ACIAR 10-Year Strategy 2018–2027, and its strategic objectives, we will continue to develop our Monitoring and Evaluation Strategy during 2019–20. The strategy provides an integrated and portfolio-wide approach to assessing the performance of our programs and understanding how our work is contributing to change in our partner countries. This complements our long-established impact evaluation at the research project level and longitudinal analysis of uptake of research results.

ACIAR is highly regarded nationally and internationally for facilitating research that works for developing countries and Australia. Our monitoring and evaluation program has several complementary components that work together to measure and understand our impact against the performance criteria set out in our Corporate Plan 2019–20. Our performance is measured against the achievements of three areas of investment, which all have the common goal of engaging with partners to progress our objectives.

- » Our multilateral and co-investment program fosters research collaborations with development partners.
- » Our bilateral program brokers and manages bilateral research partnerships in partner countries.
- » Our capacity building program identifies and establishes opportunities for individuals and institutions in partner countries to boost technical, policy and management skills in agricultural research-for-development.

This Annual Operational Plan provides a comprehensive outline of the investment by ACIAR of around 2.5% of the Australian aid budget during 2019–20. It explains the context and priorities of our program areas, and describes our partnerships and projects, ranging from our support and governance role with our largest partner, the CGIAR system and its 15 international research centres, to our brokering and management role of approximately 200 individual bilateral projects. The bilateral projects focus on aspects of productivity, resilience, sustainability, opportunity and equity of agriculture, forestry and fisheries systems throughout the Indo-Pacific region, to reduce poverty and improve livelihoods.

I have every confidence that together, our committed and skilled staff and partners will deliver successfully on this plan. Through ACIAR partnerships, we will continue to grow the knowledge base for agricultural research-for-development and, in turn, improve livelihoods of smallholder farmers and fishers in our partner countries. Along the way, we will introduce new technologies, risk management and capabilities to Australian agriculture and agricultural sciences, generating a very high return on public investment.



Andrew Campbell
Chief Executive Officer
ACIAR



Farmers washing their cattle in Lombok, Indonesia.
Photo: ACIAR/Conor Ashleigh © 2017



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Overview

Overview

The Australian Centre for International Agricultural Research (ACIAR) works with regional partners to tackle the complex and intersecting challenges of growing more food, improving human nutrition and reducing poverty, while at the same time using less land, water and energy, and adapting to and mitigating climate change.

As an agency of the Australian Government, the purpose of ACIAR is to contribute to reducing poverty and improving the livelihoods of many in the Indo-Pacific region, through more productive and sustainable agriculture emerging from collaborative international research.

Our work aligns closely with Australia's broader development assistance program. We support research collaboration, while emphasising individual and institutional capacity building and private sector-led development to improve livelihoods in agriculture, forestry and fisheries. This work also focuses on economic diplomacy and women's economic empowerment.

Australia's security and economic interests remain inter-linked with the countries of the regions in which ACIAR operates: Pacific, East and South-East Asia, South Asia and Eastern and Southern Africa.

Investment by the Australian Government in agricultural development, through ACIAR, supports regional processes for promoting peace and economic growth, ensuring Australia is a trusted science partner and leader in the agriculture and natural resources sectors.

ACIAR-funded research primarily helps smallholder farmers and rural communities in developing countries, but it also continues to deliver benefits to Australian agriculture through new production technologies, access to improved crop varieties, protection from pests and diseases, and increased skills and knowledge of Australian researchers.

While diversity and flexibility are key to our work, it is equally important that all programs, projects and partners are working towards some common objectives and goals. Six high-level strategic objectives guide our partnerships and research programs. These objectives are consistent with the purpose stated in our enabling legislation.

Our objectives reflect the Australian Government's policy imperatives articulated in the:

- » Australian Overseas Development Assistance policy framework
- » Sustainable Development Goals of the United Nations 2030 Agenda for Sustainable Development
- » Paris Agreement under the United Nations Framework Convention on Climate Change.

Results through partnerships

ACIAR is a small agency that achieves outstanding results throughout the Indo-Pacific region. A dedicated team of 81 staff in Australia and overseas works with partners to improve the productivity and sustainability of agricultural systems and the resilience of food systems in partner countries.

Partnerships are at the heart of all we do. We work with public and private research institutions in Australia and partner countries to address complex and intersecting challenges.

ACIAR generates and establishes research partnerships through three pathways:

- » multilateral research collaborations
- » co-investment alliances with development partners
- » bilateral country partnerships.

Each of the partnership models has its own procurement pathways, governance frameworks, quality assurance and risk management.

Chief among our multilateral collaborations is support of ACIAR to CGIAR (formerly known as the Consultative Group for International Agricultural Research). ACIAR manages Australia's contribution to CGIAR, which in 2019-20, will be just over A\$25 million of restricted and unrestricted funding. Australia's expertise in, and commitment to, international agricultural research is reflected in ACIAR staff and Australian research leaders being involved in the highest levels of governance of the CGIAR system.

In line with our 10-Year Strategy 2018-2027, ACIAR develops and fosters co-investment partnerships with development donors and the private sector, particularly around issues where our research is ready to be implemented at scale. Co-investment partnerships complement our well-established traditional bilateral partnerships and our long-term commitment to multilateral international research.

Chapter 2 'Global partnerships' describes our multilateral research collaborations and co-investment partnerships.



Figure 1.1: Strategic objectives

There are approximately 200 projects active during 2019–20 that are established as bilateral country partnerships. These partnerships have the fundamental aim of lifting the productivity, profitability and sustainability of agriculture, forestry and fisheries sectors in developing countries, in a changing climate. Australia has outstanding capabilities in these fields.

Projects and partnerships will operate in 35 countries in the Indo-Pacific region, as well as in Australia. ACIAR works with partner countries to identify research priorities, and then to broker research partnerships and commission research projects. Generally, ACIAR commissions an Australian scientific organisation (for example, universities, Commonwealth Scientific and Industrial Research Organisation (CSIRO), state government agencies or private firms) to undertake a research project, which is consistent with jointly agreed priorities, and informed by regular consultations between ACIAR and partner countries.

Chapter 5 ‘ACIAR in the Indo-Pacific’ presents our regional and country, and describes the research projects underway in each of our partner countries.

High return on investment

Independent evaluations of ACIAR projects and programs have consistently found high returns on investment, reflecting the quality of Australian agricultural science and our partnership model, which ensures a high level of engagement with in-country partners, and a high level of adoption of research results.

The findings of the independent evaluations are consistent with studies by the United States Agency for International Development in 2017, which unequivocally concluded that lifting agricultural productivity in ways that help smallholders to access higher-value markets is among the most effective forms of international development for reducing poverty and catalysing economic growth.



Figure 1.2: Research structure



In-country consultation

Our work aligns closely with the Australian Government development assistance program. We support research collaboration, while emphasising human capacity building and private sector-led development in agriculture, forestry and fisheries. The aid investment plans of Australian overseas missions also inform our bilateral and regional research partnerships.

To ensure that our core business as an agricultural research-for-development agency is as effective as possible, ACIAR has 10 country offices throughout the Indo-Pacific region. The country offices guide the development and regular adjustment of the strategic directions of our research investments with country partners. They also provide immediate oversight and liaison for in-country project operations.

The strength of our partnership model will be maintained through regular strategy discussions with country partners, consultation with Australian, regional and international research agencies, and continued support to the strategic capabilities of our network of country offices. To ensure alignment with, and relevance to, Australia's broader aid initiatives, ACIAR will maintain active communication with the Australian Government Department of Foreign Affairs and Trade (DFAT), and Heads of Mission, Ambassadors and High Commissioners in partner countries.

To strengthen and maintain our partnerships with countries and organisations in our region, we continue to invest in our long-term 'compacts' with Cambodia, Myanmar, Pakistan, Papua New Guinea and Vietnam and implement a regional strategy for eastern and southern Africa.

Chapter 3 'Country partnerships' outlines the location and roles of our country office network, and introduces our country managers.

Research planning and evaluation

Our operations are—to a large extent, but certainly not exclusively—planned and managed on a regional basis. The focus of the research program in each country and region is determined through various processes, consultations and forums. As a result of this process, ACIAR-supported research addresses the specific challenges and opportunities arising in the local environment, as well as building on established relationships.

ACIAR builds its research portfolio on nine program areas that encompass:

- » key agriculture sectors—crops, fisheries, forestry, horticulture and livestock
- » science and research fields supporting the sectors—agribusiness, social sciences, soil and land management, and water and climate.

The program areas encompass key cross-cutting issues, such as climate change, economics and policy, gender, integrated farming systems, and the link between livestock and human health risks.

Review, evaluation and monitoring are important to ensure we are on track, are achieving objectives and are allocating valuable resources of time, talent and money to achieve the best result. With more than A\$100 million budgeted for investment in research-for-development programs in the Indo-Pacific region during 2019-20, it is essential that outcomes and benefits are identified and articulated.

ACIAR undertakes and values a vigorous and independent system of impact assessments of its investments, not only for accountability, but importantly, for learning. Understanding the impact of ACIAR investment is critical to improving the efficiency and effectiveness of current and future research-for-development programs.

During 2019-20, we will continue to build on our strong project-level impact evaluation process with the design and implementation of a more sophisticated portfolio-level monitoring and evaluation system. This will enable us to better analyse and report against our six high-level objectives, and better measure our performance against criteria and targets set out in the annual Corporate Plan. The monitoring and evaluation system will also inform portfolio management and outreach strategies.

Chapter 4 'Programs' outlines our research areas and priorities. It also introduces our portfolio planning, monitoring and evaluation process.

Building capability

While science and innovation are critical to advancing agriculture and livelihoods in the Indo-Pacific region, the development of individual and institutional science and policy capability in our partner countries is equally important.

One of our strategic objectives is to develop durable scientific and policy capability. The ACIAR Capacity Building Program identifies and establishes opportunities for individuals and institutions in partner countries to boost technical, policy and management skills in agricultural research-for-development. Building capacity in partner countries is a key priority for ACIAR to extend and maximise the adoption of new knowledge and technologies.

During 2019–20, the program continues its focus on leadership and career development, while maintaining an ongoing commitment to support postgraduate study. A new element of the program will be introduced, with the launch of a new leadership program for women in agricultural research and the roll-out of an executive leadership program.

Chapter 6 'Building capability' outlines the work of the Capacity Building Program for the coming year.

Increasing influence and impact

The Outreach Program communicates the work of ACIAR to various audiences both in Australia and overseas. The program has the broad objectives to increase the influence and impact of ACIAR research, as well as build our reputation as a trusted and valued research broker in the Indo-Pacific region.

A series of comprehensive plans, programs and projects will be developed and/or implemented during 2019–20 to achieve our objectives. Through its Outreach Program, ACIAR will continue its efforts to increase understanding within Australia of the impact of Australian aid investment, through ACIAR, and ensure that more audiences in Australia and in our partner countries can access, understand and use our research findings.

Chapter 7 'Increasing influence and impact' outlines the work of the Outreach Program for the coming year.

Executive management

ACIAR is established by the *Australian Centre for International Agricultural Research Act 1982* (the ACIAR Act), as amended. It is a non-corporate Commonwealth entity under *the Public Governance, Performance and Accountability Act 2013* and a statutory agency under the *Public Service Act 1999*. ACIAR is part of the Australian Government Foreign Affairs and Trade portfolio.

ACIAR has an executive management governance structure headed by the Chief Executive Officer (CEO), who reports to the Minister for Foreign Affairs. The CEO manages the administrative and financial affairs of ACIAR and its staff, subject to, and in accordance with, any directions given by the Minister.

An executive team supports and advises the CEO on strategic priorities and corporate and operational policies.



ACIAR executive management



Chief Executive Officer
Professor Andrew Campbell FTSE FAICD

The Chief Executive Officer is directly responsible to the Minister for managing the affairs of ACIAR, in a way that provides proper use of the Commonwealth resources for which the CEO is responsible. As agency head, the CEO is also responsible for managing the agency with direct accountability to the Australian Government.

Professor Andrew Campbell commenced the role of CEO on 1 August 2016. Previously, Andrew was the inaugural Director of the Research Institute for the Environment and Livelihoods at Charles Darwin University, in the Northern Territory. Andrew has played influential roles in sustainable agriculture and natural resource management in Australia for over 30 years. He has a Diploma of Forestry from Creswick, a Bachelor of Forest Science (Honours) from the University of Melbourne and a Master of Science (Management of Agricultural Knowledge Systems) from Wageningen University in The Netherlands. Andrew is an elected Fellow of the Academy of Technology and Engineering, Fellow of the Australian Institute of Company Directors and an honorary Professorial Fellow at the Australian National University and Charles Darwin University.



Chief Finance Officer
Ms Audrey Gormley

The Chief Finance Officer is responsible for providing strategic financial advice to the organisation, in addition to managing human resources, business services (IT), procurement, legal, property and other corporate activity.

Ms Audrey Gormley joined ACIAR in July 2017 and has over 30 years' experience in all facets of finance and accounting both at strategic and operational levels, working in investment banking and insurance sectors before joining the Australian Government. Prior to joining ACIAR, Audrey was Chief Finance Officer at Food Standards Australia New Zealand for over 10 years. She holds a Bachelor of Commerce from University College Dublin and is a Fellow of the Association of Chartered Certified Accountants.



Chief Scientist
Dr Daniel Walker

The Chief Scientist oversees the strategic science focus of the ACIAR research portfolio and its impact assessment, monitoring and evaluation work. The Chief Scientist also provides leadership for Research Program Managers across nine research areas, and oversight of our relationship with the Australian innovation system.

Dr Daniel Walker joined ACIAR in November 2017 to take up the newly-created role of Chief Scientist. Prior to ACIAR, Daniel spent 23 years at CSIRO, where he was Research Director for Agriculture and Global Change with CSIRO Agriculture and Food and previously, Chief of CSIRO Ecosystem Sciences. Daniel has a Bachelor of Science (Honours) in agriculture, forestry and rural economy from the University of Edinburgh and a PhD from the University of Wales.



General Manager, Country Programs
Dr Peter Horne

The General Manager, Country Programs is responsible for leading and setting the research strategy for ACIAR country (bilateral) programs, managing the ACIAR country office network, and leading the engagement with key research partners and stakeholders, in Australia and overseas.

Previously, Dr Peter Horne was Research Program Manager for Livestock Production Systems for ACIAR. Peter has spent most of his career based in Asia involved in agricultural research-for-development, with a particular focus on forages and livestock systems. Peter has a Bachelor of Science (Honours) in environmental sciences from Griffith University and a PhD in tropical forage agronomy from University of New England, Australia.



General Manager, Global Program
Ms Mellissa Wood

The General Manager, Global Program leads the formulation and implementation of Australia's international stakeholder engagement strategies with CGIAR and other international agricultural research centres, and is responsible for ACIAR engagement with global and multilateral fora, such as the G20 and the United Nations Food and Agriculture Organization. The General Manager, Global Program also oversees ACIAR co-investment alliances, notably with DFAT and the Canadian International Development Research Center (IDRC).

Ms Mellissa Wood joined ACIAR in 2012 as Director of the new Australian International Food Security Centre. She was appointed General Manager, Global Program in 2015. Prior to ACIAR, Mellissa held a number of positions developing expertise in improving the adoption of research outputs for food and nutrition security, through partnering with policymakers and the private sector, including several years with the Crop Trust in Rome. She holds a Bachelor of Science in resource and environmental management and Master of Public Policy in development.



General Manager, Outreach and Capacity Building
Ms Eleanor Dean

The General Manager, Outreach and Capacity Building leads the development and implementation of the ACIAR outreach strategy and leads and directs a team responsible for ACIAR communications, stakeholder engagement, capacity building and outreach activities.

Ms Eleanor Dean has worked in public affairs and communication for the Australian Government for more than 25 years, on a diverse range of issues including natural resource management, biodiversity, education and training. Prior to joining ACIAR in 2017, Eleanor led the safety promotion and communication branch at the Civil Aviation Safety Authority. She has a Bachelor of Communication (Honours) from the University of Canberra.

Funding and expenditure

Table 1.1: Overview of planned funding and expenditure, 2019–20

2019–20 (budget estimate)	
Funding	A\$ million
Administered	
Administered appropriation	92.15
Special accounts	19.25
<i>Total administered funding</i>	<i>111.40</i>
Departmental	
Departmental appropriation	9.31
s74 retained revenue receipts ^(a)	1.95
Expenses not requiring appropriation ^(b)	0.54
<i>Total departmental funding</i>	<i>11.81</i>
Total funding	123.21
Expenditure	
Administered	
Bilateral partnerships ^(c)	64.92
Co-investment alliances and partnerships	15.73
Multilateral partnerships ^(d)	19.89
Capacity Building Program ^(e)	8.76
Outreach Program	2.00
<i>Total administered costs</i>	<i>111.40</i>
Departmental	
<i>Total departmental costs^(f)</i>	<i>11.81</i>
Total expenditure	123.21

(a) Revenue from external sources.

(b) Depreciation, amortisation and audit fees.

(c) Includes program support and impact evaluation.

(d) Unrestricted funding to international centres.

(e) Does not include training and communication activity within projects.

(f) Includes salaries, executive, Commission, Policy Advisory Council and corporate support.

Table 1.2: Planned project expenditure, by country, 2019-20

Region and country	Target appropriation budget allocations	ACIAR base appropriation	DFAT and other external funding	2019-20 total allocation
	(%)		A\$ million	
Pacific	28	17.99	4.63	22.62
Fiji	—	3.87	0.78	4.65
Kiribati	—	0.41	0.46	0.87
Samoa	—	0.83	—	0.83
Solomon Islands	—	0.87	0.46	1.33
Tonga	—	1.11	—	1.11
Tuvalu	—	0.11	—	0.11
Vanuatu	—	1.85	0.45	2.30
Pacific region—other	—	0.27	—	0.27
Papua New Guinea	—	6.33	2.48	8.81
Timor-Leste	—	2.34	—	2.34
East and South-East Asia	49	32.24	5.17	37.41
Cambodia	—	2.58	0.35	2.93
China	—	0.41	—	0.41
Indonesia	—	11.52	4.30	15.82
Laos	—	3.98	0.52	4.50
Mongolia	—	0.13	—	0.13
Myanmar	—	4.92	—	4.92
The Philippines	—	3.52	—	3.52
Vietnam	—	5.18	—	5.18
South Asia	12	7.89	3.87	11.76
Bangladesh	—	2.90	0.59	3.49
India	—	1.04	1.35	2.39
Nepal	—	0.76	0.58	1.34
Pakistan	—	3.11	1.35	4.46
Sri Lanka	—	0.08	—	0.08
Eastern and Southern Africa	12	7.65	7.65	7.65
Burundi	—	0.05	—	0.05
Ethiopia	—	1.51	—	1.51
Kenya	—	1.09	—	1.09
Malawi	—	0.62	—	0.62
Mozambique	—	0.81	—	0.81
Rwanda	—	0.51	—	0.51
South Africa	—	0.74	—	0.74
Tanzania	—	0.52	—	0.52
Uganda	—	1.16	—	1.16
Zambia	—	0.10	—	0.10
Zimbabwe	—	0.54	—	0.54
Total project expenditure	100	65.77	13.67	79.44

Note: Due to rounding, not all the subtotals add up to the total

Table 1.3: Planned expenditure of DFAT funding, by country, 2019-20

Country/program	2019-20 (budget estimate)
A\$ million	
Pacific	
Papua New Guinea	2.48
Pacific island countries	2.15
East and South-East Asia	
Cambodia	0.35
Indonesia	4.30
Laos	0.52
South Asia	
Bangladesh	0.59
India	1.35
Nepal	0.58
Pakistan	1.35
Other	
Postgraduate scholarships	4.18
Food Futures	0.50
Funding under negotiation	0.90
Total	19.25

Note: There is no external funding expenditure on projects and programs in Africa by DFAT.

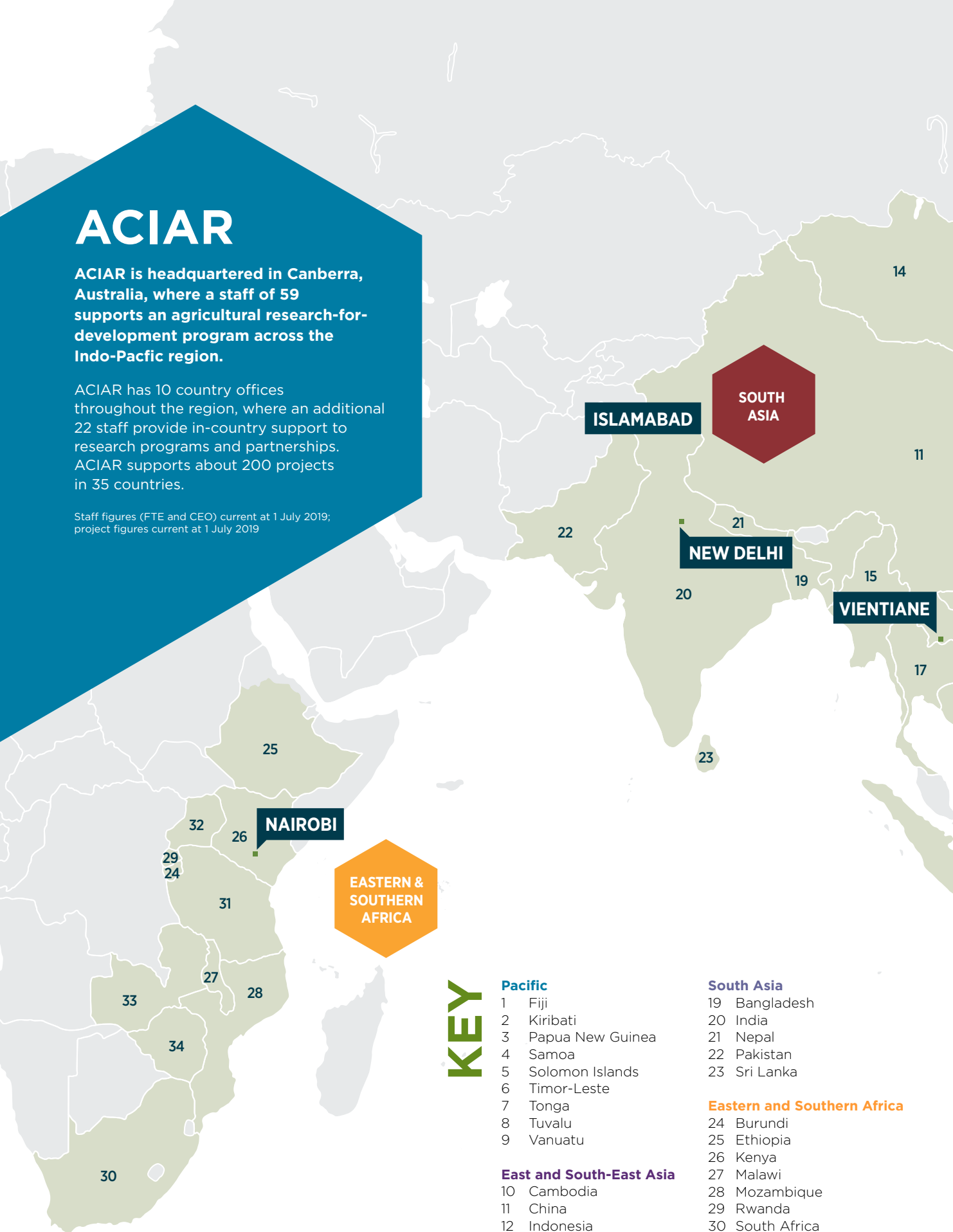


ACIAR

ACIAR is headquartered in Canberra, Australia, where a staff of 59 supports an agricultural research-for-development program across the Indo-Pacific region.

ACIAR has 10 country offices throughout the region, where an additional 22 staff provide in-country support to research programs and partnerships. ACIAR supports about 200 projects in 35 countries.

Staff figures (FTE and CEO) current at 1 July 2019; project figures current at 1 July 2019



KEY

Pacific

- 1 Fiji
- 2 Kiribati
- 3 Papua New Guinea
- 4 Samoa
- 5 Solomon Islands
- 6 Timor-Leste
- 7 Tonga
- 8 Tuvalu
- 9 Vanuatu

East and South-East Asia

- 10 Cambodia
- 11 China
- 12 Indonesia
- 13 Laos
- 14 Mongolia
- 15 Myanmar
- 16 Philippines
- 17 Thailand
- 18 Vietnam

South Asia

- 19 Bangladesh
- 20 India
- 21 Nepal
- 22 Pakistan
- 23 Sri Lanka

Eastern and Southern Africa

- 24 Burundi
- 25 Ethiopia
- 26 Kenya
- 27 Malawi
- 28 Mozambique
- 29 Rwanda
- 30 South Africa
- 31 Tanzania
- 32 Uganda
- 33 Zambia
- 34 Zimbabwe

Ghana (not shown)

■ ACIAR country office

Vision

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

Mission

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



Current at July 2018



Researchers from Indonesia visiting a dairy farm at Maleny, Queensland. ACIAR project AGB/2012/099. Photo: Patrick Cape, ACIAR



2

Global partnerships



Global partnerships

ACIAR fosters and maintains active working relationships with international agricultural research centres, and provides timely, reliable and consistent funding, as well as strategic advice on research and governance.

The ACIAR Global Program builds and manages multilateral partnerships with international organisations, institutes and associations engaged in agricultural research and the delivery of global public goods. The program implements one of our mandated roles of funding and supporting the international agricultural research centres. The program also manages co-funded programs across many countries in the Indo-Pacific region.

The largest component of support is provided to CGIAR—a network of 15 research centres dedicated to reducing rural poverty, increasing food and nutrition security for human health and improving natural resource systems and ecosystem services. The CGIAR is explained in detail on page 17.

Multilateral partnerships also encompass support of and/or engagement with other organisations relevant to our mission. During 2019–20, relationships will continue with:

- » African Union
- » Asia-Pacific Association of Agricultural Research Institutions (APAARI), where ACIAR Chairs the Executive Committee for 2019–21
- » Association of Southeast Asian Nations (ASEAN)
- » Australia Africa Universities Network (AAUN)
- » Centre for Agricultural Biosciences International (CABI)
- » Food and Agriculture Organization of the United Nations
- » Global Forum on Agricultural Research
- » The Group of 20—Meeting of the Agricultural Chief Scientists

- » The Pacific Community (SPC)
- » Global Research Alliance on Agricultural Greenhouse Gases
- » The World Bank
- » World Vegetable Center (WorldVeg).

Also significant for ACIAR global partnerships are developing and managing co-investment alliances and partnerships with like-minded donors such as DFAT, the Australian Government Department of Agriculture, Canada’s International Development Research Centre, the Syngenta Foundation for Sustainable Agriculture, and organisations in the private sector. Co-investment partnerships signify strong trust, and enable each partner to leverage complementary research strengths, build a critical mass of resources, and invest in more ambitious research than either could achieve alone.

The Global Program also establishes research activities at a regional level, where coordination of approaches is the best way to address an agricultural challenge, such as managing biosecurity risk and trade harmonisation. Research initiated by the Global Program also aims to be innovative and future-focused, especially when co-investing with a like-minded partner.

The ACIAR strategy under the Global Program is to be a valued, engaged donor, and a strong, innovative partner in international agricultural research. Partnerships built through our multilateral engagement contribute to Australia’s global citizenship goals. Our deep engagement in global forums helps ensure that Australia is influential and held in high esteem by the international agricultural research sector, national governments and donor communities.

During 2019–20, ACIAR will provide effective funding support on behalf of Australia to about 25 partnerships through multilateral, co-investment and regional relationships managed by the Global Program.

Table 2.1: ACIAR funding to the Global Program, 2019–20

Year	International agricultural research centres	Other research organisations and programs ^(a)	Total
A\$ million			
2019–20 (budget)	17.3	4.9	22.2

(a) Includes regional research funding and funding contributions to other multilateral (non-CGIAR) partners, such as SPC, AAUN, APAARI, CABI and WorldVeg and regional and co-investment research.

Multilateral partnerships

CGIAR

CGIAR¹ is the world's largest global agricultural innovation network, comprising 15 international agricultural research centres and about 9,000 scientists who work mostly in developing countries. The centres work towards a world free of poverty, hunger, malnutrition and environmental degradation. With a presence in more than 70 countries, and a deep knowledge of local customs, values and market operations, the CGIAR research centres work closely with more than 3,000 partner organisations. These include national and regional research institutes, civil society organisations, academia and the private sector.

CGIAR is more connected with the international development agenda and associated partners at global, national, subnational and local levels than any other agrifood research entity. CGIAR research centres are responsible for hands-on research programs and operations guided by policies and research directions set by the System Management Board. The centres conduct world-class, interdisciplinary research that combines biophysical and social sciences to deliver development impact at scale. CGIAR operates on an annual budget of about US\$900 million.

Our key multilateral partnership is with the CGIAR, which receives the largest proportion of the Global Program budget. As part of its mandated role, ACIAR has been a regular and significant funder and research partner to CGIAR since 1982. Accordingly, Australia has high-level representation on the CGIAR governance bodies, which in 2019–20 includes the System Council and its Strategic Impact Assessment Monitoring and Evaluation Committee, the System Reference Group and the System Management Board.

Through ACIAR, Australia works in the governance of CGIAR alongside the US, World Bank, United Kingdom, Europe Commission, Bill and Melinda Gates Foundation, Germany, Japan and China, among others. Australia is also well represented at the highest levels of leadership within the CGIAR as board chairs and board members, directors general and Research Program leaders.

CGIAR donors work together to deliver greatest impact. One current example is The Crops to End Hunger Initiative, which aims to improve and modernise CGIAR crop breeding programs, so that CGIAR can respond optimally to the food security and related human welfare and climatic challenges articulated by the Sustainable Development Goals.

Significant Australian leadership has been provided—including the University of Queensland developing the tool to assess modern breeding program performance—and 2019–20 will see the initiative being implemented after two years of planning.

CGIAR delivers significant economic and social returns on investment. Over its lifetime, the return on investment for every US\$1 provided to CGIAR is evaluated at US\$17. The outcomes of CGIAR investment contribute to the Sustainable Development Goals of the United Nations 2030 Agenda for Sustainable Development, and advance the interests of developed and developing countries alike.

Australian agricultural industries have benefited from CGIAR research, with research outputs helping to keep Australian farmers competitive in world markets, by increasing yields and/or reducing costs. For example, CGIAR germplasm has been incorporated into, and greatly improved, the Australian sorghum breeding system. Similarly, chickpea improvements in Australia have been heavily dependent on germplasm from the CGIAR in India and Syria, while research collaboration with the CGIAR, through exchange of livestock germplasm, has led improvements in the productivity of Australia's livestock sector. Benefits of CGIAR wheat research, for example, range from US\$2.2 billion to US\$3.1 billion per year—up to a 100-fold return on investment.

As CGIAR moves towards celebrating its 50th anniversary in 2021, it is assessing its narrative and forward vision against 21st century and future challenges, to develop an ambitious CGIAR System 2030 Business Plan. This will include exploring a revised compelling and aligned mission and research portfolio, new ways of organising the transformative research programs, institutions and governance to ensure CGIAR's long-term relevance is based on its unique comparative advantage. ACIAR is actively contributing to these deliberations to ensure CGIAR is well placed to deliver against both the Sustainable Development Goals and Paris Agreement, as well as to attract new funder contributions.

ACIAR provides both unrestricted (core) and restricted project funds to the CGIAR Fund. More than half of our funding is unrestricted and is reviewed annually. The remainder (restricted) is delivered through specific research projects between ACIAR programs and individual centres in the CGIAR network. Through ACIAR, Australia's annual contribution to the CGIAR system is shown in Table 2.2.

Table 2.2: Australia's funding, through ACIAR, to the CGIAR system, 2019–20

Year	Unrestricted	Project specific (restricted)	Total
A\$ million			
2019–20 (budget)	17.3	8.4	25.7

Centres of the CGIAR system

1. Africa Rice Center—AfricaRice
2. International Rice Research Institute—IRRI
3. Bioversity International—Bioversity
4. International Center for Tropical Agriculture—CIAT
5. Center for International Forestry Research—CIFOR
6. International Centre for Agroforestry (World Agroforestry Centre)—ICRAF
7. International Center for Agricultural Research in the Dry Areas—ICARDA
8. International Crops Research Institute for the Semi-Arid Tropics—ICRISAT
9. International Food Policy Research Institute—IFPRI
10. International Institute of Tropical Agriculture—IITA
11. International Livestock Research Institute—ILRI
12. International Maize and Wheat Improvement Center—CIMMYT
13. International Potato Center—CIP
14. International Water Management Institute—IWMI
15. WorldFish

To ensure the quality and value for money of Australia's ongoing contributions to CGIAR, during 2019–20, ACIAR will:

- » participate in the highest level of governance of the CGIAR system through active membership and leadership on the CGIAR System Council, the Strategic Impact Monitoring and Evaluation Standing Committee
- » lead Theme 1 'Research Objectives and Focus' of the System Reference Group to deliver options on defining a transformative and compelling portfolio coverage to the System Council
- » participate as an active observer on the CGIAR System Management Board, with a focus on implementation of the 2019–2021 Business Plan
- » collaborate with key donors through participation in multi-funder activities, where they align with the ACIAR strategy and Australian interests
- » lead the development of a coordinated Australian engagement with CGIAR, including consultation with DFAT and other Australian agencies, primarily through the International Agricultural Coordination Group and CGIAR Australian Leadership Group, which ACIAR established in 2015
- » ensure involvement of ACIAR Research Program Managers in the technical oversight of CGIAR Research Programs.

Other international research organisations and networks

ACIAR also has multilateral partnerships with five international agricultural research centres and networks outside the CGIAR system. These organisations are:

- » Asia-Pacific Association of Agricultural Research Institutions (APAARI)
- » Australia Africa Universities Network (AAUN)
- » Centre for Agricultural Biosciences International (CABI)
- » The Pacific Community (SPC)
- » World Vegetable Centre (WorldVeg).

The ACIAR contribution to these organisations has grown over the past 10 years, and A\$1.59 million is budgeted for support in 2019–20.

Asia-Pacific Association of Agricultural Research Institutions

The Asia-Pacific Association of Agricultural Research Institutions² (APAARI) promotes and coordinates the national agricultural research institutes in the Asia-Pacific region, through inter-regional and inter-institutional cooperation. APAARI's Strategic Plan 2017–2022—*Pathways to strengthened agrifood research and innovation systems in Asia and the Pacific*—identifies strategic priorities, which are used to inform our input into its wider regional consultation process.

ACIAR provides annual, unrestricted funding to APAARI for research communication, knowledge management, advocacy for agricultural biotechnology, support for capacity building and participation in expert consultations with national agricultural research system leaders in the region.

During 2019–21, ACIAR will chair the APAARI Executive Council and the Asia-Pacific Consortium on Agricultural Biotechnology and Bioresources, and support APAARI to become the long-term coordinating agency for the Agricultural Science and Technology Indicators (ASTI) program for the South-East Asia and Pacific region.

Australia Africa Universities Network

Launched in 2012, the Australia Africa Universities Network³ (AAUN) is a group of 22 leading universities—10 in Australia and 12 in Africa—that connects researchers and academics through institutional partnerships, forming sustainable teams to address major challenges facing both continents.

With a small secretariat led by the University of Sydney and the University of Pretoria, the network fosters a growing relationship between Australia and Africa, by building on educational and research links. The vision is to build equal partnerships between leading research universities, develop active teams and communities of scholars who are ready and able to address mutual challenges, and engage allied research and education networks and institutions in the program.

AAUN has established 50 intercontinental, multidisciplinary research programs that address mutual challenges in the areas of agriculture and environment, food and nutrition security, public health, and related higher education and economic development. Further information is at <www.aaun.edu.au>.

Australian universities in the network are:

- » Curtin University
- » Murdoch University
- » The University of Melbourne
- » The University of Newcastle
- » The University of Queensland
- » University of New South Wales
- » University of Western Australia
- » University of Technology Sydney
- » University of Wollongong
- » Western Sydney University.

The African universities participating in the network are:

- » Makerere University (Uganda)
- » Tshwane University of Technology (South Africa)
- » University of Botswana (Botswana)
- » University of Cape Town (South Africa)
- » University of Ghana (Ghana)
- » University of Ibadan (Nigeria)
- » University of Malawi (Malawi)
- » University of Mauritius (Mauritius)
- » University of Nairobi (Kenya)
- » University of Pretoria (South Africa)
- » University of Zambia (Zambia)
- » Addis Ababa University (Ethiopia).

The four-year (2018–21) partnership arrangement between ACIAR and AAUN supports an annual competitive call for multi-institutional research proposals in the selected research areas. African and Australian senior and emerging research leaders engage in the research programs, keynote forums, workshops and conferences. AAUN fosters mobility of researchers and students, and links with alumni and diaspora communities.

This work will continue in 2019–20, building the quality, feasibility, impact and sustainability of programs. Many programs are directly relevant to global and national policy initiatives, including the United Nations Sustainable Development Goals, the African Union Africa 2063 Agenda, and the Australian International Policy.

Centre for Agricultural Biosciences International

The Centre for Agricultural Biosciences International⁴ (CABI) is an intergovernmental, not-for-profit organisation established by a United Nations treaty, of which Australia is a member country. With its headquarters in the United Kingdom, CABI has a network of offices throughout Europe, the US, Africa, South America and Asia.

CABI addresses issues of global concern through science, information and communication, with a focus on international development and research, publishing and microbial services. CABI works to improve global food security, combat threats to agriculture and the environment from pests and diseases, protect biodiversity from invasive species, and improve access to agricultural and environmental knowledge.

Australia's investment in CABI has contributed to improved agricultural outcomes for developing countries, and delivered benefits to Australian agriculture. CABI has been an instrumental partner in fostering a partnership between the Australia Africa Plant Biosecurity Partnership and the Common Market for eastern and southern Africa, to support the sustainability of the African Plant Biosecurity Network.

The four-year (2019–23) partnership arrangement between ACIAR and CABI supports Plantwise, an Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee award-winning global program led by CABI, which helps farmers lose less of what they grow to pests and diseases.

The Pacific Community

The Pacific Community⁵ or SPC, which was previously known as the Secretariat of the Pacific Community, is the principal scientific and technical organisation working to support development in the Pacific region, and has been doing so since 1947.

Owned and governed by its 26 country and territory participants, SPC is an international development organisation. It works in seven key areas pertinent to development in the Pacific region, including climate change, disasters, non-communicable diseases, gender equality, youth employment, food and water security and biosecurity for trade.

SPC is a key partner for ACIAR and DFAT in delivering Australia's wider strategies to support strong benefits from the region's fisheries, agriculture, forestry and biosecurity sectors. The four-year (2018–21) strategic partnership arrangement between ACIAR and SPC supports core scientific, technical and management capacities, and activities in agriculture and fisheries that add value to the development activities of Pacific Island countries and territories in these areas. ACIAR works directly with the two divisions of SPC—Land Resources Division and Fisheries, Aquaculture and Marine Ecosystems.

ACIAR is committed to supporting SPC to maintain the institutional capacity to sustain the capabilities of these divisions. During 2019–20, ACIAR and SPC will collaborate to progress strategic regional initiatives, including the Pacific Plant Biosecurity Program and the Coconut Genetic Resources Network. ACIAR will also engage with SPC on supporting the 2019 Pacific Week of Agriculture in Samoa.

World Vegetable Centre

The World Vegetable Center⁶, known as WorldVeg, is an international non-profit research and development institute committed to alleviating poverty and malnutrition in the developing world through increased production and consumption of vegetables. Through its extensive networks and research partnerships WorldVeg disseminates improved varieties of vegetable crops, and promotes improved production methods to farmers in developing and developed countries. This results in higher vegetable harvests, higher incomes, more jobs and healthier, more nutritious diets.

Investment in WorldVeg is an investment in research into the nexus between agriculture, livelihoods, nutrition and health. ACIAR provides WorldVeg with both unrestricted funding and project-specific funding for research led by, or implemented in, partnerships that include WorldVeg.

WorldVeg has brought significant benefits to Australian agriculture through its mung bean breeding program, which has provided the varieties being grown across much of northern Australia for many years. WorldVeg also holds breeds of tomato with genetic resistance to tomato yellow leaf curl virus. This virus poses an ongoing threat to the Australian tomato industry.

During 2019–20, work will continue against the four-year (2019–22) strategic partnership between ACIAR and WorldVeg, which supports breeding activities and capacity-building in the developing countries in Asia and sub-Saharan Africa. This includes:

- » developing improved lines of vegetables with higher yields, tolerance/resistance against pest and diseases and/or higher nutrient content
- » introducing improved agricultural practices, before and after harvest, for safe, sustainable and competitive value chains
- » collaborating with, and building capacity of, partners from the public and private seed sectors.

Co-investment programs

Co-investment programs enable ACIAR to harness the complementary skills of partners, leverage ACIAR funds, and engage in larger and more ambitious programs than it could fund alone. These relationships take the two main forms of:

- » alliances—where the design and management of research programs are shared between all contributing donors
- » partnerships—where a donor will co-fund an ACIAR project, and ACIAR manages the project, such as projects managed by ACIAR under the DFAT-ACIAR Record of Understanding.

Cultivate Africa's Future, Phase 2

During 2019–20, ACIAR will continue the successful Cultivate Africa's Future (CultiAF) partnership with the Canadian International Development Research Centre (IDRC). The first phase of CultiAF began in 2013, and supported eight projects across five countries in eastern and southern Africa, addressing post-harvest management, food processing, nutrition, business opportunities and value chains.

Phase 2 of CultiAF⁷ was launched in May 2019, and during 2019–20, five projects selected for Phase 2 will begin. These are:

- » Improving agricultural productivity and resilience with satellite and cell phone imagery to scale climate smart crop insurance
- » User-driven approaches to make government and farmer-led smallholder irrigation schemes in Mozambique more productive, self-sustaining and equitable
- » Alien invasive fruit flies in southern Africa—implementation of a sustainable integrated pest management program to combat these menaces
- » Harnessing dietary nutrients of under-utilised fish and fish processing by-products to reduce micronutrient deficiencies among vulnerable groups in Uganda
- » Climate smart interventions for smallholder farmers in Ethiopia.

A further four projects from CultiAF Phase 1 will be rolled over to Phase 2. These are:

- » Insect feed for poultry, fish and pig production in Kenya and Uganda
- » Business opportunities for youth in the fish and poultry sectors in Kenya
- » Improved fish processing technologies in Malawi
- » Supply and utilisation of pre-cooked beans for improved food and nutrition security in Kenya and Uganda.

Through CultAF2, ACIAR and IDRC, will invest more than A\$20 million (over 5 years) in high-quality applied research that addresses food and nutrition insecurity in Africa. The ACIAR-IDRC partnership will jointly invest more than A\$37 million for the two phases.

Food Futures Research Program

The Food Futures Research Program⁸ is an innovative partnership between ACIAR and the IDRC. The program seeks to canvass and support strategic agricultural research that will have a potential breakthrough and/or transformative impact on global food security into the foreseeable future. ACIAR and IDRC have jointly committed A\$5 million to the program, which ACIAR is managing on behalf of the partnership.

During 2019–20, the program will finalise its foresight and impact analysis work to understand prevailing macro and sector trends in food security, and identify the major future obstacles and key gaps in the research. The USA's Foundation for Food and Agricultural Research is co-investing in this foresight work being undertaken by XPRIZE. The program will design and commission innovative agricultural research to address these obstacles and help deliver a sustainable and food and nutrition secure future.

Alliance for Agricultural Research and Development for Food Security

The Alliance for Agricultural Research and Development for Food Security is a joint initiative between ACIAR, the Syngenta Foundation for Sustainable Agriculture and the Crawford Fund. Alliance partners co-fund innovative approaches to research-for-development activities and delivery, using the unique and diverse strengths and expertise of the parties, to better promote and achieve food security.

The first of these co-investments is a highly successful project—*Demand-led plant variety design for emerging markets in Sub-Saharan Africa*⁹. Phase 1 of the project increased the availability of high-performing plant varieties that meet market demands. An external review of Phase 1 noted that the project has engaged extensively with the plant-breeding and university sectors in many countries, towards having a truly comprehensive and transformative effect on plant breeding, small-scale agriculture and food security in Africa.

Phase 2 of the project will build on research outcomes from Phase 1 during 2019–20. The new phase will provide wider access to plant breeders, and focus on implementation of best practice in demand-led plant breeding programs, using beans (*Phaseolus* sp.) and tomatoes to demonstrate best practice. It will also build capacity within plant breeding programs on demand-led variety design, by strengthening education and training programs for plant breeders across Africa. This will include new curriculum development and professional development courses, based on private sector best practice.

Pacific Plant Biosecurity Partnership

The Pacific Plant Biosecurity Partnership¹⁰ aims to strengthen biosecurity capacity in Pacific island countries, Papua New Guinea and Timor-Leste. Led by ACIAR, the partnership is implemented by Kalang Consultancy Pty Ltd, and is supported by the Australian Government Department of Agriculture and the Crawford Fund.

The partnership is based on the format and approach used between 2014 and 2017 in the successful delivery of the ACIAR plant biosecurity capacity-building program in eastern and southern Africa.

Biosecurity is a highly important area of work for Australia and the Pacific region, as plant pests and diseases negatively affect food production and biodiversity, and can limit trade and market access opportunities for plant products, including safe food access and importation.

By targeting regional, national/institutional and individual needs, and placing people in Australian biosecurity agencies, providing mentoring and training, and developing a long-term regional network, the program aims to build greater capacity and empower Pacific National Plant Protection Officers and their institutions.

The program goals are to improve:

- » the performance and capacity of biosecurity agencies in the Pacific, in surveillance, diagnostics, pest risk analysis, import border controls, export inspection and trade negotiation
- » supply chain compliance by the private sector, to meet the biosecurity requirements of export markets
- » value chains for selected commodities, by addressing plant biosecurity impediments to production and market access
- » food security and livelihoods across the region.

A total of 19 fellows from the Pacific completed the first phase of the program during 2018–19, sharing expertise, research and national plant biosecurity challenges through a market access simulation workshop, communications masterclass and placements with Australian biosecurity institutions.

During 2019–20, the program will continue to strengthen biosecurity capacity, through continued training in the region. This will include additional fellows from the region's biosecurity agencies and private sector, and establishing a home for the biosecurity network to support ongoing liaison between Pacific island and Australian biosecurity officials and experts. This is critical to advance plant biosecurity programs across the region and in the international market access arena.

Reinvigorating the Coconut Genetic Resources Network

Grown in more than 90 tropical countries, on more than 12 million hectares, coconut is important to millions of smallholder households. The future of coconut production and livelihoods is threatened by senile plantings, which face further declines from pests and diseases, climate change and poor conservation and management of genetic resources. Access to coconut genetic diversity is vital to sustaining the livelihoods of millions of smallholders and their communities around the world, and particularly in the Asia-Pacific region.

In 2019–20, ACIAR, DFAT and the International Coconut Community will collaborate on a new program to reinvigorate and sustain the Coconut Genetic Resources Network¹¹ (COGENT). Under the leadership of Mr Uron Salum, the program will focus on better coconut science, through a global coconut strategy to address these major challenges.

This program will collaborate with other organisations to ensure a viable COGENT Secretariat, to safeguard coconut genetic resources and to better address disease threats, through new leadership by the International Coconut Committee. ACIAR and DFAT will jointly invest \$500,000 to support this important initiative.

Healthy diets and food systems

The EAT-Lancet Commission Report (2019) advocated for a universal healthy and sustainable diet, rich in plant foods, fruits and nuts and fish and low in animal sourced (especially meat) and discretionary foods (processed foods and sugars). While the report suggests a dietary pattern in very general terms, the recommendations need to be modified at the country level, adapted to local resources, cultural eating habits and also to the local modes of production and value chains.

A new project led by Dr Mario Herrero of CSIRO Agriculture and Food, *Towards local healthy diets from sustainable and inclusive food systems*¹², will work in Vietnam and Fiji to test the recommendations through a range of activities, including developing prototypes of healthy diets with local stakeholders and assessing several sustainability criteria at the country level; analysing current production and trade patterns and identify mismatches to attain the healthy and sustainable diets; and engage with stakeholders in the food system (public and private) to identify pathways for transforming food systems towards the desired health and sustainability outcomes.

Co-investments with other government agencies

Our largest and most important partnership with a government agency is with portfolio partner, DFAT. The existing partnership agreement between ACIAR and DFAT was signed in 2006. It is a commitment to work together towards common objectives, against a principle of equal partnership, underpinned by mutual respect, professionalism, honesty, open communication and cooperation.

During 2019–20, ACIAR and DFAT will update the partnership agreement, under which ACIAR will manage 14 activities, and, through well-managed DFAT-ACIAR co-investment agreements, ensure the timely delivery of revenue and expenditure and risk mitigation for these activities.

Table 2.3. ACIAR and partner investment in co-investment programs (funds are for the life of the project)

Project	Project partner/s	ACIAR	Partner	Total	Leverage of ACIAR investment
		(A\$ million)	(A\$ million)	(A\$ million)	%
<i>Demand-led plant variety design</i> (FSC/2013/019)	Syngenta Foundation	1.085	1.085	2.170	100
<i>CultiAF2</i> (C2016-367)	Canadian International Development Research Centre	10.000	10.000	20.000	100
<i>Food Futures Research Program</i> (GP/2018/218)	Canadian International Development Research Centre	2,500	3,237	5,737	129
<i>Pacific Plant Biosecurity Program</i> (GP/2018/109)	Australian Department of Agriculture Crawford Fund	0.650	0.154	0.804	24
<i>COGENT</i> (GP/2018/193)	Australian Department of Foreign Affairs and Trade	0.250	0.250	0.500	100
TOTAL		13.400	13.641	27.041	102

Regional research programs

The Global Program supports regional research programs that vary both in nature and in the regions that benefit from the work. During 2019–20, there is one such program.

Agricultural Science and Technology Indicators

The ASTI program¹³, active in South-East Asia and the Pacific (Papua New Guinea and Fiji), is led by the International Food Policy Research Institute, and hosted and coordinated by APAARI. The program works with national and regional partners to survey and analyse data on the funding, human resource capacity and outputs of agricultural research in the Indo-Pacific region. Data collection is ongoing, and, in 2019–20, ACIAR will support national and regional analysis of the data to inform future agricultural research policy and decision-making in the region.

The program also provides a basis to guide research investment decisions and build a foundation for the long-term monitoring of agricultural research investment and capacity. ACIAR, through the Global Program, is investing more than A\$1 million in this program over 2017–20.



Current and proposed partnerships and projects 2019–20

Multilateral partnerships with international organisations and networks

1. CGIAR
2. Asia-Pacific Association of Agricultural Research Institutions (C000341)
3. AAUN Partnership Arrangement (C000425)
4. CABI Partnership Arrangement (C001048)
5. Strategic Partnership Arrangement with the Pacific Community (C000386)
6. World Vegetable Center Partnership Arrangement (C001047)

Co-investment alliances and partnerships

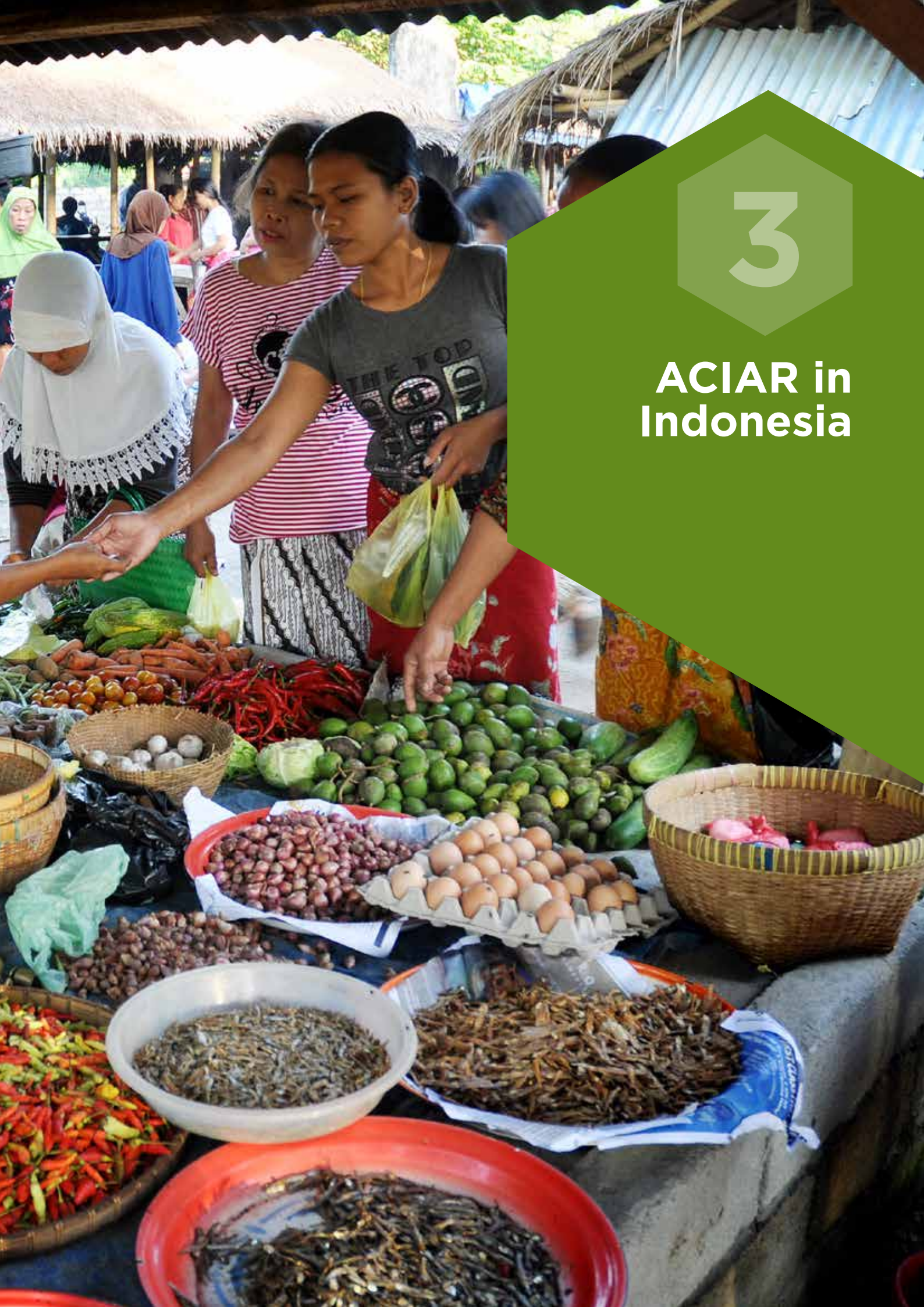
7. Cultivate Africa's Future, Phase 2 (CultiAF2) [Ethiopia, Kenya, Uganda, Malawi, Mozambique, Zambia, and Zimbabwe] (C2016/367)
8. Food Futures Research Program (GP/2018/218)
9. Demand-led plant variety design for emerging markets in Sub-Saharan Africa [Ghana, Kenya, South Africa, Tanzania] (FSC/2013/019)
10. Improving plant biosecurity in the Pacific islands [Fiji, Kiribati, Papua New Guinea, Samoa, Solomon Islands, Timor-Leste, Tonga, Tuvalu, Vanuatu] (GP/2018/109)
11. Reinvigorating the Coconut Genetic Resources Network (COGENT) [Fiji, Indonesia, Papua New Guinea, Samoa] (GP/2018/193)
12. Towards local healthy diets from sustainable and inclusive food systems [Vietnam, Fiji] (GP/2018/108)

Regional research programs

13. Monitoring agricultural research investments, capacity and impact in South-East Asia and the Pacific—Agricultural Science and Technology Indicators (ASTI) program [Cambodia, Indonesia, Malaysia, Myanmar, Papua New Guinea, the Philippines, Thailand, Vietnam, Laos, Timor-Leste] (GP/2016/093)



Market place in Lombok, Indonesia.
Photo: ACIAR



3

ACIAR in Indonesia

Indonesia

Budgeted funding

A\$15.8
million

ACIAR-supported
projects

33

Multilateral &
co-investment
programs

3

While Indonesia has experienced steady economic growth in recent years and achieved substantial development progress, development across the country is uneven—poverty rates are seven times higher in Papua than in Java—and inequality remains a pressing challenge for the government. More than 72 million people in Indonesia continue to live under the World Bank \$3.20 per day poverty line. This context makes our work in Indonesia all the more important because sustainable and inclusive economic growth in Indonesia benefits Australia and contributes to regional growth and stability ... Australia works in an economic partnership with Indonesia, supporting Indonesia's efforts to tackle inequality and maintain social stability, promote tolerance and pluralism, and counter violent extremism.

Overview of Australia's aid program in Indonesia (DFAT 2019)

Indonesia is an enormously diverse country on Australia's doorstep. With more than 10,000 islands and 265 million people, it is one of the fastest growing economies in the Indo-Pacific region.

Indonesia is predicted to become the world's seventh largest economy by 2030, by which time, the purchasing middle class will be triple the 2015 levels, to 145 million. Despite these gains, the benefits have not been shared evenly throughout the country, and unequal development and regions of high poverty levels remain a major challenge and priority for the Indonesian Government.

With a highly diverse landscape and almost 60 million hectares of agricultural land, as well as extensive offshore and inshore fisheries resources, Indonesia's agriculture sector has long been the backbone of the country's economy. As the sector employs about one-third of the workforce, it is a vital source of income for households.

Despite this macro-level achievement, the agriculture sector in Indonesia is yet to achieve its full potential. Smallholder farmers, who dominate the sector, do not have sufficient access to finance, knowledge and the incentives to drive a wholesale shift towards more-commercial systems.

In March 2019, Indonesia and Australia concluded a Comprehensive Economic Partnership Agreement aimed at deepening economic and security cooperation. The agreement re-affirmed the importance of economic cooperation between the two countries and committed to expanded skills exchange. ACIAR supports the intent of the agreement by facilitating collaboration with Indonesia's vibrant research and innovation sector in three ministries—Agriculture, Marine Affairs and Fisheries, and Forestry and Environment.

Country priorities

The Indonesian Government continues to focus its research and development efforts in the agriculture sector on:

- » improving the productivity and marketing of rice, soybeans, corn, sugar, beef, chilli and shallots
- » expanding the total land area of farming
- » revitalising and improving agriculture infrastructure
- » boosting the use of mechanised agricultural technology.

In the marine and fisheries sector, the Indonesian Government has prioritised efforts towards:

- » improving sustainable management of marine and fisheries resources
- » strengthening the outer-most areas of the archipelago with infrastructure development, such as fisheries post-harvest processing facilities and seaport capacity development; this opens up trilateral research collaboration opportunities in the border area, such as with Timor-Leste.

In the forestry sector, the highest priorities are:

- » improving livelihoods for communities from forestry products and services
- » changing cultural attitudes to the use of fire, and developing appropriate incentives to support adoption of agricultural and land management systems that do not rely on the use of fire
- » developing appropriate systems to rehabilitate two million hectares of peatland degraded by drainage and fire.

ACIAR programs in Indonesia are spread across 19 of 34 provinces, working with less-developed communities in areas such as East and West Nusa Tenggara, South Sumatra, Central Sulawesi, and East, Central and South Kalimantan.

With the recent conclusion of the Indonesia–Australia Comprehensive Economic Partnership Agreement, ACIAR continues to explore the opportunity for synergies with Australia's whole-of-government approach to aid, in particular with DFAT and the Australian Government Department of Agriculture and Water Resources.

2019–20 research program

ACIAR supports 33 projects in Indonesia, 16 of which are specific to this country, and the remainder are part of regional projects. The projects address our high-level objectives, as outlined in the 10-Year Strategy 2018–2027, as well as specific issues and opportunities identified by ACIAR and partner organisations.

The following sections briefly describe individual ACIAR-supported projects and anticipated outputs in Indonesia, grouped according to research program. Each project description is referenced in a list at the end of this section, which provides the project title and code.



Table 3.1: Current and proposed projects in Indonesia, 2019-20

Project title	Country	Project code
Agribusiness		
Agricultural policy research to support natural resource management in Indonesia's upland landscapes	Indonesia	ADP/2015/043
Understanding the drivers of successful and inclusive rural regional transformation: sharing experiences and policy advice in Bangladesh, China, Indonesia and Pakistan	Indonesia, Bangladesh, China, Pakistan	ADP/2017/024
Evaluating smallholder livelihoods and sustainability in Indonesian coffee and cocoa value chains	Indonesia	AGB/2010/099
Developing value-chain linkages to enhance the adoption of profitable and sustainable cassava production systems in Vietnam and Indonesia	Indonesia, Vietnam	AGB/2012/078
Improving milk supply, competitiveness and livelihoods in smallholder dairy chains in Indonesia	Indonesia	AGB/2012/099
Inclusive agriculture value-chain financing	Indonesia, Myanmar, Vietnam	AGB/2016/163
Enhancing smallholder linkages to markets by optimising transport and logistics infrastructure	Indonesia, Vietnam	AGB/2017/036
Revision and update of Making value chains work better for the poor toolkit and the ACIAR Agribusiness Masterclass	Indonesia, Vietnam	AGB/2018/121
Fisheries		
Expanding spiny lobster aquaculture in Indonesia	Indonesia	FIS/2014/059
Improving seaweed production and processing opportunities in Indonesia	Indonesia	FIS/2015/038
Harvest strategies for Indonesian tropical tuna fisheries to increase sustainable benefits	Indonesia	FIS/2016/116
Accelerating the development of finfish mariculture in Cambodia through south-south research cooperation with Indonesia	Indonesia, Cambodia	FIS/2016/130
Evaluating processes and outcomes in south-south research collaboration: finfish mariculture development in Cambodia through cooperation with Indonesia	Indonesia, Cambodia	FIS/2018/115
A nutrition-sensitive approach to coastal fisheries management and development in Timor-Leste and Nusa Tenggara Timur Province, Indonesia	Indonesia, Timor-Leste	FIS/2017/032
Translating fish passage research outcomes into policy and legislation across South-East Asia	Cambodia, Indonesia, Laos	FIS/2018/153
Forestry		
Building research capacity among ACIAR's sandalwood-focused projects through a regional sandalwood workshop and publication	Indonesia, Vanuatu, Fiji, PNG, Timor-Leste, Australia	FST/2016/024
Enhancing community-based commercial forestry in Indonesia	Indonesia	FST/2015/040
Developing and promoting market-based agroforestry options and integrated landscape management for smallholder forestry in Indonesia (Kanoppi 2)	Indonesia	FST/2016/141
Improving community fire management and peatland restoration in Indonesia	Indonesia	FST/2016/144
Reducing forest biosecurity threats in South-East Asia	Indonesia, Laos, Vietnam	FST/2018/179
Horticulture		
Development of area-wide management approaches for fruit flies in mango for Indonesia, the Philippines, Australia and the Asia-Pacific region	Indonesia, The Philippines, Australia	HORT/2015/042
An integrated management response to the spread of Fusarium wilt of banana in South-East Asia	Indonesia, Laos, The Philippines	HORT/2018/192

Project title	Country	Project code
Livestock Systems		
Integrating herbaceous forage legumes into crop and livestock systems in East Nusa Tenggara, Indonesia	Indonesia	LPS/2012/064
Profitable feeding strategies for smallholder cattle in Indonesia	Indonesia	LPS/2013/021
Improving smallholder beef value chains in rainfed cropping systems in Indonesia	Indonesia	LS/2015/047
Improving smallholder beef supply and livelihoods through cattle-palm system integration in Indonesia	Indonesia	LS/2015/048
Smallholder livestock futures in South-East Asia	Indonesia	LS/2018/107
Zoonotic malaria in Indonesia (One Health)	Indonesia	LS/2018/214
Evaluating zoonotic malaria transmission and agricultural land use in Indonesia (One Health)	Indonesia	LS/2019/116
Social Sciences		
The potential of International Landcare	Fiji, Indonesia, the Philippines, South Africa, Sri Lanka, Uganda	ASEM/2018/117
Soil and Land Management		
Crop health and nutrient management of shallot-chilli-rice cropping systems in coastal Indonesia	Indonesia	SLAM/2018/145
Global Program		
Reinvigorating the Coconut Genetic Resources Network (COGENT)	Fiji, Indonesia, Papua New Guinea, Samoa	GP/2018/193
Monitoring agricultural research investments, capacity and impact in South-East Asia and the Pacific— Agricultural Science and Technology Indicators (ASTI) program	Cambodia, Indonesia, Malaysia, Myanmar, Papua New Guinea, the Philippines, Thailand, Vietnam, Laos, Timor-Leste	GP/2016/093



A farmer seeding a field in the dryland farming area of Aceh, Indonesia. ACIAR project ADP/2015/043. Photo: Patrick Cape, ACIAR

Agribusiness

The Agribusiness Program strives to better understand value chains and market opportunities to improve livelihoods, and increase economic benefits of farmers and communities, and to increase economic development in South-East Asia. The portfolio of agribusiness projects in Indonesia has a strong focus on value-chain linkages with regional neighbours.

Recent studies conclude that agricultural policies and decentralised administrative systems are contributing to a permanent decline in productivity in Indonesia's upland catchments. A project, led by Professor Randy Stringer of the University of Adelaide, aims to provide alternative policy pathways to improve the environmental and long-term performance of agriculture in these catchments. In 2019–20, the project will evaluate existing policies, establish the connection between existing policies, farm-level decisions and off-farm impacts, and evaluate the economic, social and environmental impacts of a participatory research activity within a coffee-producing catchment.¹

As development proceeds throughout the Indo-Pacific region, countries will undergo rural transformation. A new project in China, Bangladesh, Indonesia and Pakistan, led by Dr Chunlai Chen of the Australian National University, endeavours to understand the nature and drivers of rural transformation, to provide better policy advice that will underpin the success of transformation. In 2019–20, the project will review literature, collect data and conduct interviews and workshops to explain and describe rural transformation, and form the basis for future research.²

A project, led by Dr Jeff Neilson of the University of Sydney, is exploring market development for coffee and cocoa with Indonesian and global coffee and cocoa certification companies. The project will be completed in 2019–20, and will describe the impacts of certification schemes, buyer linkages, geographical indicators and downstream processing on smallholder livelihoods and environmental sustainability.³



Cassava is an increasingly important crop in terms of both rural livelihoods and regional economic development, and it remains an important food-security crop in specific subregions. The market outlook for cassava, and the prospects for smallholder producers are strongly linked to supply and demand in global starch, grain and energy markets. A project in Indonesia and Vietnam, led by Dr Dominic Smith of the University of Queensland, aims to make smallholder cassava production more profitable and sustainable, by linking value-chain actors to increase the adoption of improved technologies. In its final year, the project will develop policy recommendations and support learning alliances through better agribusiness arrangements.⁴

Indonesia currently supplies only 20% of its domestic milk needs from local sources—almost all the milk produced in Java is produced by smallholder producers who have only three or four dairy cows. A project, led by Dr Wendy Umberger of the University of Adelaide, aims to increase production, efficiency and household income of smallholder dairy farmers in Java and other provinces. In its final year, the project will encourage development, policy dialogue and industry advocacy to improve research capacity of lead agencies. The project will also identify profitable management practices, and business and extension models to develop strategies to increase on-farm profitability.⁵

Smallholder farmers in South-East Asia often cannot access credit to invest in new crops or technologies, deal with risks and shocks, and safely carry wealth from harvest to planting. To help smallholders reach their production potential, a project, led by Dr Alan de Brauw of the International Food Policy Research Institute, will review and research financing models for agricultural value chains, and evaluate specific interventions in Indonesia, Myanmar and Vietnam. In 2019–20, a rigorous impact evaluation of agricultural value-chain financing models will be designed, for implementation by project partners.⁶

A small research activity, led by Dr Chris Chilcott of CSIRO Land and Water, will evaluate opportunities to reduce logistics costs to small-scale farmers, and contribute to more informed policy on infrastructure that promotes development and access to markets in Indonesia and Vietnam. The project will further develop an adapted logistics model to better understand links, stakeholders and requirements to operate the model in the two countries.⁷

Also focused on Indonesia and Vietnam, another small research activity, led by Dr Wendy Umberger of the University of Adelaide, will review, update and develop innovative new content, learning resources and delivery models for the *Making value chains work better for the poor* toolkit and the *ACIAR Agribusiness Masterclass*. The activity aims to develop innovative agribusiness research learning resources and delivery models for the Asia-Pacific region, which mainstream contemporary gender equity, social inclusion and women's economic empowerment principles and approaches.⁸

Fisheries

The Fisheries Program focuses on developing appropriate fisheries and aquaculture livelihoods, and improving management of marine and freshwater fisheries. These are in line with the Indonesian Government's priorities of combating illegal, unregulated and unreported fishing, by reviewing fishing vessel licences, and setting up new regulations on the capture and export of juveniles in selected species.

To grow wild-caught lobster juveniles to legal harvest size, a project, led by Dr Clive Jones of James Cook University, planned to investigate the final components of commercially relevant production technology, including improved and defined formulated diets for lobster nurseries. But due to a policy change in 2018 that banned the harvest of wild-caught juveniles, the project reduced its focus on rearing protocols for lobsters weighing more than 200 grams, and removed all engagement with industry and communities.⁹

Indonesia is the world's second largest producer of seaweed, and the industry is one of the few income-generating opportunities for coastal communities in eastern Indonesia. A project, led by Associate Professor Nicholas Paul of the University of the Sunshine Coast, aims to provide a scientific basis to transform and modernise the seaweed industry with a whole-of-value-chain approach. In its final year, research to improve the quality of seaweeds produced at the farm level will be consolidated, and opportunities to create innovative products from seaweeds and processing waste streams will be identified and developed.¹⁰

Indonesia is the world's largest producer of tuna, and its fishing fleet is large and diverse—spanning the eastern Indian Ocean and the western and central Pacific Ocean. A project, led by Dr Campbell Davies of CSIRO Oceans and Atmosphere, is working with Indonesian fisheries scientists, industry and managers to better understand tuna population biology and the effectiveness of monitoring and management systems. The project contributes to the longer-term goal of improving the economic and social benefits of Indonesian tuna fisheries, while reducing the conservation risks to regionally important fish stock.¹¹

Fisheries scientists from Indonesia will collaborate with scientists from Cambodia to support the development of finfish mariculture in Cambodia. Led by Associate Professor Nicholas Paul and Dr Mike Rimmer of the University of the Sunshine Coast, the project is finding ways to speed up the development of finfish mariculture in Cambodia, by using established research and development capability in Indonesia to train Cambodian researchers to develop their marine finfish aquaculture industry. The use of south-south collaboration as a capacity-building approach will be assessed, and a framework proposed for application in future ACIAR projects.¹²

Another project, led by Professor Janelle Allison of the University of Tasmania, complements the finfish mariculture development project by facilitating and documenting teaching approaches and structures for innovative and effective south-south collaboration that are applicable to agricultural research and development in the Indo-Pacific region.¹³

A new project in 2019-20 aims to identify the livelihood and nutrition benefits of fisheries in the Nusa Tenggara Timur province of Indonesia and Timor-Leste. It will test approaches to nutrition-sensitive co-management systems for inshore fisheries, and look at ways to promote nutrition-sensitive fisheries management policy in each country context. The project, led by Dr David Mills of the WorldFish Center, will determine the importance of fish for the livelihoods of women and men, by focusing on two fishery case studies—fish-aggregating device fishing and intertidal gleaning. By evaluating the nutritional value of fisheries to households, and working to identify the factors enabling or limiting the consumption of fish, the project will highlight the potential of fish to reduce malnutrition, particularly during early childhood. Through a south-south collaboration the lessons learned in Indonesia from its extensive commercial fish-aggregating device industry will be used to guide policy development in Timor-Leste for sustainable inshore management that benefits poor household.¹⁴

As floodplains are developed for irrigation, and river flows are regulated across South-East Asia, river communities are at risk of losing fishing income and an important source of protein and essential nutrients. Previous ACIAR projects have shown that fishways, which facilitate passage of fish up and down regulated rivers, can have lasting economic and social benefits for river communities. A new project, led by Dr Lee Baumgartner of Charles Sturt University, will develop: a platform for sound decision-making on fish passage construction programs across South-East Asia; a targeted capacity-building program to address long-term institutional needs in the field of fish passage; and guidelines for the development of fish passage policy and legislation in Cambodia, Laos and Indonesia.¹⁵

Forestry

ACIAR forestry projects in Indonesia support programs to improve and sustain values from forest plantations, agroforestry systems and natural forests, including through better smallholder plantation management and investment decisions.

The high value of sandalwood on the international market has led to the decline of many natural sources of sandalwood around the world. This presents an opportunity for smallholders in sandalwood-producing countries of the Asia-Pacific region to capitalise on recognised future supply shortages, by planting local species. Led by Dr Tony Page of the University of the Sunshine Coast, a short research activity will leverage existing research investments by ACIAR in sandalwood to improve capacity, scientific outputs and impacts among project partners. This will be achieved through a regional workshop and field tours, and publication of technical information.¹⁶

A project, led by Dr Digby Race of the University of the Sunshine Coast, is helping to develop community-based plantation forestry enterprises, to provide social, economic and environmental benefits for the people of Indonesia. Work continues in Gorontalo, Lampung, South Sulawesi, Yogyakarta and Central Java provinces to increase the capacity of farmer forest groups to make better investment decisions. The project is analysing the social and economic dimensions of two alternative community-based commercial forestry systems, and how they can be adopted more widely.¹⁷

Diversification of market-based integrated agroforestry systems is being investigated in Gunungkidul, Sumbawa, Central Lombok and South-Central Timor regencies. The project, led by Mr Aulia Perdana of the World Agroforestry Centre, will improve the production and marketing of timber and non-timber forest products, and foster better extension and policy approaches. The project is also conducting new research in support of Indonesia's Thousand Bamboo Villages initiative on the island of Flores.¹⁸

A multidisciplinary program of research, led by Dr Daniel Mendham of CSIRO Land and Water, is underway to support Indonesia's commitment to achieve fire-wise villages, and restore large areas of peatland. The project is conducting research to prevent fires in peatlands, and improve peatland restoration practices, while enabling profitable and sustainable alternative livelihoods. It will also look at ways to improve access to, and use of, knowledge on fire prevention and peatland management.¹⁹

Regional collaboration in South-East Asia is urgently needed to reduce the risk of pest and disease incursion, and the impacts of established pests and diseases. A new project in 2019–20, with activities based in Indonesia, Vietnam and Laos, aims to implement best-practice forest biosecurity and pest management for sustainable productivity. With government and industry partners, the project led by Dr Caroline Mohammed of the University of Tasmania, will establish pilot forest surveillance networks, co-develop essential pest risk analyses and biosecurity plans, continue taxa screening and tree breeding that started in previous research projects for pest and disease tolerance and resistance, and examine silvicultural practices to reduce pest and disease spread and impact.²⁰



Peatland restoration project. ACIAR project FST/2016/144.

Horticulture

The Horticulture Program supports the development of environmentally and socially sustainable integrated production systems, to improve the market competitiveness of horticultural industries. In 2019–20, research projects in Indonesia will focus on regional management of significant risks to horticultural crops.

About 40 species of tropical fruit flies damage horticultural crops, and impede trade throughout South-East Asia. A new project in Indonesia and the Philippines builds on the success of previous ACIAR projects, and links to fruit fly work in other ACIAR partner countries and Australia. The project, led by Mr Stefano De Faveri of the Queensland Department of Agriculture and Fisheries, aims to reduce fruit fly infestation of mango crops through area-wide management of the pest, and to improve pre-harvest and post-harvest practices. The ultimate aim is to improve yield and quality of crops, to improve livelihoods and trade opportunities.²¹

Fusarium wilt (tropical race 4) of bananas, also known as Panama disease, has become widespread throughout South-East Asia. The disease is threatening smallholder banana production in countries including Indonesia, the Philippines and more recently Laos. A new project aims to develop an integrated management response to the spread of the disease. Led by Dr Anthony Pattison of the Queensland Department of Agriculture and Fisheries, the project will investigate the effects on banana production of altering the banana microbiome to suppress disease and increase plant resistance to *Fusarium* wilt.²²

Livestock Systems

A project focused on integrating herbaceous tropical legumes into grain cropping systems in East Nusa Tenggara province will conclude in 2019–20. Led by Dr Lindsay Bell of CSIRO Agriculture and Food, the research team examined the benefits of legume-based cropping systems, both for subsequent crops and associated livestock. With experimental activities complete and best-bet management guidelines developed, extension materials will be distributed, and training and demonstrations will take place.²³

The development of simple, low-cost feed rations for cow-calf and cattle-fattening operations is the aim of a project, led by Dr Karen Harper of the University of Queensland, that will markedly increase the profitability of smallholder and small-scale feedlot systems in Indonesia. It is envisaged that supplementary feeds will complement local feed resources, and be based on a small number of low-cost, locally-available ingredients.²⁴

Two projects are part of the IndoBeef Program, which aims to significantly improve beef supply and the livelihoods of smallholders and other beef value-chain participants. Rapid income growth, population growth and urbanisation have increased the demand for beef in Indonesia, but domestic production of beef cattle has not increased enough to match this demand. The CropCow²⁵ and PalmCow²⁶ projects are working to increase cattle production in rice-based systems and oil palm enterprises, respectively.

Dr Mario Herrero of CSIRO Agriculture and Food will lead a small research activity in 2019–20 that will assess the likely competitiveness, resilience, and adaptability of smallholder livestock production systems into the future. The objectives will be to identify development pathways and review findings with key stakeholders, so that these production systems remain an engine of agricultural and human development in the region.²⁷

Substantial gains have been made towards eliminating two major parasites (*Plasmodium* spp.) that cause malaria in humans in South-East Asia. But, at the same time, there are increasing cases of malaria in humans, due to the transmission of a *Plasmodium* sp. parasite from macaques by certain species of mosquitoes. As part of the Research for One Health Systems Strengthening program (page 81), a small research activity, led by Professor Nicholas Anstey of the Menzies School of Health Research, aims to establish surveillance for zoonotic *Plasmodium* species of public health importance in Kalimantan and Sumatra, Indonesia.²⁸ This will lead into a research project in early 2020, evaluating zoonotic malaria transmission and agricultural land use in Indonesia.²⁹



Dairy farmer in Indonesia. ACIAR project AGB/2012/099.

Social Sciences

Landcare is a grassroots community-led approach to sustainable land management. Dr Mary Johnson of RMIT University will study Landcare in five countries in the Indo-Pacific region, and analyse how sustainable agricultural land management mobilised through Landcare has contributed to development outcomes, including the ACIAR high-level objectives. The findings of the study will produce an evidence base for ACIAR to assess the role of Landcare for future agricultural research-for-development, and more broadly as an extension model in sustainable agriculture and natural resource management.³⁰

Soil and Land Management

Coastal and upland agricultural systems support the livelihoods of the majority of rural people in Indonesia. These systems vary in intensity, from predominantly low-value rice production to highly intensive mixed rotations that particularly include shallot and chilli. Shallot and chilli are Indonesia's most significant vegetable commodities and are integral components of Indonesia's unique cuisine. A new project, led by Dr Stephen Harper of the University of Queensland, addresses key issues and challenges associated with the safe and sustainable production and intensification of high-value vegetable cropping options (particularly shallot and chilli) in the sensitive coastal agroecosystems. Some of the issues and challenges in these production systems are pepper yellow leaf curl virus, excessive fertiliser application, soil fertility decline, key soil pathogens, and the prevalence of virus and fungal pathogens due to clonal (seed-bulb) propagation of allium crops (shallot and garlic).³¹

Global Program

The Global Program manages several programs in the East and South-East Asia region addressing multidisciplinary challenges and/or opportunities, in partnership with international agricultural research-for-development agencies. The work of the Global Program is described in Chapter 2.

Global Program projects operational in Indonesia during 2019–20 are:

- » Reinvigorating the Coconut Genetic Resources Network (COGENT)³²
- » Monitoring agricultural research investments, capacity and impact in South-East Asia and the Pacific—Agricultural Science and Technology Indicators (ASTI) program.³³



Current and proposed projects

1. Agricultural policy research to support natural resource management in Indonesia's upland landscapes (ADP/2015/043)
2. Understanding the drivers of successful and inclusive rural regional transformation: sharing experiences and policy advice in Bangladesh, China, Indonesia and Pakistan (ADP/2017/024)
3. Evaluating smallholder livelihoods and sustainability in Indonesian coffee and cocoa value chains (AGB/2010/099)
4. Developing value-chain linkages to enhance the adoption of profitable and sustainable cassava production systems in Vietnam and Indonesia (AGB/2012/078)
5. Improving milk supply, competitiveness and livelihoods in smallholder dairy chains in Indonesia (AGB/2012/099)
6. Inclusive agriculture value-chain financing [Indonesia, Myanmar, Vietnam] (AGB/2016/163)
7. Enhancing smallholder linkages to markets by optimising transport and logistics infrastructure [Indonesia, Vietnam] (AGB/2017/0360)
8. Revision and update of *Making value chains work better for the poor* toolkit and the ACIAR *Agribusiness Masterclass* [Indonesia, Vietnam] [Indonesia, Vietnam] (AGB/2018/121)
9. Expanding spiny lobster aquaculture in Indonesia (FIS/2014/059)
10. Improving seaweed production and processing opportunities in Indonesia (FIS/2015/038)
11. Harvest strategies for Indonesian tropical tuna fisheries to increase sustainable benefits (FIS/2016/116)
12. Accelerating the development of finfish mariculture in Cambodia through south-south research cooperation with Indonesia (FIS/2016/130)
13. Evaluating processes and outcomes in south-south research collaboration: finfish mariculture development in Cambodia through cooperation with Indonesia (FIS/2018/115)
14. A nutrition-sensitive approach to coastal fisheries management and development in Timor-Leste and Nusa Tenggara Timur Province, Indonesia (FIS/2017/032)
15. Translating fish passage research outcomes into policy and legislation across South-East Asia [Cambodia, Indonesia, Laos] (FIS/2018/153)
16. Building research capacity among ACIAR's sandalwood-focused projects through a regional sandalwood workshop and publication [Indonesia, Vanuatu, Fiji, PNG, Timor-Leste, Australia] (FST/2016/024)
17. Enhancing community-based commercial forestry in Indonesia (FST/2015/040)
18. Developing and promoting market-based agroforestry options and integrated landscape management for smallholder forestry in Indonesia (Kanoppi 2) (FST/2016/141)
19. Improving community fire management and peatland restoration in Indonesia (FST/2016/144)
20. Reducing forest biosecurity threats in South-East Asia [Indonesia, Laos, Vietnam] (FST/2018/179)
21. Development of area-wide management approaches for fruit flies in mango for Indonesia, the Philippines, Australia and the Asia-Pacific region (HORT/2015/042)
22. An integrated management response to the spread of *Fusarium* wilt of banana in South-East Asia [Indonesia, Laos, the Philippines] (HORT/2018/192)
23. Integrating herbaceous forage legumes into crop and livestock systems in East Nusa Tenggara, Indonesia (LPS/2012/064)
24. Profitable feeding strategies for smallholder cattle in Indonesia (LPS/2013/021)
25. Improving smallholder beef value chains in rainfed cropping systems in Indonesia (LS/2015/047)
26. Improving smallholder beef supply and livelihoods through cattle-palm system integration in Indonesia (LS/2015/048)
27. Smallholder livestock futures in South-East Asia [Indonesia] (LS/2018/107)
28. Zoonotic malaria in Indonesia (One Health) (LS/2018/214)
29. Evaluating zoonotic malaria transmission and agricultural land use in Indonesia (One Health) (LS/2019/116)
30. The potential of International Landcare [Fiji, Indonesia, the Philippines, South Africa, Sri Lanka, Uganda] (ASEM/2018/117)
31. Crop health and nutrient management of shallot-chilli-rice cropping systems in coastal Indonesia (SLAM/2018/145)
32. Reinvigorating the Coconut Genetic Resources Network (COGENT) [Fiji, Indonesia, Papua New Guinea, Samoa] (GP/2018/193)
33. Monitoring agricultural research investments, capacity and impact in South-East Asia and the Pacific—Agricultural Science and Technology Indicators (ASTI) program [Cambodia, Indonesia, Malaysia, Myanmar, Papua New Guinea, the Philippines, Thailand, Vietnam, Laos, Timor-Leste] (GP/2016/093)

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Fisherman in Lombok, Indonesia.
Photo: ACIAR



4

Building capability



Building capability

The Capacity Building Program works to boost capacity of individuals and institutions involved agricultural research-for-development. We facilitate programs in scientific research, leadership, management, policy and governance with our partners in the Indo-Pacific region.

In 2019–20, the program continues its focus on leadership and career development, while maintaining an ongoing commitment to support postgraduate study. A key activity will be the launch of a new leadership program for women in agricultural research and the roll-out of the first two cohorts of an executive leadership program for John Allwright Fellows.

At the same time, ACIAR is building a stronger alumni program, working closely with past fellows in their home countries, to support ongoing collaborative capacity building that meets their self-identified needs. Alumni engagements highlight the diverse achievements, knowledge and influence of all alumni, and seek to create a network of professionals who support excellence in agricultural research.

Australian researchers are also being targeted through various initiatives designed to ensure the current and next generation of international agricultural researchers are exposed to the work of ACIAR, and that future expertise is nurtured and developed.

A new Monitoring and Evaluation Framework has been developed for the Capacity Building Program. The framework will ensure all programs are contributing to the goals of the ACIAR 10-Year Strategy 2018–2027. It will also support the program to work towards common aims, support effective monitoring and management, and enable lessons to be captured, shared and used to improve future work.

John Allwright Fellowship and Executive Leadership Program

In 2019–20, John Allwright Fellowships will continue to be provided to agricultural researchers for PhD and masters scholarships administered through the Australia Awards system.

In 2019–20, about 75 John Allwright Fellows will be studying at 12 universities across Australia. Applicants for the fellowship are invited annually, and must be connected with an ACIAR project through current or recent work.

In January 2019, the first annual cohort of John Allwright Fellows started the new Executive Leadership Program within the John Allwright Fellowship, which is delivered by the University of New England. The cohort of 24 completed a 10-day intensive camp, and started a 15-month program of online learning, which will be completed during 2019–20. The online learning takes about 6 hours per month, and is completed alongside the fellows' postgraduate studies. The program concludes with a four-day camp.

Gender is mainstreamed and integrated into every aspect of the program, which includes leadership and communication skills, and people, finance, and project management.

On completion of the Executive Leadership Program, participants achieve half of a certificate qualification.

A second cohort of John Allwright Fellows will start the Executive Leadership Program in November 2019.

John Dillon Fellowship

The John Dillon Fellowship is a six-week program that runs twice a year for 15 mid-career agricultural researchers connected to ACIAR projects. The program is delivered in Australia by the University of the Sunshine Coast. Fellows participate in workshops, field-trips and networking events, and undertake a short institutional placement.

An annual round of the John Dillon Fellowship specifically for institutions in the Pacific region began in May 2019. Starting with a group of fellows from Papua New Guinean institutions, this iteration of the program will engage with senior management in host institutions, develop specific institutional strengthening projects, and deploy mentoring and coaching alongside the formal training of the fellowship. The institutional focus has the potential to amplify the outcomes of the training program by garnering widespread buy-in of approaches, and delivering a tailored package of training to suit the identified needs of our partner organisations.

A second round of the traditional John Dillon Fellowship, made up of researchers from the Indo-Pacific and two Australian researchers, will be delivered in early 2020.

New women's leadership program

In recognition of gendered inequalities in access to agricultural education and leadership positions, a new fellowship program for women agricultural researchers in the Indo-Pacific will open for applications early in 2019-20. The program delivers on our commitment in the Gender Equity Policy and Strategy to develop a leadership program for women in agricultural science.

Open to women with a bachelor qualification and above, the program will focus on leadership and high-level science skills. It also includes workshops for key people within the fellows' workplace and in-country mentors, recognising the importance of fostering institutional support for women's leadership.

The first cohort of the fellowship will start in early 2020 with workshops in Australia and an internship of up to 3 months. The program will run over 15 months. Before the program begins, a baseline study of the status of women's leadership in agriculture-for-development will be done. This will enable a benchmark to be established on which to measure progress over time.

Table 6.1: Five-year history of participants in John Allwright and John Dillon fellowships

	2015-16 (actual)	2016-17 (actual)	2017-18 (actual)	2018-19 (actual)	2019-20 (estimated)
John Allwright Fellows: total active in year	130	140	97	85	75
John Allwright Fellowships awarded in year	24	22	7	12	10
John Dillon Fellows: total active and awarded in year	10	10	10	28	28



South Pacific capacity building program

In 2019–20, ACIAR will develop and implement a capacity-building strategy tailored to more effectively address the needs of the agricultural innovation system in the Pacific. The strategy will seek to strengthen relationships, increase talent, and work with institutions to help researchers and decision-makers in the Pacific address emerging agricultural challenges and opportunities.

The strategy will build on existing initiatives, such as the University of the South Pacific Scholarship Program, and develop new approaches, including academic exchanges, institutional support (such as the Pacific-focused John Dillon Fellowship) and an alumni network. The strategy is a whole-of-agency approach, that will improve coordination between research projects and capacity-building approaches.

Other training activities

The ACIAR Launch Fund provides financial assistance to organisations or individuals wishing to conduct or attend events or training that directly benefits international agricultural research. Activities supported by the fund will develop skills and knowledge, and develop and maintain research partnerships, to improve international agricultural research.

ACIAR supports training activities delivered by the Crawford Fund. This includes the Master Class and Training Program, which is a key capacity-building program for international agricultural research-for-development in the region. Participants include mid-career international scientists and young scholars.



Shallots growing as part of a shallot-chilli-rice cropping system.
ACIAR project SLAM/2018/145

Australian researcher activities

In addition to including two Australian researchers in the John Dillon Fellowship cohort each year, the ACIAR Capacity Building Program will continue to provide financial support for the Researchers in Agriculture for International Development network through The Crawford Fund. Researchers in Agriculture for International Development is an active network of early career researchers who share knowledge and opportunities related to agricultural research-for-international-development.

An internship program primarily focusing on placing Master of Business Administration students in agribusiness projects will also continue. Building on a pilot program of two internships in 2017, and a further seven in 2018–19, the program supports Australian masters students to work in-country alongside ACIAR projects on a specific task for three to six months. The program aims to address skills gaps within ACIAR projects, and offers real-world work experience opportunities for postgraduate students. In 2019–20, eight internships will be offered for masters students studying business and social sciences. The program will also be offered to PhD candidates.

Alumni program

All participants in ACIAR capacity-building programs are considered alumni. The Alumni Program is driven through our country and regional offices, with support from the Capacity Building Program. In-country alumni are being consulted about the type of network they would like to create and activities they feel would benefit them. These range from workshops to improve their science communication skills, field trips to ACIAR projects, and presentations from experts.

In 2019–20, alumni activities will continue to be delivered in partner countries. A key event will be held in conjunction with Pacific Week of Agriculture, where a group of ACIAR Pacific alumni will participate in a week-long leadership training and networking program.

Monitoring, evaluation and learning framework

In 2019–20, the capacity-building program will start using the newly developed monitoring, evaluation and learning framework. The framework aims to provide a structured approach to the collection, analysis and use of data about the progress, performance and results of activities within the Capacity Building Program. It clarifies the processes and resources applied to this work, and underpins well-informed and evidence-based program planning and management.

The framework will provide the information needed by the ACIAR Capacity Building Program and by service providers implementing subprograms to make sound day-to-day and strategic management decisions, based on timely and reliable information. It also supports strong accountability to ACIAR senior management, including the Training Committee, about the use of Capacity Building Program resources, supports achievement of positive outcomes, and enables deeper learning from program activities.

Farmers Without Borders

In 2019–20, a pilot of the Farmers Without Borders program will continue to place Australian farmers in the Pacific, Myanmar and Kenya. This follows two placements in Kenya and Timor-Leste in the second half of 2018–19.

The farmer placed in Samoa will work with an organisation that supports local women in agriculture, strengthening the group's agricultural extension approaches. In Myanmar, a group of Australian farmers will be deployed to work with local cropping groups on topics such as improved cropping practices and fertiliser handling. In Kenya, the farmer will work with local smallholder farmers on applying zero-till farming practices.

The pilot will be reviewed during 2019–20, and recommendations considered for the future of the program.

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