



Australian Government
Australian Centre for
International Agricultural Research



ACIAR COUNTRY PROGRAM BRIEF

Research findings with development implications

LAO PDR COUNTRY PROGRAM 2016–2017



Farmer with buffalo collecting grasses for feeding livestock (Photo: ACIAR)

INTRODUCTION

Since 1990, ACIAR has supported more than 100 research projects and collaboration with Lao PDR and invested more than A\$50 million on these research partnerships. Our mandate is to amplify the impact of Australia's exceptional capabilities in agricultural science by brokering and funding agricultural research for development partnerships in developing countries like Lao PDR.

In Lao PDR, our strategic priority outcomes are:

1. Efficient and sustainable forestry industries, including non-timber products, with suitable climate change resilience;
2. Innovative livestock systems that allow for intensification and land-use requirements while raising animal health and biosecurity levels;
3. Increased fish habitat restoration and protection of fish migration routes;
4. Cost-effective and sustainable rice-based farming systems through the application of mechanisation, diversification and intensification in, together with enhanced crop quality, quarantine standards and value-adding for domestic and export markets;
5. Improved natural resource management that benefits livelihoods and food security, through delivering land-use options to smallholders, with attention to both water and nutrient management within climate change adaptation; and
6. Improved institutional training and communication frameworks that enable smallholders to adopt and adapt new technologies and enhance the capacity development of researchers and educators.

KEY ACHIEVEMENTS (FY 2016–17) ACCORDING TO PRIORITY OUTCOMES

From July 2016 to June 2017, a raft of ACIAR-supported initiatives delivered meaningful results that led to changes in farmers' practices and donors' program development. Also, demonstrating the recognition from the Lao Government of the importance of the research ACIAR supports, the Vice Minister of Agriculture and Forestry asked ACIAR to provide clear policy advice on measures that were needed to support (i) development of fish

friendly irrigation infrastructure, (ii) management of ground water resources in southern Lao for irrigation, (iii) advancement of teak and teak-based agro-forestry systems, and (iv) implementation of better approaches to smallholder cattle production and implementation of bio-security measures.

Below are some of the key achievements, organised according to ACIAR's key programs in Laos:

Forestry Program

Contributing to our priority outcome on efficient and sustainable forestry industries in Laos, our Forestry Program achieved significant milestones this year. The research helped develop a map of plantation teak areas using high resolution remote sensing imagery and thus enabling evidence-based planning and policy development. ACIAR support also helped select and reproduce fast-growing and higher value teak clones suitable for Northern Laos. The production of genetically improved teak seedlings using tissue culture opens up the way to improve returns to farmers and provide better quality of timber to wood processors. This achievement represents a significant milestone in Laos' forestry sector since diverse teak-based agroforestry systems offer

opportunities for both short and long-term income generation to Lao smallholders.

On the other end of the teak value chain, ACIAR also supported the installation of a modern veneer processing facility in the National University of Laos which introduced the spindle-less lathe technology. Through this technology and facility, Laos will be in a position to produce new veneer-based value-added products, which will increase the economic value of finished wood products that can be produced from small dimension logs. All these project results and their future impacts are noteworthy in the context of the Lao Government's goal on increasing forest cover and smallholder incomes through sustainable forest management.



H.E. John Williams, Australian Ambassador to Lao PDR, and students from the Northern Agriculture and Forestry College and Souphanouvong University plant the first superior teak seedlings produced in Lao PDR through tissue culture. A significant milestone in a long-term partnership between Australian and Lao researchers aimed at improving the genetic quality of smallholder teak agroforestry systems in Laos. (Photo: Johnathan Newby)

Fishery Program

Contributing to our priority outcome on increased fish habitat restoration and protection of fish migration routes, ACIAR-supported projects helped build fish-friendly irrigation structures that enable fish to move both upstream and downstream of low-head (less than 6 metres) water control structures. As a result, fish movements are being enabled which consequently allow local communities to maintain fish as a significant protein source in their diets.

The high profile project results have so far led to major donors (primarily World Bank, Asian Development Bank, and USAID) to adopt the research findings in larger development investments. For instance, the World Bank constructed 11 fish ladders in the Xe Bang Fei system and at Soui Reservoir (US\$5 million) and is expected to fund a further 14 fish ways in Southern Laos. Meanwhile, the Asian Development Bank is on track to fund fish-way construction at up to 15 regulators in Northern Laos as part of an irrigation diversion upgrade project.

Crops Program

Contributing to our priority outcome on cost-effective and sustainable rice-based farming systems, ACIAR-supported projects in Southern Laos focused on research and development for smallholders to adapt to changing climatic and socio-economic conditions. Geographic Information System (GIS) maps of the rain-fed lowland rice environment of Savannakhet and Champassak provinces were produced. Also, a direct-seeding technology along with agronomic packages for maize and legumes growing in rotation

with rice were produced and demonstrated to farmers.

The impacts of these project results are substantial. The GIS maps provided critical information on the likelihood of drought occurrence in the areas, and the time when the crop could be planted and harvested. The project interventions also contributed to the rapid increase in adoption of mechanised drill seeding by smallholders, which is demonstrated to save labour and help adapt to more variable rainfall. Last wet season, the Provincial Agriculture and Forestry Office (PAFO) reported that mechanised drill seeding is now used on over 17,000 hectares in Savannakhet¹. Another significant aspect of the social impact of direct seeding is that the hard field work of pulling seedlings and transplanting, often undertaken by female workers, is reduced.

Natural Resource Management Program

Contributing to our priority outcome on improved natural resource management, ACIAR supported a suite of projects that looked into water and nutrient management. One project on groundwater significantly boosted the knowledge and expertise to develop groundwater resources for irrigated agriculture and manage these resources sustainably. It has been established that using groundwater for irrigation is feasible and profitable for farmers. Under the project, farmers using groundwater for dry

¹ Based on Savannakhet PAFO reports, the area planted has increased from 0 hectares in 2007 to 80 hectares in 2014 to over 800 hectares in the 2015 wet season and over 15,000 ha in 2016

season cropping earned additional incomes as high as 4 million LAK per season.

Another project is conducting research on improved grasses for feeding livestock. The high quality forage produced year round without irrigation has already captured the attention of visiting farmers who have

begun to adopt forage options for themselves. By May 2017, more than 20 households have started preparations to evaluate the new forage varieties. Five large experimental fields have already been sown, which include combinations of up to seven varieties, two harvesting rates and five management practices such as fertiliser and soil amendments.



Mrs Pheng waters her garden in Ekxang Village. (Photo: Madeline Dahm)

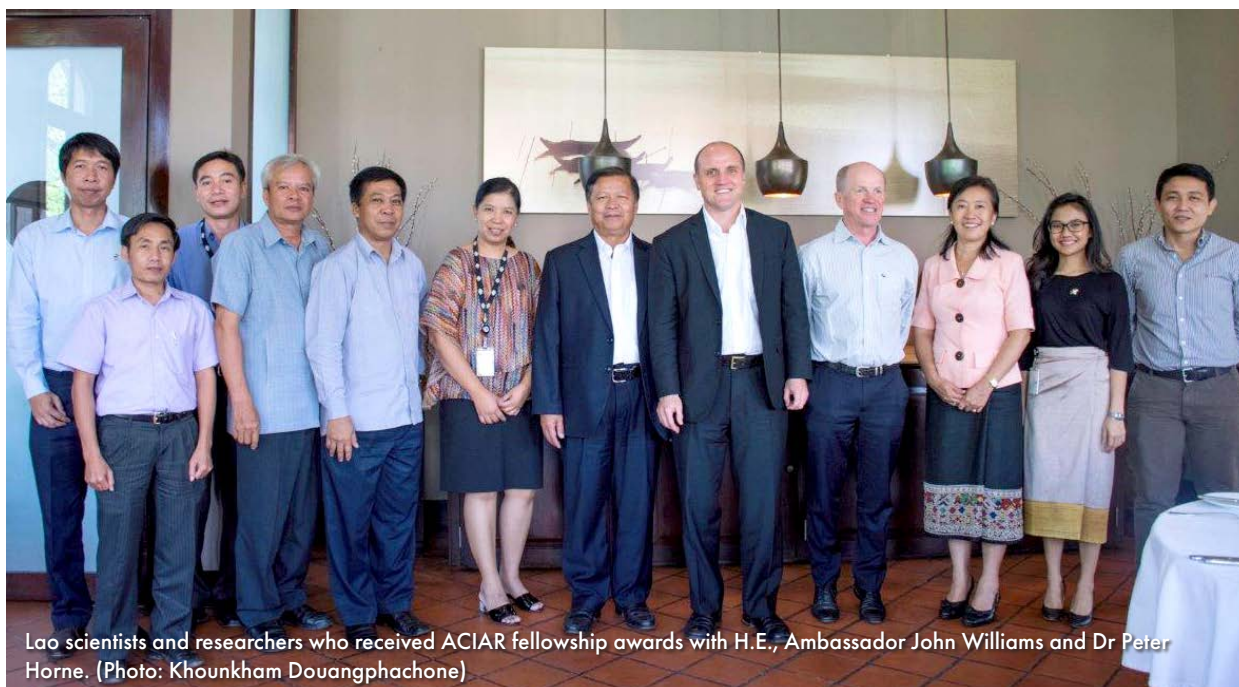
Agricultural Systems Management Program

ACIAR projects help enable smallholders to adopt and adapt new technologies. One project on market engagement, postharvest management productivity of the Lao vegetable sector for instance, has developed a low cost structure that protects crops from heavy rain but also maintains a productive growing environment. When farmers used the plastic and shade structure and grew coriander crop, the yield is increased 90-97%. After the cost of the protective structure and all growing costs are accounted for, the net benefit to the farmer is approximately 1,500,000 LAK per rai.

Capacity Building Program

Building capacity in partner countries is also a key priority for ACIAR. John Allwright Fellowships (JAF) are awarded to scientists involved in ACIAR-supported projects to undertake postgraduate training, usually at Masters or PhD level, at Australian universities. Since 2005, under the JAF Program, ACIAR has awarded 11 scholarships to students from Laos.

The John Dillon Memorial Fellowships (JDF) are provide to outstanding mid-career agricultural scientists and economists to develop leadership skills in the areas of agricultural research management, agricultural policy and/or extension technologies, through exposure to Australian agriculture across a range of best-practice organisations involved in research, extension and/or policymaking. ACIAR has awarded JDFs to 6 professionals from Laos so far.



Lao scientists and researchers who received ACIAR fellowship awards with H.E., Ambassador John Williams and Dr Peter Horne. (Photo: Khounkham Douangphachone)



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