Myanmar

A$4.4 million
Budgeted funding

16
Bilateral and regional research projects

5
Small projects and activities

Despite recent positive economic growth, Myanmar is developing from a very low base. Myanmar still has the second lowest GDP per capita in South-East Asia, and most development indicators lag behind regional neighbours. The Myanmar economy is undergoing complex reforms, including improving the transparency of the government budget, establishing a more independent central bank, improving the tax system and enacting foreign investment laws. Australian aid is helping to create a legislative and policy environment that incentivises inclusive investment, trade and economic reform. We also promote women's economic empowerment and support partners to facilitate increased engagement between government, the private sector and civil society. In rural development, Australia is committed to increasing incomes and access to finance for rural households.

An overview of Australia's aid program in Myanmar is available on the DFAT website.

Despite its past isolation, Myanmar is steadily catching up economically with its ASEAN neighbours. As global growth weakened, Myanmar's economy has grown at around 6% per annum in recent years.

Myanmar's service sector remains the main driver of growth, followed by the industrial and agriculture sectors. While Myanmar registers among the top 10 global growth performers, more than one-third of its population remains in poverty, with 6.2% in extreme poverty.

Myanmar is strongly reliant on intra-ASEAN trade of agricultural products. In 2018, within the ASEAN region, Myanmar exported the largest share of agricultural products (28%) and imported the largest share of agricultural products in total imports (13%). While ASEAN neighbours are among its top investors in recent years, China has the largest economic footprint in the country.

Parliamentary elections are scheduled for November 2020, but this will depend on the situation of the COVID-19 pandemic in Myanmar at the time. In the light of the pandemic and the poor state of the country's healthcare system, GDP growth forecasts are being lowered.

Despite the economic shift away from agriculture, the sector remains a high priority for the Government of Myanmar. Agriculture contributes about 30% of the GDP. Almost 70% of Myanmar's 54 million people live in rural areas and rely on crop husbandry and livestock for their livelihoods and incomes. The fishery and livestock sectors are considered the most important, after agriculture, to meet the protein needs of the population, enhance food security and provide employment for rural communities.

Foreign investment has played a key role in the mechanisation of agriculture and the extension of agricultural value chains. In 2019, foreign investments in agriculture, livestock and fisheries rose to 6.4% of foreign direct investment. However, local credit growth in agriculture declined in 2018–19 from 13% to 11%. According to the World Bank, increased foreign and domestic investment in higher-quality seeds, mechanisation and improved irrigation could boost agricultural production. The World Bank also stated that the expanded use of digital technologies could increase agricultural productivity and household revenue in the rural sector by providing better information to farmers and broadening market access.

Myanmar is vulnerable to natural hazards, including cyclones, storms, floods and earthquakes. In addition to limited investment in disaster risk reduction, much of the state's farmland is poorly adapted to these challenges. The FAO stated that the promotion of water management and conservation practices to help rebuild productive infrastructure, improve water storage, rehabilitate agricultural land and reduce the impact of potential disasters remains critical.

The main policy document guiding the agriculture sector in Myanmar is the Agricultural Development Strategy and Investment Plan (2018–2023) which has three pillars: governance, productivity, and market linkages and competitiveness. The long-term plan is intended to be a guide towards inclusive development of agriculture in Myanmar that is based on cooperation between government, farmers and private businesses.

Country priorities

Myanmar is an important partner for Australia. Australia's engagement with Myanmar aligns with the *Australian Government 2017 Foreign Policy White Paper* priorities, including the promotion of a prosperous and stable Indo-Pacific region, liberal democratic principles and rules-based norms. Australia's aid program in Myanmar helps support inclusive economic growth and increased trade by strengthening government capacity, promoting peace and stability, and supporting the development of an educated and competitive workforce.

To support the agricultural development goals of the Government of Myanmar, and consistent with Australia's strategic objective on inclusive economic growth, a long-term country program strategy finalised in 2019–20 will guide the ACIAR program during 2020–21. Research priorities for the ACIAR program in Myanmar will focus on:

- increasing net production of food and cash incomes of rural households in the Central Dry Zone and Ayeyarwady Delta, through improvements in, and adoption of, production and post-harvest technologies in agriculture, including livestock and fisheries
- building capacity in agricultural, livestock and fisheries research, development and evaluation through program activities and postgraduate and short-term training
- providing technical assistance and advice on policy strengthening to relevant Government of Myanmar departments.

2020–21 research program

ACIAR supports 21 projects in Myanmar, nine of which are specific to this country. 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 Myanmar. 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

Improving the agricultural value chain and developing trade models are ways of improving the livelihoods of farmers across many industries. A project in Myanmar and Vietnam, led by Dr Gordon Rogers of Applied Horticultural Research, aims to develop an understanding of vegetable markets and value chains, and identify opportunities for safe and off-season vegetable production for urban, wholesale and retail markets. In its final stages, the project will document and publish a scalable model for production, marketing and supply of high-quality vegetables in Myanmar. The model is informed by experience and protocols developed previously for smallholder vegetable growers in Northwest Vietnam.[1]

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. Based on evaluation of agricultural value-chain financing models, the project will work with project partners to design and implement innovative and inclusive models.[2]

Cassava witches' broom disease and Sri Lanka cassava mosaic virus are spreading rapidly in South-East Asia. A project led by Dr Jonathan Newby of the International Center for Tropical Agriculture is developing technically viable and economically and socially sustainable ways to improve the resilience of cassava production systems and value chains in Cambodia, Laos, Myanmar and Vietnam. During 2020–21, the project will test and evaluate methods to slow the spread of the diseases, such as virus-free planting material and resistant varieties, and strengthen capacity and regional networks to reduce new pest and disease incursions.[3]

Pulses are one of Myanmar's most important crop groups in terms of production and exports. A significant proportion of smallholder farmers grow pulses, with the area harvested second only to rice. Export markets rely heavily on India and China; however, as these countries make concerted efforts towards self-sufficiency, the pulses and broader agriculture sectors in Myanmar need greater resilience. Ms Deb Doan of Business for Millennium Development will conduct a pulses market development analysis to understand Myanmar's export/domestic market opportunities, identify areas across the value chain that require investment and identify potential partners who can help drive the required value-chain changes.[4]

Crops

Mungbean is an ideal rotation crop for smallholder farmers. The International Mungbean Improvement Network, established through an ACIAR-supported project led by Dr Ramakrishnan Nair of the World Vegetable Center, helped realise the potential of mungbean to improve cropping system productivity and livelihoods by improving researchers' access to genetic material, and coordinating and providing technical support to variety development work in Bangladesh, India, Myanmar and Australia.[5] Phase 2 of the network commences in July 2020, continuing variety development for another five years and extending the network to Kenya and Indonesia, providing access to new genetic material and improved cropping options for smallholder farmers in eastern Africa and South-East Asia.[6]

High labour costs and labour shortages at harvest time constrain mungbean production in Bangladesh, Myanmar and Pakistan. A project led by Dr Ramakrishnan Nair aims to establish and validate a practical and economically viable system for smallholders to mechanically harvest mungbean. During 2020–21, final evaluations of combine harvesters adapted for local conditions and farming systems will occur, as well as final research to understand the current role of women in mungbean harvesting and the likely impacts of mechanical harvesting on their livelihoods.[7]

Appropriate use of pesticide contributes to food security but misuse, or use of particular products, can compromise food safety, human health, water and soil quality, and non-target organisms, including pollinators. While pesticide use (and misuse) have been comparatively low in Myanmar, increasing suspected pesticide-related poisoning in rural communities is a national concern. Benchmarking current pest-management practices and pesticide use/misuse in food crops was the first step of a small research activity led by Dr Sivapragasam Annamalai of the Centre for Agriculture and Bioscience International. By the end of 2020, the project will develop practical recommendations and actions to address current and potential future problems.[8]

A new species of armyworm, the fall armyworm (*Spodoptera frugiperda*), has caused serious damage to rice, sugarcane, sorghum, beet, tomato, potato and cotton crops throughout the Indo-Pacific region, and individuals have been recorded in northern Australia. The species poses a serious challenge to smallholder farmers in terms of sustainable management practices. A small research activity, led by Dr Wee Tek Tay of CSIRO and co-funded with the Australian Grains Research and Development Corporation, will investigate current successful management options for the pest and determine genetic differences between populations of the pest in South-East Asia and Australia—particularly to understand existing levels of insecticide resistance. The knowledge generated will be useful for future integrated pest-management approaches and the development of a draft resistance management plan.[9]

Mungbean is an ideal rotation crop for smallholder farmers. The International Mungbean Improvement Network established through an ACIAR-supported project works to improve cropping system productivity and livelihoods. Photo: Conor Ashleigh. ACIAR project: CROP/2019/144.

Fisheries and irrigation experts in the field, assessing river barriers and speaking with fisherfolk about changes in fish populations and other observations due to barriers in waterways. The survey precedes the installation of fishways (ladders) to restore migratory fish communities. Photo: Candice Bartlett. ACIAR project: FIS/2014/041.

Fisheries

Rice and fish are two essential components of nutritious diets in the Lower Mekong Basin, with fish from the Mekong River system providing the main source of animal protein. Thousands of low-level irrigation barriers have been installed in the Lower Mekong Basin to regulate water flow for rice cultivation and control flooding. These structures create barriers to fish attempting to migrate to and from floodplains, which are vital breeding and nursery habitats. Fish ladders for upstream fish passage, based on designs used in the Murray–Darling Basin in Australia, have been applied successfully in the Mekong system. To complement this work, Professor Lee Baumgartner of Charles Sturt University and teams are developing fish-friendly downstream regulators. These new designs improve fish survival as they allow fish to pass without injury.[10]

Despite the importance of small-scale fisheries to the Myanmar economy and people's livelihoods, there is scope to strengthen fishery management in Myanmar. Poor management has put important fish-production areas at risk, and the people who rely upon them are increasingly vulnerable. A project led by Dr Michael Akester of the WorldFish Center is assisting Myanmar's Department of Fisheries identify suitable co-management approaches and fisheries access arrangements to secure maximum benefits for small-scale fishers. The project will also build the capabilities of government and fisheries organisations to conduct fisheries research and develop policy.[11]

Rice and fish are key elements of diets in Myanmar, as well as major agriculture sectors. Rice–fish systems encompass a spectrum of farming and fishing practices from traditional capture of fish in rice-dominated landscapes to controlled farming of fish in rice fields. With recent policy shifts in Myanmar, farmers are encouraged to diversify farming systems in agriculture, livestock and fisheries, presenting an opportunity for more productive rice–fish systems. A project led by Dr Michael Phillips of the WorldFish Center is findings ways to improve rice–fish systems in the Ayeyarwady Delta to enhance production and management and optimise income, food and nutritional outcomes for households. The project will also support policymakers develop enabling policy for land use, rice production and fisheries.[12]

Across South-East Asia, as floodplains are developed for irrigation and river flows are regulated, river communities are at risk of losing fishing income and an important source of protein and essential nutrients. Previous ACIAR projects showed that fishways, which facilitate passage of migratory fish up and down regulated rivers, can have lasting economic and social benefits for river communities. Professor Lee Baumgartner of Charles Sturt University is leading a project to develop a platform for sound decision-making on fish passage construction programs across South-East Asia, a targeted capacity-building program to address institutional needs for the integration of fish passages into irrigation infrastructure and guidelines for the development of fish passage policy and legislation in Cambodia, Laos, Myanmar and Indonesia.[13]

Livestock Systems

Goats and sheep (small ruminants) are an important income source and asset for rural and peri-urban smallholders in many parts of the world, including Myanmar. Cattle are often kept for draught power, but small ruminants are a source of income and food for many households. A project, led by Dr Angus Campbell of the University of Melbourne, will help farmers in Myanmar improve goat and sheep production, transforming their herd from an opportunistic, low-input/low-output activity to a profitable market-focused enterprise, through more efficient management of animal production and health.[14]

About half of Myanmar's 15 million cattle are in the Central Dry Zone, and their primary use is to provide draught power, transportation and manure for fertiliser. Myanmar is undergoing significant transformation. Mechanisation is expected to quickly reduce the need for draught animals over the next decade. This provides a unique opportunity for smallholder farmers to move from keeping draught animals to producing beef cattle. Dr Dianne Mayberry of CSIRO Agriculture and Food leads a project to support smallholder farmers by identifying the opportunities and constraints for developing a beef enterprise, developing management systems to meet production goals and quantifying potential impacts of improved forage and animal management packages on livelihoods.[15]

Poultry enterprises are increasingly recognised as a way to improve the nutrition of poor households, while economically empowering women, who are the key custodians of smallholder poultry. However, low-producing chicken genotypes typically dominate smallholder or family production systems. Dr Tadelle Dessie of the International Livestock Research Institute will lead a new project that aims to test and make available high-producing, farmer-preferred genotypes of chickens to increase smallholder productivity as a pathway out of poverty in Cambodia, Myanmar and Vietnam. The project will also strengthen the capacity of young scientists in the project countries to conduct high-quality research on village poultry systems to benefit smallholder farmers in their countries.[16]

There is an urgent need to consolidate existing evidence and identify gaps in global research to demonstrate the scale of reductions in greenhouse gas emissions that occur with more efficient livestock production systems. Using the expertise and capabilities of Australian and New Zealand climate science, Dr Paul (Long) Chen of the University of Melbourne will lead a new project developing methods and models that apply to livestock development projects to quantify real and potential reductions in emissions and determine the opportunities and trade-offs between productivity gain and economic returns. The results will help determine if greenhouse gas offsets can be captured and linked with nationally determined contributions (NDCs) of partner countries, and if there is potential for voluntary carbon-credit trading to diversify smallholders' income.[17]

Socially inclusive and technically appropriate institutional arrangements are being developed and tested to restore artesian groundwater pressure in the Central Dry Zone of Myanmar. Photo: ACIAR. ACIAR project: SSS/2018/135.

Social Sciences

About 300,000 people derive their livelihoods within artesian groundwater zones of the Central Dry Zone of Myanmar. However, both the pressure and flow rate of this naturally pressurised water source are declining due to overexploitation. The Irrigation and Water Utilization Management Department has highlighted the urgent need to rehabilitate both private and public free-flowing artesian tube wells. A project led by Dr Sonali Senaratna-Sellamuttu and Mr Sanjiv de Silva of the International Water Management Institute will develop and test socially inclusive and technically appropriate institutional arrangements, and support targeted communication strategies to restore artesian pressure in the Central Dry Zone.[18]

Previous ACIAR work reported that turning research into practical innovation is increasingly challenging in an era of accelerating global resource demand and climate change, creating an imperative for transformational change across farms, landscapes, markets, institutions and populations. A small research activity will generate practical insights and actionable recommendations for ACIAR programs to better integrate agricultural practice change and community engagement. Dr Mary Johnson of RMIT University will lead a literature study from the Mekong region, comparing and contrasting public health promotion approaches and agricultural extension to find practical lessons and areas for cross-disciplinary learning and innovation. A diagnostic framework and supporting resources will be produced for use by ACIAR to assess project proposals to ensure that agricultural practice change and community engagement are at, or redefining, the cutting edge of agricultural extension.[19]

Soil and Land Management

Agriculture is a dominant economic sector of Myanmar, but it is currently characterised by some of the lowest levels of productivity in the Asian region, and is growing at a lower rate than the Myanmar economy in general. The only providers of agricultural and veterinary tertiary education in Myanmar are Yezin Agricultural University and the University of Veterinary Science. A project led by Professor Kaye Basford of the University of Queensland will address the low productivity of agriculture by increasing the capacity of both universities so that they can deliver graduates with the research skills and knowledge to identify constraints to agricultural production and develop pragmatic solutions.[20]

Agriculture in Shan State, Myanmar, has enormous potential to help people out of poverty, but productivity and efficiency are constrained by many factors. Soil-based challenges include poor nutrient acquisition by plants, infertile soil due to removal of nutrients in residues and continual erosion of topsoil. Dr Terry Rose of Southern Cross University leads a project that will assess variety and nutrition interactions in upland rice to increase yields, demonstrate hedgerows and legume-based pasture to reduce erosion on sloping lands, and understand, through farmer survey, potential barriers to adoption of legume-based pastures, livestock in farming systems and uptake of new rice varieties.[21]

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Current and proposed projects

1. Improving livelihoods in Myanmar and Vietnam through vegetable value chains (AGB/2014/035)
2. Inclusive agriculture value chain financing [Indonesia, Myanmar, Vietnam] (AGB/2016/163)
3. Establishing sustainable solutions to cassava diseases in mainland South-East Asia [Cambodia, Laos, Myanmar, Vietnam] (AGB/2018/172)
4. Market and opportunity analysis to guide market-led development of the Myanmar pulse sector (AGB/2019/154)
5. Establishing the International Mungbean Improvement Network [Bangladesh, India, Myanmar] (CIM/2014/079)
6. International Mungbean Improvement Network – phase 2 [Bangladesh, India, Indonesia, Kenya, Myanmar] (CROP/2019/144)
7. Improved mungbean harvesting and seed production systems for Bangladesh, Myanmar and Pakistan (CIM/2016/174)
8. Plant health – a major challenge to achieving sustainable "green" agriculture in Myanmar (CROP/2019/103)
9. Characterisation of *Spodoptera frugiperda* (fall armyworm) populations in South-East Asia and northern Australia (co-funded with GRDC) [Indonesia, Vietnam, Laos, Myanmar, Cambodia, Philippines, Malaysia] (CROP/2020/144)
10. Quantifying biophysical and community impacts of improved fish passage in Laos and Myanmar (FIS/2014/041)
11. Improving fishery management in support of better governance of Myanmar's inland and delta fisheries (FIS/2015/046)
12. Development of rice–fish systems in the Ayeyarwady Delta, Myanmar (FIS/2016/135)
13. Translating fish passage research outcomes into policy and legislation across South-East Asia [Cambodia, Indonesia, Laos, Myanmar] (FIS/2018/153)
14. Improving farmer livelihoods by developing market-oriented small ruminant production systems in Myanmar (LS/2014/056)
15. Improving cattle production in the Myanmar Central Dry Zone through improved animal nutrition, health and management (LS/2016/132)
16. Asian chicken genetic gains: a platform for testing, delivering, and improving chickens for enhanced livelihood outcomes in South-East Asia [Cambodia, Myanmar, Vietnam] (LS/2019/142)
17. Value-adding to existing livestock programs to understand and quantify the implications of greenhouse gas emissions, provide options for emissions reduction and inform in-country policy development [Cambodia, Indonesia, Kenya, Laos, Myanmar, Pakistan, South Africa, Tanzania, Timor-Leste, Vanuatu, Vietnam, Zambia] (LS/2019/159)
18. Building institutions for the sustainable management of artesian groundwater in Myanmar (SSS/2018/135)
19. A framework for assessing agricultural extension approaches and an analysis of transferrable public health approaches [Australia, Cambodia, Laos, Myanmar, Thailand, Vietnam] (SSS/2019/186)
20. Mainstreaming research in Myanmar's agricultural and veterinary universities (SLAM/2017/041)
21. Soil-based challenges for cropping in Shan State, Myanmar (SLAM/2018/190)