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ACIAR IN VIETNAM

Contents

***Front cover photo**: Australia's Commission for International Agricultural Research and Policy Advisory Council visited SunRice mill in Lap Vo District, Dong Thap Province in June 2022.*

***Back cover photo**: Red beets grown in salinity-affected soil in Soc Trang Province as a new potential crop for farmers to make income during the dry season.*

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Editorial note

Dear Readers,

Happy New Year! We are excited to jump in 2023 as this year marks the 30th anniversary of the ACIAR–Vietnam partnership. Looking back to the journey of over 3 decades, we are overwhelmed by memories, lessons learned, success stories, research impacts, and most importantly, the trust we have built with so many valued partners.

Still, there are many emerging challenges that we face together, as highlighted in the message by Mrs Fiona Simson, Chair of the Australia's Commission for International Agricultural Research and Professor Wendy Umberger, the President of the Australia's Policy Advisory Council on page 4 of this issue. But we are confident that with our wealth of experience, leadership and the long-standing relationships with our Vietnamese partners, we can stand strong and grow further in the coming years.

We want to celebrate our 30 years in Vietnam through joint activities with our partners and Vietnamese ACIAR alumni, farmers and businesses who have worked with us and those who want to work with us in the future. Don't miss our announcement of a series of activities to mark the anniversary and let us know which activities you want to join.

In this edition, you will find stories of doing research with a real-world perspective, reflecting through the lens of Mr Howard Hall, ACIAR Special Advisor on Commercial Engagement and Adoption, and of the project teams working on agribusiness, forestry, and soil and land management. We want to share the continuous joint efforts between leading Vietnamese, Australian and international researchers to solve the complex issues we are facing together, including, but not limit to, food and nutrition security, climate change, biosecurity, and livelihood improvement.

We hope you enjoy this edition. And we look forward to continuing to work with you in 2023.

ACIAR Vietnam team

Critical need for Australian expertise to tackle food systems threats in the Mekong Delta

By Mrs Fiona Simson, Chair of the Australia's Commission for International Agricultural Research and Professor Wendy Umberger, President of the Australia's Policy Advisory Council for International Agricultural Research

Two Australian advisory bodies – the Commission for International Agricultural Research and the Policy Advisory Council – recently visited Vietnam to see first-hand the major challenges facing one of the region's critical food bowls, the 40,500 km2 Mekong Delta.

The Mekong Delta is a major rice, fisheries and fruit producing region that underpins Vietnam's role as the world's second largest rice exporter. Recent high-resolution mapping has revealed that the lower Delta is much lower than previously assumed, with a mean elevation of just 0.8m above sea level. Sea level rises and land subsidence from groundwater extraction are combining to lower the elevation of the Delta by as much as 5cm per year. Increasing incursion of saline water is forcing many farmers out of rice and fruit production.

Vietnam is addressing these challenges on multiple fronts, including engineering, crop breeding and livelihood diversification, notably rice-shrimp mixed farming and others. The scale of the threats is formidable. A 1 metre sea level rise - which at current rates may occur before 2050 - will see >30% of this major food bowl become permanently inundated and up to 20 million people severely impacted. This is not just a drastic national challenge for Vietnam but one that will impact regional and global food supply. Vietnam needs international research and policy collaboration to counter the significant challenges.

Further, the urgency of the problems facing the Delta is mirrored throughout South-East Asia and the Pacific. Sea level rises, along with subsidence and reduced flow from upstream, means that saline intrusion in this region is happening much faster than global averages. More extreme rainfall and drought events are predicted to cut per capita crop production by up to a third. The urgency for action is clear.

Australia has a critical role to play. Through our agricultural innovation systems and long experience with climate extremes and volatility, we have strong and diverse expertise that can help address these challenges, many of which we share with our neighbouring countries. Vietnam, along with other Indo Pacific nations, look to partner and collaborate with Australia to further develop technologies to help farmers and the entire food system adapt to the new realities and transform their agrifood systems. Co-invested collaborative research and capacity building models, like the one that Vietnam and the Australian Centre for International Agricultural Research are developing, will be critical to address the complex impacts of climate change on food systems and natural resources.

Based on our observations in the Mekong Delta and given the scale and urgency of the threats to global food systems, the Commission and Policy Advisory Council hosted a Food Systems Dialogue in Brisbane on 1 November 2022. The aim was not to dwell on the scale and nature of the problems, but to focus on transformative food system options that need urgent global support through international research and development collaboration.

The Commission for International Agricultural Research and the Policy Advisory Council met with farmers in the Mekong Delta. Photo: ACIAR.

ACIAR and Vietnam partnership: building on momentum

The mid-term review of the ACIAR–Vietnam research collaboration strategy was co-chaired by Dr Peter Horne from ACIAR and Dr Le Quoc Doanh, Vietnam's then Vice Minister of Agriculture and Rural Development (standing in the front row, fourth and fifth from the left). Photo: ACIAR Vietnam.

Mid-term review of the ACIAR–Vietnam 10-year collaboration strategy

Agricultural research leaders from ACIAR and Vietnam met in Hanoi in June 2022 to discuss Vietnam's future research and development priorities. Led by Vietnam's Ministry of Agriculture and Rural Development (MARD), the meeting focused on a long-term collaborative research strategy between the two countries and how Australian agricultural expertise could further contribute to Vietnam's agriculture development priorities over the next decade.

The meeting marked the first time in nearly 3 years that ACIAR and MARD could meet in person due to pandemic-related travel restrictions.

ACIAR General Manager of Country Partnerships, Dr Peter Horne, said the meeting provided a valuable opportunity to review the implementation of the ACIAR–Vietnam 10-year strategy (2017-2027).

'It was very helpful of MARD to suggest this review meeting, halfway through our 10-year partnership commitment. It was the right time to review what we have achieved together over the last 5 years, including almost 3 very challenging years of COVID,' Dr Horne said.

'We have gained extremely useful insights on partnership management through challenging times, which will help us better shape how we collaborate in the future.'

Then-MARD Vice Minister, Dr Le Quoc Doanh, welcomed the meeting and reiterated the value of the long-running partnership with ACIAR.

'One of the strongest advantages of our partnership is the mutual acknowledgment of shared goals and benefits. ACIAR has always put Vietnam's priorities at the centre of its investment decisions. Most ACIAR-supported projects have addressed the right pressures on the agriculture sector and been well-received by our national and provincial agricultural officers and farmers,' said Dr Le Quoc Doanh.

From left to right, Ms Cam Thi Tham, Son La Department of Agriculture and Rural Development, Australian Ambassador to Vietnam Mr Andrew Goledzinowski, Ms Cam Thi Phong, Deputy Director of Son La DARD and Ms Nguyen Thi Luyen, Director of Tu Nhien Cooperative in Moc Chau, Son La Province at the ACIAR Annual Stakeholder Meeting, November 2022. Photo: ACIAR.

Elevating the partnership through a 'new generation' partnership agreement with MARD

One of the agreed next steps from the strategic review of the ACIAR–Vietnam 10-year strategy was the desire to upgrade the bilateral partnership. In August 2022, Dr Peter Horne had further meetings with MARD and additional leading institutions in Vietnam to discuss how to elevate the relationship between ACIAR and Vietnam, and with MARD in particular.

The ACIAR–Vietnam 10-year ACIAR–Vietnam strategy has served as a backbone of the ACIAR investment in Vietnam and has helped to guide Vietnamese partners in designing projects. To leverage this strategy, ACIAR and MARD agreed to work together in the coming months on a new partnership agreement that focuses on high-level partnership principles, such as why and how ACIAR and Vietnam collaborate, including co-investment in research.

ACIAR Annual Stakeholder Meeting

In November 2022, ACIAR hosted an annual Stakeholder Meeting focused on inclusive agribusiness. A group of agricultural researchers, businesses, development partners and farmers met to discuss how to work together to better develop inclusive agribusiness chains in Vietnam.

ACIAR has been an enduring partner of Vietnam since 1993, investing in 243 agricultural research projects worth more than A$157 million. Over the last decade, the ACIAR–Vietnam research collaboration has moved from purely technical to more social-integrated programs focused on strengthening value chains and improving the livelihoods of smallholder farmers. This shift aligns with the ever-growing bilateral trading between Australia and Vietnam, with agricultural trade offering valuable collaboration opportunities through agribusiness initiatives.

Successful ACIAR-supported research over the last 15 years have shown that more inclusive value chains improve livelihoods, nutrition and competitiveness for women and other minority groups. And a participatory research process that engages farmers in experimenting with and adapting the farming techniques to their preferences help sustain their behavioural changes.

The current ACIAR–Vietnam strategy has also pivoted towards supporting Vietnamese partners in helping the smallholder agriculture sector to commercialise, focusing on connecting agricultural scientists and farmers with the private sector.

In the future, ACIAR will focus on researching the whole agricultural business system, rather than solely focusing on production, to ensure

Many long-standing research partners joined ACIAR and MARD in Hanoi for the mid-term review of ACIAR–Vietnam research collaboration strategy. Photo: ACIAR.

The current ACIAR–Vietnam strategy has also pivoted towards supporting Vietnamese partners in helping the smallholder agriculture sector to commercialise, focusing on connecting agricultural scientists and farmers with the private sector.

that what farmers produce will find its way to the market. Also, ACIAR views farmers as the customers and companies as key partners of the projects, ensuring their ownership in the projects for lasting changes beyond the project life.

Agribusiness is currently the largest program under the ACIAR investment portfolio in Vietnam.

'We are exploring new ways to engage with businesses better, such as through a new Agribusiness Reference Group - an initiative that helps connect researchers with businesses to ensure research is better targeted to meet market needs. But at the same time, we need to focus on the needs of those smallholder farmers who remain the most vulnerable in the agricultural supply chains, with many still living in poverty,' Dr Horne said.

Building agricultural research capacity for Vietnam

The last, but not least, aspect of the ACIAR–Vietnam partnership health checks was capacity building for Vietnamese researchers. Despite the significant challenges of the COVID-19 pandemic, Vietnamese researchers have grown in confidence with increased responsibilities in implementing projects without the direct support of international experts in the field due to travel restrictions. They have also demonstrated very strong capability to lead research collaboration, not only in Vietnam but more broadly in the region.

'For example, we are pleased to support Vietnamese researchers in sharing their expertise in aquaculture feed formulation with other Southeast Asian countries such as Indonesia and the Philippines. Their increased confidence in leading through the pandemic has flagged a strong opportunity for us to continue supporting this kind of research leadership in the region,' said Dr Horne.

ACIAR has supported more than 100 government officials and researchers to complete various ACIAR-funded scholarship programs since 1993. In 2021, ACIAR launched an in-country version of the John Dillon Fellowship research leadership program, with 19 emerging research leaders from Vietnam joining the program.

Learn more about ACIAR investment in Vietnam: https://www.aciar.gov.au/east-and-south-east-asia/vietnam

Celebrating 30 years of ACIAR in Vietnam in 2023

Throughout 2023, we will organise activities, events and share stories to recognise the ACIAR–Vietnam partnership..

Impact assessment

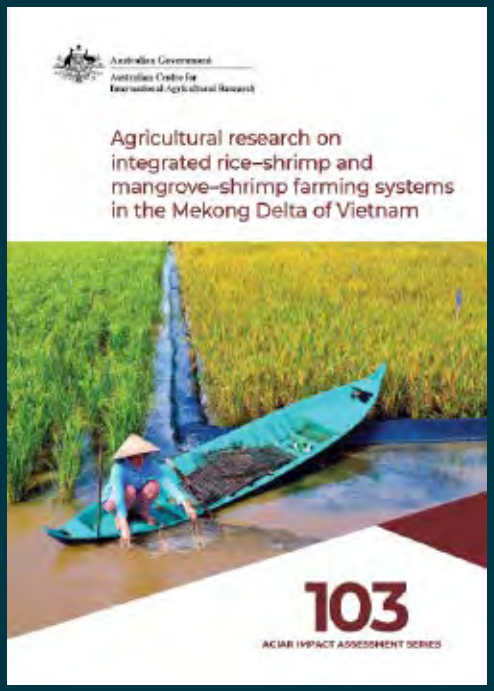
Two publications have recently been completed – Impact Assessment 103 'Agricultural research on integrated rice-shrimp and mangrove-shrimp farming systems in the Mekong Delta of Vietnam' and Outcome Evaluation Series 4 'An evaluation of fruit and vegetable market development research in north-western Vietnam'.

Learn more at: https://www.aciar.gov.au/publication/latest-publications

Social media

We're talking about 30 years of ACIAR in Vietnam and 50 years of the Australia – Vietnam partnership.

Share your stories from your involvement across the 30 years of ACIAR in Vietnam. Tag us (@ ACIARAustralia on Facebook and Twitter), and keep sharing, liking and leaving comments on ACIAR-related post on the Australian Embassy in Vietnam's Facebook account at **https://www.facebook.com/AustralianEmbassyVietnam** and the ACIAR Facebook account at **https://www.facebook.com/ACIARAustralia**



Photos & Video

A video on 30 years of ACIAR in Vietnam will be published mid-year, and you will soon be able to flick through our curated selection of 30 photos for 30 years on the ACIAR website. These photos will also be published as a photo book which will be launched in the end of 2023.

Insights

We will bring Australian, Vietnamese and international project leaders to present their ACIAR-supported and relevant issues through a series of brownbag sessions at the Australian Embassy in Hanoi. We will also host guests from partner research institutions and media.

Major events

1. ACIAR Stakeholder Meeting 2023
2. New generation partnership agreement signed between ACIAR and MARD
3. ACIAR Alumni Symposium & Annual Planning Workshop
4. Photo tours to ACIAR-supported projects
5. ACIAR brown bags at the Australian embassy
6. Vietnamese John Dillon Fellows 2021 visit Australia

How to get involved

- Become an ACIAR guest speaker and present a seminar, workshop, or brown bag.
- Participate in our stakeholder meetings and contribute your ideas and insights.
- Join ACIAR photo tours and contribute pictures for ACIAR 30 years photo book.
- Share your historic photos with us, moments with a connection to ACIAR.
- Propose a project site visit and jointly develop visit program.
- ACIAR Alumni: propose and jointly develop a program for an alumni-led symposium on 30 years of ACIAR in Vietnam.

For further information related to 30th anniversary and how to get involved, please contact *Ms Nguyen Thu Huong, ACIAR Vietnam Communication Officer, at huong.nguyen@aciar.gov.au*

Doing research with a real-world perspective

G'day, Howard! We know that you had a full one-month working trip in Vietnam recently. Can you share what made you feel most impressed on this trip?

That was the longest time I have spent in Vietnam, allowing me to experience different people, places and perspectives in many different regions. I visited the Northwest, the Mekong Delta, the Central Highlands, and other areas and met many businesses involved in agribusiness in these regions. I can see that the agribusiness sector is growing strong in every district in Vietnam.

I was impressed that most companies we talked with are keen to see if it is possible to work with our projects. Before, researchers from these projects had not communicated much with the businesses involved with our project participants. Agribusiness companies are now thinking more long-term and seeing things more strategically. They want our research teams to connect with them and explore where mutual benefits are for them.

On this trip, I met a sea cucumber company involved in one of our fisheries projects - that has identified key issues where they want to work with ACIAR. I provided direct feedback on our meeting to Ann Fleming, our Fisheries Research Program Manager, and through Ann, to the project leader. ACIAR has an opportunity to lead in this area, connecting our research teams and companies involved in the same agribusiness area to work together. Few other donors are doing as much in this area as I believe we are doing.

Seeing things from a real-world perspective

Can you explain the benefits of involving business in our research program? And how does this private sector engagement help us achieve the desired outcomes for smallholder farmers?

All the farmers involved in our projects work in an existing business system before getting involved in our projects. If we don't include the companies that the farmers work with daily, we're not acting

Mr Howard Hall is our honoured guest of the ACIAR Talk – a space to better connect the ACIAR House in Canberra with our partners in Vietnam. Each talk will bring you closer to the vibrant, continuous works in Canberra and Vietnam for the shared goals in agriculture and rural development, seen through the perspectives of ACIAR people.

Howard moved on from his role as ACIAR Research Program Manager for Agribusiness in October 2022, after four years in this position. Howard will continue to be involved with ACIAR as a Special Advisor – Commercial Engagement and Adoption. In this role, he will work closely with many projects to further develop the deep and novel commercial engagement that he has pioneered while managing the Agribusiness Research Program.

in the real world where the farmers are operating. If our projects do not engage these companies, we ignore the important role the businesses can play in adopting and achieving long-term impacts from our research.

The first step in designing our projects needs to be talking with the farming families we aim to assist with our research and the private companies they work with to identify the things that are important to the whole business system we will be working in. Only by doing so and being relevant to the entire business system we aim to help and improve can our research achieve long-lasting impact and benefits for the participating farming families.

How do you see ACIAR-funded projects performing in engaging the private sector?

I think all seven current agribusiness projects in Vietnam are already interacting with private companies at one level or another.

For example, the cassava mosaic disease (CMD) project has involved Vietnamese companies and local governments in establishing many rapid multiplication tunnels for clean planting material - an acceleration system for producing more disease-free material for cassava planting from the very beginning. CIAT developed this technology in South America and introduced it to Southeast Asia through the cassava CMD project. Private companies have invested in these multiplication units. And starch processing companies and input providers are also engaged in the project.

The newly launched Mekong sustainable rice value chains project is the first public-private partnership between ACIAR and a private company, SunRice, both of which have invested in the project. The project involves Vietnamese cooperatives, services, and input supply companies like harvesting contractors and aggregators. As SunRice invests significantly in this project, they've got a vested interest in making it successful.

This project will also help Vietnam achieve its big ambition of transforming its agriculture from volume-focused to quality focus. It specifically aims to have Vietnamese farmers learn how to grow high-quality, higher-value rice for SunRice's premium markets in many countries.

A people-centred approach

What about the engagement of the farmers in our projects? What do you expect your researchers to do to involve farmers better?

Farmers and farming communities have much knowledge that researchers sometimes do not necessarily fully recognise. Our project teams have to be more oriented towards asking questions and learning from farmers and not necessarily going in with preconceived ideas of what the farmers need. In most instances, what the farmers share with them as important issues will be key areas for change.

The key job of our research teams is to interact and work with farmers and their communities to give them the confidence to pursue change as a part of their normal business activities. Farmers, particularly poor farmers, don't have a lot of flexibility because of their financial situation. Our job is to show them that there are many ways to manage the risk of change and to make them feel like they own the process – the project is about them and driven by them, not by some outsiders.

> **I think ACIAR can help our traditional project partners in countries like Vietnam to feel more confident and capable of working with private companies.**

We need a more people-centric way of designing, planning and working on projects. If we successfully make the people in the project feel confident that what they are doing, with our support, will work for them, they will change.

Building the whole-chain agribusiness approach

You expect some significant change in the working approach of our project teams. How have you helped them prepare for this change?

I think ACIAR can help our traditional project partners in countries like Vietnam to feel more confident and capable of working with private companies. I also believe that working

Mr Howard Hall (fourth from the right) and the food loss in catfish value chains project team in the Mekong Delta, June 2022. Photo: HAPRI.

as researchers in the whole value chain, or the farmers' business systems, is not widely understood by many research teams and project partners. We can help a lot by focusing on this system-wide approach.

In the ACIAR Agribusiness Program, we see farmers and their communities as our projects' key customers. We also recognise the private companies involved in the farmers' business system are essential to project partners. Our researchers, project partners, government agencies and institutions are the enablers.

Our researchers and project partners need to ask many questions, truly hear the issues, and then apply their knowledge and experience to benefit the project participants, including the farmers, their households and communities and business partners. If we let these participants take the driver's seat, having ownership of the project, they will have the confidence and belief to adopt the changes and pursue the opportunities the project identifies beyond the project term.

We also have the Agribusiness Reference Groups (ARG) in Vietnam and Pakistan, which aims to invite companies to investigate our projects and see where they can work with our projects for mutual benefits. The ARG can assist private companies in engaging in our projects for mutual benefit and increasing the researchers' understanding of existing business systems so they can see the problems and find solutions from the point of view of the whole business system.

If you could give one personal tip to researchers to better work with businesses, what would that advice be?

I'm fortunate to have worked in the private sector all my life. Companies communicate and share information more openly in one-on-one meetings and discussions. For example, when I was in Vietnam, I looked through factories and big corporate farms owned by companies already working with the food loss project team. We had one-on-one meetings with their management teams even though the project hadn't officially started yet. That would never happen if the Vietnam-based catfish project team didn't have a good existing relationship with them.

Creating long-lasting impacts together

What are the most important changes you want to see in Vietnam under the AGB program in the next five years?

The Vietnamese government knows that they need to shift the focus of their agribusiness systems from quantity to quality and higher value. The government and the businesses in agriculture also understand that they must manage the resources sustainably because there are many examples of serious soil health and water management issues, which can only be addressed by working with the whole agribusiness value chain. To achieve this, our research teams need to engage with the farmers and the private firms from the beginning of the project, have them participate in the project activities, findings and solutions and feel like they own the outcomes.

I want to see ACIAR-funded research play an active role in that challenging transition by engaging the whole chain and including businesses and farmers in our work. By doing so, we will create change that continues after the project has finished.

In that picture, how do you see the level of readiness of all the involved actors?

The Vietnamese government wants to do this, but they need to get that message across in all the provinces. Many provincial government people have good relationships with farmers but less with the private sector.

Businesses are ready for this change but need someone to facilitate processes that catalyse it. Farmers will want it to happen if their issues and thinking have also been incorporated into our projects. Our job is to catalyse, coach and facilitate change.

Thank you, Howard! To prepare for your next trip to Vietnam, what is your favourite thing to do in the country?

Depending on which part of the country you talk about, I like Bun cha in Hanoi and Bun bo Nam bo in the south. It's a pity I don't get a chance to do much other than work in Vietnam, but Vietnam has so many fantastic things to see everywhere you go. I love walking around the park or the lake in Hanoi and seeing all the local people doing many activities and exercises together in the mornings. It is uplifting, just walking around amongst them and seeing their optimism and enjoyment.

Mangrove aquaculture in the Mekong Delta overcomes uncertainties

Ca Mau - the southernmost province of Vietnam is in the leading position of the country in shrimp farming. The province has about 280,000 ha of shrimp farming area, generating an annual output of 700,000 tonnes and an average growth of 3.5 percent yearly. In Ngoc Hien district, around 4,500 households depend on shrimp farming for their livelihoods.

Ca Mau is also home to one of the world's largest mangrove forests. With more than 63,000 ha, the province's mangrove forest is second only to the Amazon rainforest in Brazil. With the emergence of climate change problems, mangrove ecosystem services have become more and more important. Mangroves play a crucial role in protecting coastal areas and adapting to harsh environmental conditions. They also serve as natural barriers to storms, shoreline erosion, and rising sea levels. Mangrove forests are nursery grounds and natural habitats for many species that provide nutrients as feed inputs to shrimp farming.

Mangrove aquaculture has proved a sustainable and productive practice, combining conservation and livelihoods. Shrimp farming in the mangrove can yield up to 200 kilos per hectare, 20 kilos higher than conventional methods.

Mangrove aquaculture, however, is heavily dependent on the influx of high-quality natural tidal water, but this water is often polluted, low in

Then-acting Australian Deputy Ambassador to Vietnam Ms Kate Wallace (second from left) visited one of the 15 monitoring stations installed by the project.

oxygen and affected by salinity changes due to heavy rains or drought. This poses risks to both aquatic species and mangrove trees.

The AQUAM project, jointly developed and implemented by the University of Queensland and Green Field Consulting & Development Company, has installed 15 wireless environmental monitoring stations using IoT (Internet of Things) technology, combined with an automatic satellite image interpretation system to monitor the health of the mangrove ecosystem in districts of Ngoc Hien, Nam Can, Dam Doi, Phu Tan. This will help farmers and local authorities access real-time data on the water quality and mangrove forest changes and respond quickly to environmental hazards. With the successful pilot of the project, it is expected that the technology will be introduced across the Mekong Delta, where local communities are facing similar environmental challenges.

AQUAM is one of 12 projects funded by Aus4Innovation's Partnership Grants, which provide funding to scale already tested activities to address emerging challenges or opportunities in a variety of sectors across Vietnam. The projects are mainly focused on the agriculture and food, healthcare, and natural disaster and environment management sectors.

Aus4Innovation, launched in 2018, is a A$16.5 million flagship program funded by the Australian Department of Foreign Affairs and Trade (DFAT), co-funded and managed by Australia's national science agency, CSIRO, and delivered in collaboration with the Ministry of Science and Technology of Vietnam. It aims to strengthen Vietnam's innovation system, prepare for and embrace opportunities associated with Industry 4.0 and help shape Vietnam's innovation agenda in science and technology.

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Photo: SNV

Vietnam and Australia working together to meet climate change targets in Mekong Delta rice production

With 50% of Vietnam's agricultural Green House Gas emissions coming from rice production, lowering emissions in the sector will be critical in order for Vietnam to meet its climate change mitigation targets. Australia and Vietnam are partnering to deliver a new initiative in the Mekong Delta to reduce emissions and enhance value chains for farmers.

The initiative, implemented under the A$ 232 million Mekong-Australia Partnership, builds on the success of the AgResults Viet Nam Emission Reduction Challenge Project. Implemented in the Red River Basin, AgResults succeeded in lowering emissions from rice production by 0.5 tons per hectare while increasing yield and reducing water use.

Utilizing a results-based financing mechanism, this new initiative targets private enterprises in the Rice Value Chain. As key stakeholders in the production, marketing and distribution of rice, businesses will play the main role in leading agricultural mitigation and adaption in the intensive rice producing provinces of the Mekong Delta. The project is expected to reduce 10% of greenhouse gas emissions from rice production, increase yields and improve incomes for approximately 200,000 to 300,000 smallholder farmers living in the Delta. The project will contribute towards the objectives of Resolution 120 on climate-resilient and sustainable development in the Mekong Delta, Decree 06/2022/ND-CP on the reduction of greenhouse gases and support the development of a domestic carbon market in Vietnam by 2025.

On Tuesday 26 July 2022, implementation partner SNV and the Australian Embassy hosted a kick-off workshop in Can Tho city with the Department of Crop Production at the Ministry of Agriculture and Rural Development and local stakeholders in the rice sector. Workshop participants discussed the adaptation of the AgResults model to the Mekong Delta, the contribution the initiative could make to improving rice value chains for Mekong Delta farmers and meeting Vietnam's climate change ambitions. The kick-off workshop is the first of a series of key national and provincial consultation events to shape up the project design and gear towards stakeholder buy-in for the project implementation next year.

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Agritechnica Asia Live 2022 – towards modernised agriculture in Vietnam

By James Allan and Nam Anh Tran

With a theme of 'Scale-appropriate mechanisation for sustainable agriculture', the second Agritechnica Asia Live event was held in Can Tho City from 24-26 August 2022. Hosted by the Ministry of Agriculture and Rural Development (MARD) and Can Tho People's Committee, the event aimed to foster sustainable mechanization through showcasing the use of the latest technology and methods in local cropping systems.

The event was attended by over 4,000 farmers in addition to hundreds of businesses, scientists and other industry members over the three days. A range of informative seminars were held at the event centre on topics as diverse as mechanization for sustainable rice production, use of unmanned aerial vehicles in farming to promote reduction in greenhouse gas emissions and a plenary discussion regarding the lessons learned from the Closing Rice Yield Gaps in Asia with Reduced Environmental Footprint Project (CORIGAP).

MARD and Can Tho People's Committee also organised a consultation workshop on the establishment of an agriculture mechanization centre in the Mekong Delta. The centre, once established, will seek to provide modern agricultural machinery, equipment and services in addition to training and support for farmers to use appropriate machinery. This assistance will help further transform agricultural production in the Mekong Delta towards modernization and sustainable development.

These events were complimented by a wide display of agricultural machinery and technology as well as a range of products and systems supporting sustainable agricultural production.

The Cuu Long Delta Rice Research Institute hosted a range of machinery demonstrations including precision seeding equipment, unmanned aerial vehicles applying fertiliser and pesticides as well as modern harvesting equipment. New rice varieties were also on display for the large group of farmers and experts in attendance.

During his Agritechnica Asia Live 2022 opening address, Minister of Agriculture and Rural Development Le Minh Hoan praised Vietnam's farmers for their ingenuity and technical research in the pursuit of optimal farming outcomes. Minister Hoan also emphasised that mechanization will reduce production costs, labour inputs, and improve the quality, value, and sustainability of agricultural products.

We congratulate MARD, especially the National Agricultural Extension Centre, for having successfully organized this large, regional event, and the Cuu Long Rice Research Institute for hosting the excellent field demonstrations. This was an informative and enjoyable event for local farmers and those working in the agricultural industry. Another steppingstone towards a modern agriculture era in Vietnam.

Mr James Allan, Agriculture-Technical Counsellor and Ms Nguyen Khanh Minh, Senior Policy Officer (in the middle) from the Australian Department of Agriculture, Fisheries and Forestry at the Agritechnica Asia Live 2022 trade show. Photo: ACIAR.

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Food loss research in catfish value chains in the Mekong basin

The Food Loss Research Program is a partnership between ACIAR and Canada's International Development Research Centre (IDRC). The program works with partners in developing countries to address food loss through innovative, locally driven solutions.

In aiming to uncover a new approach to food loss, the program has encouraged the involvement of people who have not worked with ACIAR or IDRC in the past. This has ensured that new stakeholders from diverse backgrounds are participating in the program. This will aid in understanding the food system in its entirety and help generate novel ideas for interventions to address food loss.

In this issue, we share our conversation with Dr Nguyen Van Kien about one of the first 4 projects under this research program - 'Food loss in the catfish value chain of the Mekong River Basin' (Vietnam, Cambodia and Laos) (CS/2020/209). This four-year project is expected to start early in 2023, kicking-off the first-time research focusing on food loss in this high-profit industry.

Dr Nguyen Van Kien previously worked at An Giang University and has many years of experience in implementing international projects on sustainable agricultural and rural development with a multi-discipline and interdisciplinary approach. Currently, he is working in Australia as a senior lecturer (emeritus) at the Australian National University and a senior research fellow at the University of New England. He is also a senior researcher at the Agricultural and Health Policy Research Institute (HAPRI) - the Vietnamese agency leading the implementation of the project.

Hello, Dr Kien! Thank you for spending time with ACIAR. Could you share the reason why your project selects pangasius as the main object for food loss research?

Pangasius is a large seafood industry of Vietnam with an annual export value of more than US$ 1 billion. It is the main livelihood of many small-scale farmers and generates income for many women who are working in processing factories.

Previous studies on pangasius often addressed how to achieve the optimal yield to get the lowest price or find the market to sell at the highest price. However, with the loss rate in the seafood industry in Vietnam currently around 12%[1], if we can solve the food loss in the pangasius industry, it will immediately help reduce costs, leading to a reduction in price and increase income for farmers and businesses. This is a huge and measurable benefit.

In addition, with the positive development trends in Cambodia and Laos, our research linking the three countries will contribute to the sustainable development of pangasius production of the whole Mekong region. Being the leading pangasius exporter in the world, Vietnam can help Laos and Cambodia build sustainable development policies to avoid the situation of three countries producing massively that will weaken the pangasius industry, in which the smallholder farmers of three countries will be the most vulnerable.

What is the focus of this project?

In this project, we concentrate on loss in the farming area, which is the core problem in food loss in the pangasius industry. When we developed this project, we consulted with many researchers and large seafood processing enterprises in the Mekong Delta; they suggested that the degradation of parents can cause mortality in fingerlings up to 30% and that poor quality pond environments and farming areas can also lead to similar losses.

Therefore, solving problems in the farming area will open the path of sustainable development for the pangasius industry. We will focus on researching issues related to breed improvement, pond environment, water quality management and raising farmers' knowledge and awareness.

Can you share more about the research methods of the project to achieve the goal you just mentioned?

[1] *https://www.globalcoldchainnews.com/food-losses-in-vietnam-the-shocking-reality/*

Dr Kien (in the middle) and his HAPRI colleagues. Photo: HAPRI.

When studying how to improve breeding stock, we must take a systematic approach because breeding involves everyone in the industry. We will involve policy makers because the government and relevant ministries manage the national seed programs. We will also involve businesses because they have resources to implement breeding improvement programs. Finally, we need to work with farmers and help them improve their knowledge and skills, otherwise, they will be 'defensive' and continue to raise catfish in the traditional way, and there will be no changes in the farming area.

In this research, we will use the foresighting method that includes many steps, and each step involves the full participation of stakeholders. A very important first step is to identify stakeholders in the value chain, including farmers, businesses, managers, importers and exporters. We will invite them to participate in the discussions as experts. We want to hear their opinions, insights and forecasts about the pangasius industry, based on which our team's experts will apply foresighting methods to validate their forecasts.

It is through this participatory approach that farmers, businesses and government managers will gain information and forecast scenarios, thereby developing their own plans. After a 3-year study period, we will provide evidence on the profits gained for businesses and farmers if losses are reduced, thereby helping them make their well-informed decision.

We will develop scenarios that show how volatility factors such as climate change, disease or market fluctuations can affect food loss at the household level and industry level in the next 10 years, thereby providing information and evidence for policy makers to develop policies for the long-term development of the pangasius industry.

This is the first regional project involving Vietnam with a Vietnamese leading institution. How do you see the collaboration between research institutions in this project?

I greatly appreciate that ACIAR has started commissioning organisations from developing countries to be responsible for partnerships with other countries, including Australia.

We are very confident of the capacity of the Vietnamese scientists from HAPRI and An Giang University who have very deep understanding and experience in pangasius production, not mentioning that they will have the support of Australia's leading experts on foresighting for livestock, value chains and gender. We have many young scientists in Vietnam, Laos and Cambodia participating in this project, they will have many good opportunities to learn and develop their career.

In terms of management and operation, HAPRI's staff have shown great capacity in leadership and partnership building and being agile and proactive in administrative and financial management. ACIAR has also helped us to solve many operational issues so that we can optimize resources for research activities.

In research collaboration, we encourage participation and focus on indigenous knowledge. We built the project entirely on a 'bottom-up' approach: we worked with farmers and businesses to identify their needs, insights and experiences and combined their knowledge and experience with those of the researchers from An Giang University to develop a project proposal, then called for the participation of international experts. At the same time, we apply the co-design approach in project design, implementation and sharing of research results in the future. We see all stakeholders as experts in the co-design process.

I hope the project will be a successful case of this new partnership model and will encourage more research institutions in developing countries to become the leading organisations responsible for carrying out the research conducted by ACIAR and IRDC in their future funding.

Rice crop at a prospective cooperative in Kien Giang Province June 2022. Photo: Shona Wood (UQ)

Connecting smallholder rice farmers to premium export markets

By Jaquie Mitchell, Shona Wood and Ali Akber. ACIAR Project: AGB/2019/153

1.5 million smallholder farmers in Vietnam's Mekong Delta produce over half of the country's rice, but they lack connection to premium export markets. With a first of its kind public-private partnership, a new ACIAR-SunRice project will introduce interventions aimed at improving quality and connecting smallholders directly to an existing premium export market.

Rice is the staple food and one of the major sources of export earnings for Vietnam. Half of its total rice production comes from the Mekong Delta, which is the home of about 1.5 million smallholder rice farmers. Besides fulfilling the local demand, Vietnam is now the world's third largest rice exporter which has primarily been achieved through intensifying cropping with two to three rice crops per year. However, intensification has triggered a number of issues including reduced profitability, increased soil degradation and environmental pollution, and declining rice seed purity and quality.

A new project 'Planning and establishing a sustainable (SRP) smallholder rice chain in the Mekong Delta', commenced this year, which is a first of its kind, public-private partnership between ACIAR and a private Australian

In October 2022, Australia's Assistant Minister of Trade officially launched the project in Dong Thap province. Senior representatives from Vietnam, ACIAR, and SunRICE's CEOs delivered speeches to a large audience of media, research and development partners in the regional rice value chains. Photo: ACIAR.

agribusiness company, SunRice Limited, aiming to establish a highly productive, sustainable, traceable, quality-assured value chain for export rice in the Mekong Delta, benefiting rice-farming households and meeting the market requirements of SunRice's established global customers. The project aligns with the Vietnamese resolution and development policy, encouraging a reduction in total rice production and a focus on production of high-quality rice with the aim to export to premium markets.

Led by Dr Jaquie Mitchell and a large transdisciplinary team, the University of Queensland has partnered with researchers from An Giang University – Vietnam National University Ho Chi Minh (AGU-VNUHCM), Cuu Long Delta Rice Research Institute, Can Tho University - Mekong Delta Development Research Institute, Vietnamese provincial government agencies (DARD), and SunRice Pty Ltd. SunRice is an Australian company and is the owner and operator of the recently refurbished Lap Vo rice mill in Dong Thap Province, Vietnam.

Promoting sustainable rice production and value chains

Working with rice producing farmer groups, the project will encourage the adoption of sustainable practices with indicators measured within the Sustainable Rice Platform (SRP) framework. The SRP platform promotes resource use efficiency and resilience to climate change for all actors in rice production and the value chain. It has developed comprehensive indicators which we will utilise to measure sustainability from a socio-economic and environmental perspective. The project team aims to quantify production and quality advantages and resulting economic value from the implementation of sustainable practices and various agronomic interventions in relation to fertiliser, irrigation and pesticide use, in the hope that other grower groups can be encouraged by the advantages of the proposed system and adopt similar practices.

The farmer groups researchers have spoken with are looking forward to understanding new production methods and post-harvest technologies to meet changing climatic conditions and supply to SunRice's established high value premium export market.

The project seeks to understand the experiences of smallholder farmers and cooperatives actively practising SRP, as well as those who are not, and the factors that facilitate and inhibit growers' ability to operate within maximum chemical residual levels, a key premium export market requirement.

Building a centre of excellence

A Centre of Excellence in Milling and Post-Harvest Processes will be established within the SunRice Lap Vo Mill where in the first instance, staff and students from AGU-VNUHCM will develop collaborative learning opportunities within

The rice value chain in the Mekong Delta has been extensively investigated but changes are often short term and aren't always passed onto smallholder farmers. Researchers aim to utilise a system thinking dynamic approach to identify the underlying issues affecting the production, processing and marketing subsystems and to assess policies and interventions to improve the rice value chain.

the mill environment, providing opportunities within a premium export market workplace, improving management practices to achieve production, handling and processing of export market specific rice products. Capacity building of smallholders will be achieved through extension services, DARD and the Vietnam Women's Union involvement at the farmer group/cooperative level, and interactions with project staff. In addition, opportunities at the cooperative level will be explored in relation to capacity building and impact in the wider Mekong Delta.

Developing analysis capacity

The project will also build the capacity to conduct alternative approaches to value chain analysis and evaluation of proposed interventions. The rice value chain in the Mekong Delta has been extensively investigated but changes are often short term and aren't always passed onto smallholder farmers. Researchers aim to utilise a system thinking dynamic approach to identify the underlying issues affecting the production, processing and marketing subsystems and to assess policies and interventions to improve the rice value chain. All parties of the rice value chain will have enhanced understanding of components of sustainability, inclusivity, and export market-led value chains. In addition, the involvement of several tertiary institutions (UQ, CTU-MDI and AGU) offering degrees will increase training opportunities for students in all sectors of the rice value chain.

Incorporating social issues

The project will conduct gender analysis and gender mainstreaming, raising awareness on gender issues. Through this we hope to identify differences in the experience of men and women in their involvement in an inclusive market-led sustainable production system and gain a deeper understanding of the social factors and governance issues influencing adoption of practices and value chain performance that can increase sustainability and compliance with MRL and SunRice's market requirements, including the role of cooperatives in supporting farmers to change their practices.

The project will instil quality driven goals throughout the value chain, from land preparation through to finished product, driving improved outcomes for all parties, particularly smallholders and their communities and the environment, so that sustainable production systems and value chain relationships will be maintained after the completion of the project.

A team of workers transplanting a breeding trial at the Cuu Long Rice Research Institute, Can Tho, Mekong Delta June 2022. Photo: Shona Wood (UQ)

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Enabling efficient cooperation for sea cucumber industry growth

Sea cucumber researchers, companies, farmers and representatives of Ninh Thuan Province recently met in Ninh Thuan to discuss cooperation for a sustainable sea cucumber value chain.

The workshop was organised by the ACIAR's Agribusiness Reference Group (ARG) in collaboration with the Directorate of Fisheries under the Ministry of Agriculture and Rural Development, Ninh Thuan Department of Agriculture and Rural Development , Ninh Hai District People's Committee , Vietnam Sea Cucumber Investment Corporation, and the Research Institute for Aquaculture 3 (RIA3).

ACIAR initiated the ARG in 2020 to invite companies to work with ACIAR projects, including the research teams, farmers and policy makers. The ARG members are willing private sector representatives who will discuss emerging issues with the researchers and policymakers and guide the research to address these issues. This collaboration will help ensure that the research is practical and useful for the market.

Sea cucumbers have high nutritional and medicinal value. Still, in recent years, they have been overexploited in the natural environment and are on the verge of extinction. There are currently two main species of sea cucumbers in the world market: sand sea cucumbers and Japanese sea cucumbers.

In Vietnam, ACIAR has supported RIA3 to work with the University of the Sunshine Coast, James Cook University and WorldFish on community-based sand sea cucumber culture for the past 10 years to better livelihoods for farmers and help ensure food and nutrition security. RIA3 researchers, led by Dr Nguyen Dinh Quang Duy, have mastered breed production and commercial farming for sand sea cucumbers.

Researchers have improved the breeding and culturing of sand sea cucumbers for commercialisation and intercropping with other aquatic species to improve the farming environment and significantly increase income for farmers. Working with the ARG, Dr Duy and his team are looking for an efficient avenue to link their research results with the market and strengthen the connection of farmers with businesses.

Also participating in the workshop, Ninh Thuan province Vice Chairman, Mr Le Huyen, said the province is working to improve the environment for competitive businesses to invest in seafood production. The province leaders encourage enterprises to invest in the value chain, improving the linkage between farmers, scientists, government and businesses.

Mr Le Thanh Nhan, General Director of Vietnam Sea Cucumber Investment Corporation, shared that they want to create stable income and jobs for more than 3,500 local households and turn Ninh Thuan into the production hub of sand sea cucumbers by 2025.

The corporation was the first to invest strategically in building sea cucumber material area and the largest processing factory in Southeast Asia. To encourage local farmers to raise sand sea cucumbers, the company commits to purchasing all products at a fixed price so that farmers can be certain of their profits.

This workshop is one of the ARG's current efforts to strengthen the critical knots bridging the research for developments with the market and ultimately to serve for the benefit of farmers and rural development.

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Farmers in Northwest Vietnam learn to re-plant their native trees

By Lo Duc Minh, J. Doland Nichols and Heidi Zimmer. ACIAR Project: FST/2020/134

An ACIAR-supported project is opening a new door for farmers from the Northwest Region of Vietnam to increase their financial gain and protect their natural landscape through increased understanding of and capacity to plant native tree species.

Like many tropical countries, most tree plantations in Vietnam are pure strands of a few well-known exotic species – acacias, eucalypts, pines and teak. While these species are good for quickly producing large volumes of wood chips or useable timber, they are not so helpful for securing biodiversity.

'In the 20th century, as in many tropical developing countries, large areas of native rainforest were cleared in Vietnam. These forests contain hundreds of tree species that are highly valued for their biodiversity and for their usefulness, especially for buildings and solid-wood products,' said Dr Doland Nichols from Southern Cross University.

Dr Doland leads the ACIAR-supported project 'Vietnamese Native Tree Species for Improved Livelihoods' (FST/2020/134), which explores the use of high-value native species to produce financial gain and enhance regional biodiversity.

'This project has offered an opportunity for some communities in Northwest Vietnam – one of the poorest regions in the country – to rediscover these native tree species to be nurtured in the agricultural landscape and which may one day provide financial and other benefits to the villagers,' Dr Nichols added.

In this project, farmers and staff of the Muong La Nature Reserve (MLNR), Son La Province, produce seedlings to sell or plant on their own lands. These seedlings are a mix of saleable, quick-yielding fruit species desired by farmers and high-value native timber species.

Generating knowledge of selected timber species

In the beginning, baseline research was required for the little-studied timber species. Muong La Nature Reserve staff and local farmers were involved in evaluating germplasm sources,

A forestry landscape in Vietnam. Photo: ACIAR

phenology (when trees produce flowers, fruit and seed), germination requirements, and nursery procedures. Thanks to this joint effort, the project has collected phenological information for 200 trees of 39 native species. This activity has also built the capacity of MLNR staff and local farmers in fieldwork, investigation, and identification of plant species in the study area.

To date, the project has collected data on indigenous species with values for timber and conservation. Five target species are *Keteleeria evelyniana* (IUCN Red Listed: Vulnerable species) *Fokienia hodginsii* (IUCN Red Listed: Vulnerable species), *Magnolia baillonii, Altingia yunnanensis* and *Exbucklandia tonkinensis*. The researchers are gathering data on the physiological and ecological characteristics of these target species, along with their seed physiological characteristics. They have also conducted experiments on the effect of light on the growth and development of seedlings. Through these activities, the researchers have gathered important data and at the same time have improved the capacity of local researchers from Tay Bac University and MLNR in doing propagation experiments and research design. In addition, this work has helped to improve project management and teamwork skills.

Developing farmer-appropriate production of native fruit and timber seedlings.

Early in this project, the research team recognised that capacity building in household expenditure management would help ensure better livelihoods and savings. After attending training classes provided by the project, farmers in It and Chom Khau villages understood the objectives and opportunities in growing seedlings and running the nursery business and paid more attention in their production groups.

The project has supported establishing two seedling production groups in Chom Khau and It village, certified by Ngoc Chien and Nam Bam commune. They provide training courses for farmers, communal government officers and MLNR rangers on producing high-quality seedlings and running community nurseries. Researchers from Tay Bac University and Forest Science Centre of North Western Vietnam (FSCNWV) coach 30 farmers of two production groups every two weeks on nursery setting, grafting skills and management skills.

'The project has changed people's perceptions of indigenous trees. Farmers now understand why they should protect their native tree species. Furthermore, they have the basic knowledge and skills to propagate their indigenous plants,' said Ms Lo Thi Kieu, a collaborating technical researcher from the Forest Science Centre of North Western Vietnam.

'It's the first time we have been instructed to make the seedling pots for native timber trees, which takes a lot of work to complete', shared Lo Van Dan, the leader of It village seedling production group.

Local famers in two villages have improved awareness in protecting the forest and the need to preserve and develop indigenous trees. At the same time, staff from Tay Bac University, FSCNWV and MLNR increased their practical knowledge of nursery procedures and how to work with villagers.

Based on the information obtained from the commune officials about the result of production group, the leaders of the two communes made a change to the forest and agricultural development policy of the commune, paying greater attention to the development of indigenous trees and fruit trees for improving the local's livelihood.

Farmers from Chom Khau productive group practiced propagating the native timber species. Photo: Lo Thi Kieu, Forest Science Centre of North Western Vietnam

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Young researchers of VAFS assess disease tolerance of acacia hybrid. Photo provided by the project.

Reducing risk of plantation loss caused by pests and pathogens in Vietnam

By Le Son, Nguyen Duc Kien, Morag Glen and Caroline Mohammed
ACIAR project: FST/2018/179

In tropical Southeast Asia, plantation forests of Australian acacia and eucalypt species now exceed seven million hectares. They are managed on short rotations, typically 5–8 years, for wood production. Their main purpose is to supply wood for the large-scale wood processing industries throughout the region, so their productivity is of critical importance to the region.

Eucalypts and acacia are not native to Southeast Asia and have had long 'honeymoon' periods where exotic pests and diseases have not been significant issues affecting plantation establishment and productivity. A devastating example of the honeymoon period ending is a

disease of plantation acacia caused by a fungal pathogen belonging to the genus *Ceratocystis*. This fungal pathogen, since its recognition in 2006, has killed hundreds of thousands of hectares of acacia in Indonesia and Malaysia.

By 2021, Vietnam had approximately 0.3M ha of eucalypt and 2M ha of acacia plantations. About half of the plantation estate is owned by smallholder farmers. Recently, some plantations of acacia have experienced a serious disease problem from *Ceratocystis* with up to 20% mortality.

Switching from acacia to eucalypt is not a universal solution because of the potentially wider pest and disease spectrum, greater restriction to soil type, and lower productivity. Therefore, effective disease management is critical to the economic viability of plantations in Southeast Asia in general and Vietnam in particular.

A previous ACIAR project has indicated that genetic selection and breeding for tolerance remain the best options for control of *Ceratocystis*. The low level of tolerance in A. mangium means that this species is unsuitable for regions where *Ceratocystis* is present unless an acacia hybrid breeding approach is adopted. Therefore, the deployment of hybrid acacia clones has been adopted in Vietnam and this project has facilitated the integration of selection for disease tolerance into the breeding program that has been conducted by the Institution of Forest Tree Improvement and Biotechnology, Vietnamese Academy of Forest Sciences. A rapid preliminary screening protocol, based on detached phyllodes, was also developed. Subsequent field trials will still be needed to confirm disease tolerance under environmental conditions though the new protocol is expected to accelerate acacia breeding programs by allowing the rapid, initial screening of a larger numbers of clones than can be achieved using the current, potted plant protocol.

Following the successful of the previously project and in order to fill the priority gaps that were indicated, a new ACIAR project, 'Managing risk in SE Asian forest biosecurity', led by the University of Tasmania in collaboration with the Vietnamese Academy of Forest Sciences, is now being implemented in Indonesia and Vietnam. The project aims to provide tools and technologies to underpin good biosecurity practice in Southeast Asian forestry under current and future climate

scenarios and to transfer and embed this knowledge in public policy and public and private institutional arrangements and practices for good plantation biosecurity outcomes.

The important aspects of project activities that will be conducted in Vietnam are

- developing an acacia hybrid clone tolerant to *Ceratocystis*
- screening for eucalypt hybrids tolerant to *Ceratocystis* and leaf spot fungal pathogen
- building scientific and policy capability of knowledge and tools to manage biosecurity risks.

The intended outcome with significant value is reduced loss to emerging pets and pathogens (PnPs) such as *Ceratocystis* and leaf spots. The integration of PnPs screening into breeding programs will add even greater value in the event of an incursion that is not eradicated or contained. The establishment and development of plant biosecurity cooperation between Vietnam and other countries in Southeast Asia also enhances the greater awareness of potential threats before they become economically damaging, increasing the capacity for early detection of pests, and strategies for mitigating damage by established pests.

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Chameleon water sensors give green light to water and labour savings in the Mekong Delta

By Brooke Kaveney, Jason Condon, and Chau Minh Khoi. ACIAR project: SLAM/2018/144

A farmer at Soc Trang using a Chameleon card sensor to check if the watermelon crop needs irrigating. Photo: ACIAR

Climate change has caused worsening salinity and scarcity of freshwater in the Mekong Delta. Farmers are seeking soil and water management solutions and new crop options to provide dry season income.

Farmers in the Vietnamese Mekong Delta have seen climate change cause more frequent drought conditions, variable rainfall patterns and increased the areas impacted by salinity. They are looking for new crops that can grow in the water scarce conditions during the dry season.

The project 'Farmer Options for Crops Under Saline conditions (FOCUS) in the Mekong River Delta, Vietnam' is a five-year project intending to provide farmers with profitable crop and management options that are suitable in a system facing production changes due to climate change.

The project has identified some crops that show great potential to fit the challenging conditions faced by farmers. Trials using simple electronic soil water sensors called Chameleons have allowed farmers to grow these crops with less water, decreasing the time spent irrigating. Just like real chameleons, the sensors change their colours. They do this to show farmers if the crops need more water: blue means the soil is wet, green is good and red means the soil is drying and needs watering. The Chameleon soil moisture sensors are a relatively low cost, easy to use soil water monitoring device developed by the Virtual Irrigation Academy to help farmers in many countries.

Farmers in the Mekong Delta are very good at growing rice, and some have experience growing upland crops. They normally irrigate daily but by using rice straw mulches to minimise evaporation and Chameleons to manage irrigation, farmers are decreasing the amount of water they need to apply to upland crops. FOCUS project field trials conducted by researchers from Can Tho University in Soc Trang have found that these new methods have resulted in a saving of over 40% in irrigation water compared to traditional irrigation techniques. These savings improve water use

A visit of FOCUS project researchers and ACIAR Vietnam officers to the field trial, where Chameleons were applied to save irrigation water for upland crops grown on paddy rice field in the dry season

efficiency, the amount of product grown for each litre of water used and allow farmers to maximise the use of precious water resources throughout the dry season.

'Thanks to an introduction to upland crops and the Chameleon card from the ACIAR project, I was able to continue farming on my paddy land for 4 months in the dry season otherwise I would have to find a part-time job elsewhere', said Mr Sol, a farmer from Soc Trang.

Further experiments at Can Tho University have also shown substantial savings in labour by not needing to irrigate daily. When the Chameleons were used in conjunction with 7 tons/ha of rice straw on a red beet crop, irrigation was only required every 6 days. The saving in labour allows farmers to have more time for other activities or to focus on other management decisions.

Local DARD staff are excited to use the Chameleons to help train farmers to grow upland crops with the use of mulches and efficient irrigation practices. The FOCUS project field trials have demonstrated that with improved practices, profitable crops can be grown in the dry season, diversifying farm income and providing farmers with options as they continue to face the challenges of climate change.

Chameleon wi-fi sensor in a field trial in Soc Trang measuring soil moisture. Photo: ACIAR

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Post-COVID positive recovery of the goat meat consumption market in Central Vietnam

By Nguyen Huu Van, Nguyen Xuan Ba, Le Van Nam.
ACIAR Project: LS/2017/034

An ACIAR-supported project is identifying and strengthening opportunities to increase income for smallholder goat farmers in Laos, targeting the robustly growing market in Central Vietnam.

A trader in Nghe An Province with his goats imported from Laos. Photo: Le Van Nam.

Initial survey results on goat market in Central Vietnam

Conducting surveys with goat market chain actors is one of the main activities of the project 'Goat Production Systems and Marketing in Lao PDR and Vietnam' led by the University of New England (UNE) in collaboration with Hue University of Agriculture and Forestry (HUAF) and the National Institute of Animal Science (NIAS), who are focusing on analysing the Lao goat supply chain to Vietnam.

The survey aims to improve understanding of the factors affecting the demand and prices of goats in Laos and Vietnam and the associated value chains. Based on the survey results, the research team will assess opportunities and constraints and offer solutions to reduce market risks and improve marketing opportunities for goat meat imported from Laos to Vietnam.

From April to July 2022, the researchers from HUAF directly surveyed the actors involved in the goat meat value chain in Central Vietnam, including Nghe An, Ha Tinh, Quang Binh, Quang Tri, Thua Thien Hue provinces and Da Nang city. Seventeen goat traders, 3 abattoirs, 54 goat meat restaurant owners, and 258 consumers in five provinces were interviewed. The surveyed data will be analysed in depth to clarify the project's research objectives.

The initial survey results show differences in the goat meat consumption market among the surveyed provinces. Specifically, in Nghe An, Ha Tinh, and Da Nang city, the demand for goat consumption in restaurants mainly focuses on hybrid goats (Boer or Bach Thao x Co), accounting for 90-100% of the consumed quantity of goats in restaurants. Meanwhile, in Quang Binh and Quang Tri, restaurants mainly consume Lao goats (goats imported from Laos), accounting for 80-90% of the quantity consumed by goat meat restaurants. In Thua Thien Hue province, the goat meat consumption market includes both hybrid goats and goats imported from Laos, in which Lao goats account for about 30-40% of the quantity consumed by restaurants.

To meet demand for goat meat in five surveyed provinces, some local traders collect and supply

Goat restaurant in Hue city is busy again after the COVID-19 pandemic. Photo: Le Van Nam

goats to restaurants in each province. Local traders select the goat supply based on the demand of goat meat restaurants. Three main goat supply sources are:

- goats supplied from large goat traders in the southern provinces of Vietnam (Dong Nai, Ninh Thuan, Binh Phuoc provinces)
- goats imported from Laos through the goat traders in Lao Bao town, Quang Tri province
- goats collected from local goat farmers.

The COVID-19 pandemic affected the goat market in Central Vietnam

The survey result of the main actors in the goat value chain shows the impact of the COVID-19 pandemic on the goat supply chain in central Vietnam. According to the surveyed traders and restaurant owners, the COVID-19 pandemic has severely impacted their goat meat business.

According to a goat meat restaurant owner in Ha Tinh province, his restaurant had to close 3 times between 2020 and 2021, the restaurant had to operate moderately during 2 years of the pandemic, and the number of consumers eating at his restaurant decreased by up to 70%.

Survey results from consumers show that goat meat is rarely bought to prepare family dishes. Goat meat is mainly served to consumers at restaurants. Therefore, when the local government applied social distancing measures during the pandemic, it greatly affected the business of goat meat restaurants and the general goat trade.

A goat trader in Huong Son district, Ha Tinh province, shared that his goat trade was severely impacted during the pandemic. His sales have also decreased by about 70%.

Market recovery in Central Vietnam

Although the goat market was heavily affected by the pandemic, as soon as the pandemic was controlled and the restrictive measures to prevent the epidemic loosened, the goat meat market experienced a strong recovery.

According to the surveyed restaurant owners, the goat meat market has been recovering, and the number of consumers eating at restaurants has reached pre-pandemic levels. The goat traders in the five surveyed provinces have been increasing the scale of trading goats from various sources, including goats imported from Laos, to serve the current demand of goat meat restaurants. This is a good signal to promote the consumption market for small-scale goat farmers in Vietnam and Laos.

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Alumni News: Career Growth

Join us to congratulate some of our outstanding alumni on their recent career growth.

Dr Nguyen Huu Van speaking on the 55th anniversary of Hue University of Agriculture and Forestry.

Dr Nguyen Huu Van

Dr Nguyen Huu Van became the Vice Rector of the Hue University of Agriculture and Forestry in 2022. Before this promotion, he was the Dean of the Faculty of Animal Science and Veterinary Medicine.

Dr Van participated in the ACIAR project 'Improved beef production in Central Vietnam' in 2005 and 'Sustainable and profitable crop and livestock systems for south-central coastal Vietnam' in 2007. In 2010, he received the John Dillon Fellowship (JDF) for leadership training in Australia.

Continuing to participate in many ACIAR projects, he is now the national coordinator for the project 'Goat Production Systems and Marketing in Laos and Vietnam'.

Dr Van has said the inspiration he has gained from his involvement ACIAR-funded projects and capacity building programs have contributed greatly to his professional advancements. Big congratulations, Dr Van!

Dr Nguyen Thi Binh (first from the right) attended the Soil Science Australia and the New Zealand Society of Soil Science Joint Conference with other ACIAR alumni.

Dr Nguyen Thi Binh

Dr Nguyen Thi Binh completed her PhD on evaluation of environmental, genotypic and nutritional factors influencing yield and quality of garlic at the University of Queensland in July 2022. She is now coming back to work as a researcher in the National Institute of Medicinal Materials. Before her scholarship, Binh participated in three ACIAR-funded projects, including: 'Increasing the safe production, promotion and utilisation of indigenous vegetables by women in Vietnam and Australia', 'Towards more profitable and sustainable vegetable-based farming systems in north-western Vietnam and Australia', and 'Towards more profitable and sustainable vegetable farming systems in north-western Vietnam'.

'Doing my PhD in Australia, in particular at the University of Queensland gave me the best opportunity to broaden and strengthen my knowledge and research skills. In my 4 and a half years living in Australia, I made many friends and exposed myself to Australian culture. Australia is my second home country now. I really appreciate ACIAR for providing me with a great opportunity to study in Australia,' Dr Binh happily shared.

Pham Kieu My

After achieving exceptionally high results in her master's program at the University of Tasmania with the ACIAR John Allwright Fellowship, Pham Kieu My received a fully-funded PhD scholarship to work with Australian experts on 'Social, economic and environmental pathways to a carbon-neutral livestock sector by 2030.'

My wants to advance her career as an agricultural economist. She loves doing research because of its learning nature and the openness and great collaboration among researchers

'The best thing I've learned in Australia is the courage to ask! People here are very friendly, and they care for your success. I've reached out to many people who I had never met before to ask for their support and they get back to me with full attention and high enthusiasm. If they don't know the answer, they will introduce me to someone else who may know. Thanks to various the support of many people, I completed my thesis much faster than if I had done it all by myself.'

My enjoys Australia's peacefulness.

ACIAR Learn: Courses in 2023

ACIAR Learn is an online learning program provided by ACIAR to strengthen the capacity of agricultural researchers in developing countries.

The program was first piloted in November 2021 before being rolled out in April 2022. Six months after launching, it has supported 119 learners, achieving a 95% satisfaction rate, and 74% completion rate across all its courses.

We want to share upcoming ACIAR Learn courses in 2023, with a timeline for your consideration to register.

For more information on the ACIAR Learn, please go to:

https://www.aciar.gov.au/aciarlearn

COURSE NAME	DATES IN 2023	TARGET GROUP	COURSE DESCRIPTION
Introduction to Research Methods	23 Jan – 10 Mar	Early Career researchers	Participants will be able to describe various research methods and assess best approaches for their current research.
Research Project Management	23 Jan – 10 Mar	Senior Career researchers	Beyond the science, the successful implementation of a research project requires a range of core skills. This course will enable participants to describe the key principles of responsible and effective management for research projects, understand key terminology and processes, and identify tools to assist in the effective management of ACIAR projects.
Academic Writing	30 Jan – 17 Mar	Alumni	Understand the key elements of academic writing and explore tools and techniques to enhance your academic writing skills.
Critical Thinking Skills	6 Mar – 7 Apr	Alumni	Critical thinking skills are essential to being an effective researcher. This course will provide participants with an understanding of the key components of critical thinking and how they can apply critical thinking skills in their research.

Research in the Field	6 Mar – 21 Apr	Early Career researchers	Undertaking research in the field context can mean different approaches and considerations for your work, in this course we explore this difference and identify what you might need to consider when undertaking field work.
Research Administrative Management	6 Mar – 21 Apr	Senior Career researchers	Building on the research project management course, this course offers participants the opportunity for further delve into the skills and tools that can be applied to administer research projects more effectively.
Interdisciplinary Approaches to Research	27 Mar – 28 Apr	Alumni	As the world's food systems challenges become increasingly complex, solutions to these challenges need to be generated across diverse disciplines and thematic areas. Applying interdisciplinary approaches to research enables a system thinking mindset to holistically address challenges. This course will enable participants to articulate the added value of interdisciplinary approaches to research, reflect on previous practice, identify ways in which interdisciplinary approaches can be mainstreamed into research projects, and develop a personal action plan and checklist for applying these approaches.
Policy Influencing Skills	24 Apr – 9 June	Alumni	Real world application of research outcomes is an essential step in translating science into action. Science informed policy is one way to achieve such action. This course will enable participants to develop an approach to influencing policy outcomes, underpinned by an understanding of the role of institutions and politics in the policy development process and how change can occur in agricultural research organisations.
Gender Equity in Research	24 Apr – 9 June	Early Career researchers	An introduction to the core principles of applying a gender equitable approach to research projects.
Gender Equity in Research Leadership	24 Apr – 9 June	Senior Career researchers	Increase your understanding on how to apply gender equitable approaches to undertaking research and leading teams to undertake research.
Research proposal skills	1 May – 2 June	Alumni	ACIAR and other international agricultural research organisations commission research from collaborators. Being able to develop a research proposal is therefore highly relevant to achieving collaboration on research projects. In this course, participants will understand and apply strategies to: formulate project ideas and locate funding opportunities; identify specific grant requirements, assemble a project team, and define broad project aims and activities; and structure and write a proposal document for maximum clarity and impact.

Contacts:

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Interview with a researcher

Hello Dr Khoi! When did you start working with ACIAR?

I've associated with ACIAR since 2011 when participating in the CLUES[1] project, then a rice-shrimp project[2] and now the FOCUS project[2].

I can see the cohesiveness in all ACIAR-supported projects, taking the best use of the existing research outcomes and the collaboration between Australia and Vietnam to address challenges facing Vietnam's agriculture, especially those related to climate change.

What impressed you most when participating in ACIAR-funded projects?

The projects involve experts from diverse backgrounds who work together towards shared goals that are creating better outcomes for farmers and developing sustainable

From right to left Dr Chau Minh Khoi, Farmer Tran Kim Sol and ACIAR Vietnam Country Manager Nguyen Thi Thanh An, pick up red beet grown on saline soil, March/2022. Photo: ACIAR.

[1]Climate change affecting land use in the Mekong Delta: adaptation of rice based cropping systems (CLUES) (SMCN/2009/021)
[2] Improving the sustainability of rice-shrimp farming systems in the Mekong Delta, Vietnam (SMCN/2010/083)
[3]Farmer Options for Crops Under Saline conditions (FOCUS) in the Mekong River Delta, Vietnam' (SLAM/2018/144)

farming systems. Thanks to that, we have many opportunities for learning and career growth.

With such a multi-disciplinary expert group, ACIAR-funded projects usually work towards system solutions rather than focusing on only one discipline or technique.

The projects also work on value chain development and stakeholder engagement, particularly with women.

What is the most important gain in working with ACIAR?

It is the opportunity to work in a diverse group that includes experts in many disciplines from Vietnam and Australia and local agriculture management agencies. Before, I only focused on the research subjects around soil and crops and working with farmers, but did not work on collaborating with local partners. ACIAR-supported projects have brought researchers, farmers and state management agencies together.

I made great efforts in connecting with state management agencies and companies and learning how to manage a multi-disciplinary group that included many leading international experts. All these efforts have enabled me to build stronger skills and made me different from others.

I am very proud of the strong linkage with ACIAR and the commitment in working with Australian partners. After each project ends, we continue discussing ideas and working on new projects together.

If you pick one word to describe your feelings as an ACIAR partner, what would that word be?

Inspired! Working with such a diverse team, I learn new things every day and am encouraged to become more creative and make more effort to lead the team to achieve the shared goals.

Can you share some results from the FOCUS project that make you feel most excited to date?

We've found that red beet is a crop that can adapt to salinity and generate a profit. We are still researching new crops for these purposes.

We've also experimented mulching as a technique to minimise the impact of salinity. Mulching is not new but proving its ability to reduce the impact of salinity in the context of climate change is new and really promising.

We have also introduced a simple tool for farmers to save water, especially during the dry season when water shortage becomes serious.

Can you share your plans?

The FOCUS project still has half-way to go, and we have already developed new ideas based on its research results. Most recently, Can Tho University and Charles Sturt University researchers have received an investment from an Australian company to assess gas emission and carbon storage capacity of the farming system developed in the FOCUS project, and study opportunities to enter world carbon market through collaboration with Australian companies.

We will also start a new project funded by GIZ to train farmers in using soil sustainably. We will use tested methods in FOCUS to train local agriculture officers in other areas and they will in turn train their local farmers.

In my current managing role at the Agriculture College of Can Tho University, I will try to maximise our multi-discipline advantage. For example, in a project on developing production zones of organic rice, we are working with the social-economic research group of Can Tho University to study the social, economic conditions of the potential areas.

You are also a John Dillon Fellow alumnus. What have you achieved through this leadership training program?

I feel blessed to be selected for this program. The most important gain is the leadership and management skills. Also, when I was in Australia participating in this scholarship, I was introduced to Dr Jason Condon and we started working on the FOCUS project. I feel like I am a seed nurtured by ACIAR.

ACIAR made great efforts on building capacity for researchers, and I take it as a personal and important mission to continue supporting young researchers. 3 young researchers in the FOCUS project have started receiving funds to continue their study on social, economic and environmental issues related to this project.

What are your favourite things to do in spare time?

I have loved nature since I was a child. When I have time, I love going to the sea and beaches with an untouched landscape to enjoy the nature beauty.

Interview with a farmer

Hello Mr Sol! Could you introduce yourself to ACIAR readers?

My name is Tran Kim Sol. I live in Hamlet Salt Water 2, Long Phu Commune, Soc Trang District. I am Khmer. I am very happy that Long Phu commune chose my rice field to participate in the FOCUS project when it started in 2020.

What do you like most about participating in this ACIAR-supported project?

In the past, I planted two rice crops each year — the first from May to September, the second from October to February of the following year, and then left the field unused due to salinity intrusion. If I tried to plant the third crop, I would pump salt water into the area and make the soil saline, which would continue to affect the two main crops. Besides, now my children stay in Binh Duong Province to work in a factory, so I don't have people to do three rice crops per year, and I need to take care of my grandchild.

The researchers guided me to grow alternative crops such as red beets, corn, and watermelon instead of rice. Growing crops is not as labour-intense as growing rice. Now I have time to take my grandchild to school and have more income for my family.

Previously, I also learned from my friends to grow alternative crops in the rice field, but only planted corn and green beans. The project has introduced red beets and watermelons. I especially like red beets because they don't need much care, fertilisers, or chemicals, but they give high yields and prices. The selling price of red beets is 10 times more profitable than rice. I can earn up to 27 million VND/1,000m^2.

I have learned a lot of new things participating in this project. What I like most is that in the whole city of Soc Trang, perhaps no one has ever grown beets before, not to mention that I even plant them on the rice field. When I sold red beets to traders for the first time, they thought I got them from somewhere. They only believed I could do it when I returned and sold red beets for the second time.

Can you share what you plan to do next?

I only have 200m^2 of red beets, but I will soon have 1,000m^2. Traders say they can buy up to 300 kg of red beets daily.

In addition, because my field is near a grocery store, many guests of that store saw the red beets, and they want to learn to plant them, too. When I have time, I will invite the grandparents who have land to drink coffee and teach them how to grow.

I also hope the project can support more red beet seeds and provide more technical guidance for me to grow on a larger scale.

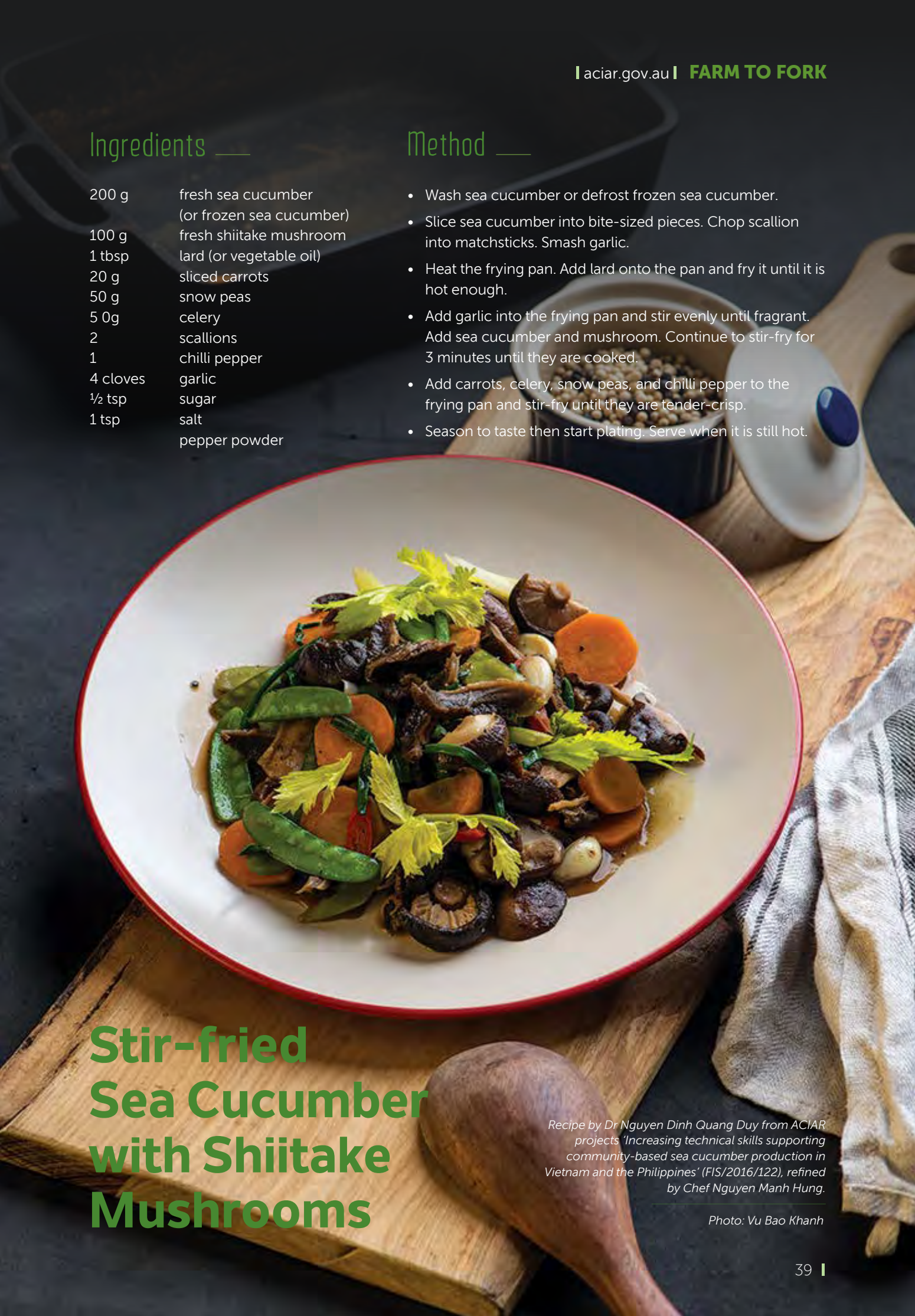
Thank you, Mr Sol! We wish you good health and cooperation with the project!

Ingredients

200 g	fresh sea cucumber (or frozen sea cucumber)
100 g	fresh shiitake mushroom
1 tbsp	lard (or vegetable oil)
20 g	sliced carrots
50 g	snow peas
5 0g	celery
2	scallions
1	chilli pepper
4 cloves	garlic
½ tsp	sugar
1 tsp	salt
	pepper powder

Method

- Wash sea cucumber or defrost frozen sea cucumber.
- Slice sea cucumber into bite-sized pieces. Chop scallion into matchsticks. Smash garlic.
- Heat the frying pan. Add lard onto the pan and fry it until it is hot enough.
- Add garlic into the frying pan and stir evenly until fragrant. Add sea cucumber and mushroom. Continue to stir-fry for 3 minutes until they are cooked.
- Add carrots, celery, snow peas, and chilli pepper to the frying pan and stir-fry until they are tender-crisp.
- Season to taste then start plating. Serve when it is still hot.



Stir-fried Sea Cucumber with Shiitake Mushrooms

Recipe by Dr Nguyen Dinh Quang Duy from ACIAR projects 'Increasing technical skills supporting community-based sea cucumber production in Vietnam and the Philippines' (FIS/2016/122), refined by Chef Nguyen Manh Hung.

Photo: Vu Bao Khanh

The Australian Centre for International Agricultural Research (ACIAR) is part of Australia's international development cooperation program. Its mission is to achieve more productive and sustainable agricultural systems for the benefit of developing countries and Australia. ACIAR commissions collaborative research between Australian and developing-country researchers in areas where Australia has special research competence. ACIAR also administers Australia's contribution to the international agricultural research centres.

ACIAR Vietnam is one of the 11 country/regional offices and we have been active in Vietnam since 1993.

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