

Philippines



A\$4.4 million
Budgeted funding



11

Bilateral and regional
research projects



4

Small projects and
activities

The Philippines experienced strong economic growth over the last decade to 2019, buoyed by robust domestic consumption, low inflation, improving labour market conditions, and steady remittances from overseas Filipino workers. Associated with this has been a major increase in funding support to research in the agriculture and fisheries sectors.

In 2020, the country's economic growth significantly slowed down because of natural disasters such as volcanic eruptions and strong typhoons, and the COVID-19 pandemic, which virtually ceased economic activities due to one of the world's longest and strictest enforced periods of community quarantine.

The Philippines continues to be heavily impacted more than a year since the pandemic started. Many businesses have shut down, unemployment has increased, particularly among workers in the informal sector, and domestic consumption and purchasing power have been considerably reduced. Efforts to reopen the economy following a hard lockdown early in the pandemic resulted in high infection rates due to movement restrictions being eased.

While the agriculture sector has shown some resilience and even grew in the first 3 quarters of 2020, these gains were overturned by the devastation brought about by strong typhoons late in 2020.

Food insecurity remains a significant issue for the poorest and most vulnerable, especially in urban areas, and there is potential for further food shortages due to impacts on supply chains and export restrictions in supply markets.

To address the challenges to food security, particularly on availability and access, the Philippine Government has focused its efforts at the national and local level on providing financial assistance to vulnerable families, distributing food aid, and promoting alternative production and sources of food including through home gardening. The government has also provided assistance to food producers, including:

- » financial assistance
- » bulk buying of fruits, vegetables and livestock for distribution as food aid
- » coordination of logistics and movement of supply, creating local hubs and markets
- » improving post-harvest facilities
- » e-retailing
- » disease management, particularly for African swine fever and fall armyworm.

The Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) is ACIAR's main government partner in the Philippines. In support of national efforts to mitigate the impacts of the pandemic on agriculture and food systems, PCAARRD initiated a COVID-19 response program, GALING-PCAARRD, which assists communities around the country through technology information sharing, food product distribution, and provision of food production technologies and livelihood opportunities amidst the current challenges of the pandemic, and hopefully beyond.

The Philippine Government scaled up efforts to address hunger and to ensure all public-led initiatives are coordinated, responsive and effective. In January 2021, the government launched the National Food Policy, which aims to strengthen government agencies, both at the national and regional levels, and local government units to provide citizens necessary programs and interventions to end hunger, achieve food security, improve nutrition and attain sustainable agriculture.

The Philippines is one of Australia's longest-standing bilateral relationships and we will celebrate 75 years of diplomatic ties in 2021. Bilateral cooperation is underpinned by the Philippines-Australia Comprehensive Partnership. As the second largest bilateral grants partner for the Philippines, Australia will collaborate with the Philippine Government to help manage and recover from COVID-19.

Country priorities

ACIAR has worked with the Philippine Government, research and academic institutions, private sector and civil society partners for almost 4 decades. The partnership has evolved with significant co-investment from our main bilateral partner, PCAARRD, in recent years.

Our program in the Philippines focuses on research to make agricultural products more productive, marketable and internationally competitive, and to build resilience of smallholder farmers, fishers and their households from impacts of natural disasters and climate change, including external shocks such as the COVID-19 pandemic. Higher-value products and market competitiveness would improve food security by enabling smallholder farmers and traders to increase their income and their access to other basic services and economic opportunities.

We work with the Philippine Government to promote prosperity, reduce poverty and enhance stability, and to help respond to the Philippines' agricultural research and development priorities by:

- » making horticultural products more competitive in the market
- » ensuring competitive and sustainable fisheries and aquaculture

- » managing land and water resources for profitable and sustainable agriculture
- » improving returns from low-input livestock production systems
- » mitigating the effects of climate change on the rural poor
- » increasing adoption of technology, through understanding and addressing constraints and extension with poor Indigenous households in the southern Philippines.

These priorities remain relevant, and the underlying issues have been compounded in light of the COVID-19 pandemic. During 2020, ACIAR examined food systems in the Indo-Pacific region to identify vulnerabilities that were exposed or amplified by the COVID-19 shock. This information, published in our report *COVID-19 and food systems in the Indo-Pacific: An assessment of vulnerabilities, impacts and opportunities for action (ACIAR Technical Report 96)*, will be used to inform future research and development to support food systems resilience in the Indo-Pacific region. Food systems assessments were undertaken at 5 locations, including the Philippines. The assessment helped identify focus areas for research collaboration in the Philippines that will contribute to increasing food systems resilience in the face of future shocks.

Capacity building is closely linked to our research initiatives. This priority area has a greater focus on leadership and career development through short-term and medium-term support for Philippine partners. Whenever possible, we encourage our partners to participate the John Allwright Fellowship, the John Dillon Fellowship, the Meryl William Fellowships and other initiatives under the alumni engagement plan.

In recent years, ACIAR has introduced innovations to how we deliver our learning and development programs. One example is the Philippine Agribusiness Masterclass that successfully brought together a cohort of researchers, academics, farmer leaders and representatives from the private sector to collaborate. In 2021, the John Dillon Fellowship was redesigned and in the coming year it will be delivered in-country to a cohort of up to 20 participants with a strong focus on cross-organisational collaboration and strengthening ties with Australian collaborators. The first in-country fellowship program commenced in the Philippines in May 2021, with participants from key government and research partners.

Outreach and communications are also becoming increasingly important to strengthen understanding and awareness of the impact of our programs as part of Australia's aid program in the Philippines, and to support and strengthen relationships between in-country project partners and stakeholders.

2021–22 research program

- » 15 ACIAR-supported projects in the Philippines
- » 9 projects are specific to this country
- » 6 projects are part of regional projects

The research program addresses our high-level objectives, as outlined in the ACIAR 10-Year Strategy 2018–2027, as well as specific issues and opportunities identified by ACIAR and our partner organisations. The following sections briefly describe individual ACIAR-supported projects and anticipated outputs in the Philippines. The projects are 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.

Agribusiness

Fruit and vegetable production are important economic activities in the southern Philippines but are limited by small farm size, poor adoption of technology, low productivity and product quality, and high post-harvest losses. Improving the performance of smallholder value chains for fruit and vegetables, and building community capacity, is the focus of a project led by Dr Gomathy Palaniappan of the University of Queensland. During 2020–21, there will be ongoing facilitation of farmer-to-farmer learning alliances with private sector and grower groups, and between communities, governments and research stakeholders to improve smallholders' income and community livelihoods through the value-chain improvements implemented.¹

ACIAR-supported research in the southern Philippines showed that integrating vegetable value-chain development and community engagement leads to improved innovation, competitiveness, quality and value. However, success occurred at very local scales and, in general, the majority of smallholder horticulture growers in the Philippines are not able to compete in higher-value, more-demanding markets. A new project will identify opportunities for inclusive agribusiness-led market development, evaluate opportunities for digital technologies to increase competitiveness and farm-to-market linkages, and evaluate models for public-private learning alliances and innovative co-investment with agribusiness firms. Led by Dr Lilly Lim-Camacho of CSIRO, the project will work with producers of coffee and high-value fruits and vegetables in the southern Philippines. This project aligns directly with 2 research priorities of PCAARRD.²

Fisheries

Dried sea cucumbers are highly valued in markets across China and South-East Asia. Overfishing and poor fisheries management throughout the Asia-Pacific region have resulted in serious declines of sea cucumber stocks and even led to fishery closures, reducing income-generating opportunities for coastal communities. A project led by Professor Paul Southgate of the University of the Sunshine Coast is developing culture methods that support pond-based sea cucumber farming in Vietnam and sea-based farming in the Philippines. During 2021–22, the project will be training hatchery staff in new methods, continuing field experiments and feeding trials, and refining pond culture methods.³



Improving the performance of smallholder value chains for fruit and vegetables, and building community capacity, is the focus of a project in the southern Philippines. Photo: Chris Maglangit. ACIAR project AGB/2017/039



Building on successful research in coral restoration techniques, ACIAR is now funding work to improve institutional effectiveness and build networks to support restoration programs. Photo: University of the Philippines. ACIAR project FIS/2019/123

In the Philippines, the successful restoration of damaged coral reefs in experimental plots has led to notable increases in reef fish abundance and fish species richness, compared with control plots where coral was not restored. This project, led by Professor Peter Harrison of the Southern Cross University, has established rigorous protocols and long-term monitoring and evaluation of the impacts on fish communities and other reef resources from coral restoration in the northern Luzon region. The project finishes in 2021 with training courses for local communities, reef managers and researchers to build capacity for future fish surveys, reef restoration programs and best-practice reef fisheries management.⁴

Coral reef ecosystems provide important livelihood opportunities to coastal communities in the Philippines, but they are threatened by climate change, overfishing, destructive fishing practices and pollution. While the success of coral restoration using sexual techniques has been confirmed by previous and ongoing ACIAR-supported projects, significant challenges remain regarding the integration of this technology with existing maritime policy and governance to ensure the sustainability of restored reefs. Associate Professor Michael Fabinyi of the University of Technology Sydney leads a new project that aims to improve the institutional effectiveness of coral reef restoration in the Philippines by understanding political-economic influences and drivers at multiple scales, and applying lessons learned through a marine governance network-based approach.⁵

Previous ACIAR research partnerships successfully demonstrated rapid coral population recovery, re-establishment of breeding populations and increased fish abundance from larval coral restoration interventions. Professor Peter Harrison of the Southern Cross University leads a 5-year project to significantly increase the scale of restoration interventions. Techniques established in previous projects will be refined for application in large-scale restoration trials in 4 regions of the Philippines. Trials will be monitored to quantify coral reproduction success. The project will work with communities, researchers and local governments to establish coral restoration networks in the trial regions to support local restoration activities. Heat-stress experiments will be conducted to quantify larval production, settlement and recruitment rates to identify heat-tolerant adult coral genotypes that are resilient under future climate-change scenarios.⁶

Horticulture

About 40 tropical fruit fly species damage horticultural crops and impede trade throughout South-East Asia. A 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 improve pre-harvest and post-harvest practices. The ultimate aim is to improve the yield and quality of crops in order to improve livelihoods and trade opportunities. During 2021-22, focus areas for the project include training farmers and other stakeholders in area-wide management techniques, evaluation of techniques implemented in the field, and integration of techniques into best management practice.⁷

Vegetable consumption is low in the Philippines for several reasons, including the perception that vegetables are of poor quality and unsafe. Vegetable farmers are not well trained in the appropriate use of pesticides, resulting in pesticide residues above permissible limits in harvested crops, exposure of farm workers to pesticide poisoning and contamination of soil and water. Dr Gordon Rogers of Applied Horticultural Research leads a project to improve vegetable supply chains to meet consumer expectations in terms of quality, food safety, nutritional value and price. During 2021-22, the project will continue to measure the social and economic impact of adopting new vegetable good agricultural practice (GAP) protocol and continue training key support personnel, including leading farmers.⁸

Mango production in the Asia-Pacific region accounts for about two-thirds of global production. Much of the crop is produced by smallholders, who achieve relatively modest yields and participate in traditional value-chain arrangements that offer little incentive to innovate or pursue higher quality. Some producers seek better returns by supplying higher-value export markets (such as Korea), but struggle to deliver fruit that meets market or regulatory standards. Dr Muhammad Sohail Mahzar of the Northern Territory Department of Primary Industry and Fisheries Industry, Tourism and Trade will lead a new project in Cambodia and the Philippines that aims to improve the ability of selected mango supply chains to deliver fruit that better meets consumer expectations of quality and value, and provide smallholder growers with a better return on investment.⁹

Fusarium wilt tropical race 4 (TR4), or 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 project led by Dr Anthony Pattison of the Queensland Department of Agriculture and Fisheries aims to develop an integrated management response to the spread of the disease. The research will investigate the effects on banana production of altering the banana microbiome to suppress disease and increase plant resistance. During 2021-22, field surveys of production systems and natural environments will be conducted, and there will be ongoing development and training in statistics and experimental procedures for glasshouse and field experiments.¹⁰



Panama disease has become widespread in banana plantations throughout South-East Asia. ACIAR supports a project to develop an integrated management response to the spread of the disease throughout the region. Photo: Conor Ashleigh. ACIAR project HORT/2018/192

Livestock Systems

The animal origins of COVID-19 have again placed concerns about zoonotic diseases in the global policy limelight. Wet markets in Asia were singled out as a source of global pandemic risk and there were calls to close, ban, regulate and reform them. While some wet markets centre heavily on wild animals, many do not sell wildlife or bushmeat. More commonly, a wet market is a fresh-food market where live animals (poultry, ruminants, seafood and wildlife) are kept, slaughtered and sold to consumers alongside fruits, vegetables and/or grains. Dr Kevin Bardosh and Associate Professor Cecily Maller of RMIT University leads a rapid assessment to understand how the COVID-19 pandemic has impacted wet markets in Vietnam, Kenya and the Philippines, specifically in relation to biosecurity reforms, food security, and women's economic empowerment. This project contributes to stage 3 of the ACIAR assessment of COVID-19 impacts on food systems in our region.¹¹

It is widely reported that the impact of COVID-19 on food systems across the Indo-Pacific is exacerbating gendered inequalities in the region, such as unequal access to productive resources, markets and institutions for women. Also contributing the ACIAR assessment of COVID-19 impacts, Professor Sara Davies of Griffith University leads a small research activity to develop an evidence-based approach to identify and understand the specific gendered impacts of COVID-19 responses on food security and socioeconomic outcomes in Myanmar, the Philippines and Papua New Guinea. These insights will be used to outline opportunities and design approaches that will begin to mitigate the harm caused by the COVID-19 disruption at the individual, household and community level.¹²

Social Systems

More than 24 million people in the Philippines, most of whom live below the poverty line, rely on subsistence agriculture, especially in the country's rural uplands. Deforestation and land degradation in the uplands are major national environmental and social issues. A project led by Dr John Herbohn of the University of the Sunshine Coast focuses on forest landscape restoration to enhance the livelihoods of low-income residents of rural areas. During 2021-22, pilot testing of designs for woodlots, agroforestry systems and woodlot/crop systems suited to smallholders and communities will be completed. Three manuals on smallholder-based tree-crop farming systems will be produced for extension and instruction. Based on several studies within the project, guidelines will be published to assist the formulation of forest and landscape restoration policy within the Asia-Pacific region.¹³

Soil and Land Management

Rubber is the fourth largest crop in the poorest province of the southern Philippines, Agusan del Sur. Only 50% of the total rubber area planted is productive or tappable and average yield in the province is much lower than the national average. By introducing improved profitable rubber-based intercropping systems and sustainable management regimes, a project led by Professor Chengrong Chen of Griffith University aims to boost household incomes for Indigenous smallholder subsistence farmers. During 2021-22, key soil constraints and the most suitable lands for rubber-based cropping systems will be identified. Demonstration sites and capacity building are underway to promote resilient market-oriented rubber-based intercropping systems with low risk, high productivity and profitability.¹⁴

Vegetable production systems of upland farming areas of the Philippines are intensively managed and suffer problems including severe soil acidity, undiagnosed micronutrient deficiencies, excessive accumulation of copper and zinc, excessive application of fertilisers and manures, and erosion. A range of serious soil-borne pathogens also affect productivity in these intensive farming systems. Dr Stephen Harper of the University of Queensland leads a new project to develop management strategies that mitigate, remediate and reduce the risks of contaminants in soils across 3 major vegetable production regions. The project starts with research to provide a clear understanding and validation of the current soil nutrient status, including excesses and deficiencies, and potential short-term and long-term impacts of accumulation of essential heavy metals, particularly copper and zinc, on vegetable production.¹⁵

Country Manager, The Philippines

Position vacant at the time of publication

Research Program Managers

Agribusiness: Mr Howard Hall

Fisheries: Prof Ann Fleming

Horticulture: Ms Irene Kernot

Livestock Systems: Dr Anna Okello

Social Systems: Dr Clemens Grünbühel

Soil and Land Management: Dr James Quilty

See page 197 for contact details.

Current and proposed projects

1. Developing vegetable and fruit value chains and integrating them with community development in the southern Philippines (AGB/2017/039)
2. Agribusiness-led inclusive value chain development for smallholder farming systems in the Philippines (AGB/2018/196)
3. Increasing technical skills supporting community-based sea cucumber production in Vietnam and the Philippines (FIS/2016/122)
4. Baseline monitoring and evaluation of long-term impacts on fish stocks from coral restoration [Philippines] (FIS/2018/128)
5. Institutional effectiveness and political economy of coral reef restoration in the Philippines (FIS/2021/112)
6. Regional coral restoration networks and appropriate technologies for larger-scale coral and fish habitat restoration in the Philippines and Australia (FIS/2019/123)
7. Development of area-wide management approaches for fruit flies in mango for Indonesia, Philippines, Australia and the Asia-Pacific region (HORT/2015/042)
8. Developing vegetable value chains to meet evolving market expectations in the Philippines (HORT/2016/188)
9. Improving mango crop management in Cambodia, the Philippines and Australia to meet market expectations (HORT/2016/190)
10. An integrated management response to the spread of *Fusarium* wilt of banana in South-East Asia [Indonesia, Laos, Philippines] (HORT/2018/192)
11. Rapid assessment of the impact of COVID-19 on wet market reforms: case studies from Vietnam, Kenya and the Philippines (COVID-19 impacts program) (LS/2020/204)
12. COVID-19: gendered risks, impact and response in the Indo-Pacific: rapid research and policy guidance (COVID-19 impacts program) [Myanmar, Papua New Guinea, Philippines] (LS/2020/203)
13. Enhancing livelihoods through forest and landscape restoration [Philippines] (ASEM/2016/103)
14. Land management of diverse rubber-based systems in southern Philippines (SLAM/2017/040)
15. Managing heavy metals and soil contaminants in vegetable production to ensure food safety and environmental health in the Philippines (SLAM/2020/117)