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**Australian Centre for
International Agricultural Research**

Assessing the research to policy interface in Laos



8

**ACIAR OUTCOME
EVALUATION SERIES**

Assessing the research to policy interface in Laos

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ACIAR

2024

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Foreword

The Australian Centre for International Agricultural Research (ACIAR) is mandated under the ACIAR Act (1982) to work with partners across the Indo-Pacific region to generate the knowledge and technologies that underpin improvements in agricultural productivity, sustainability and food systems resilience. We do this by funding, brokering and managing research partnerships for the benefit of partner countries and Australia.

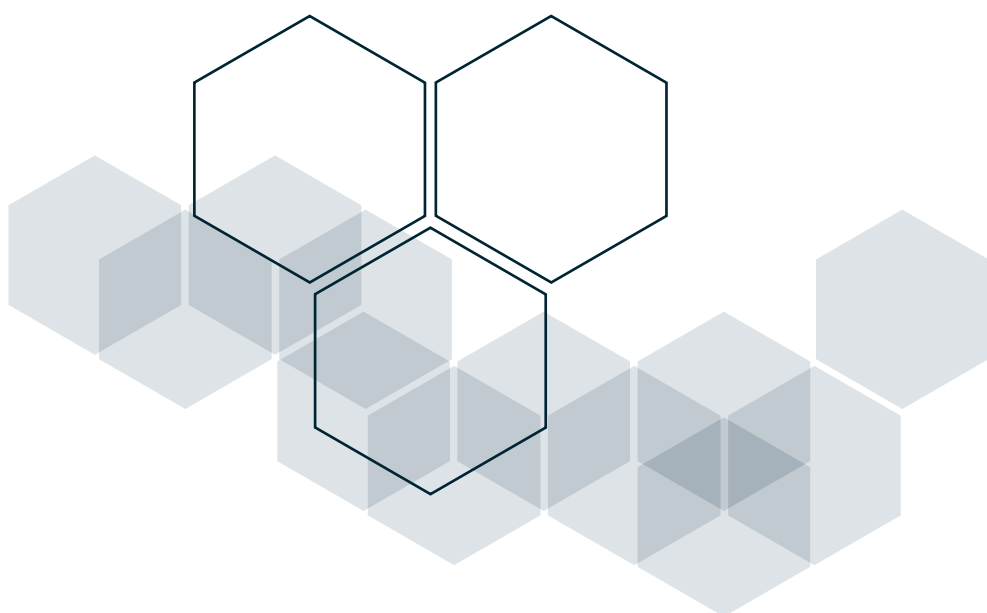
ACIAR has more than 20 years of experience undertaking research on agricultural subjects in Laos. The work we have funded there on fish passages, forest plantations and groundwater irrigation is widely understood to have significantly contributed to policy and medium-term development outcomes in the country. To crystallise this understanding, ACIAR commissioned the Institute for Sustainable Futures at University of Technology, Sydney to undertake an evaluation of the outcomes of 3 bodies of ACIAR-funded research in Laos. The evaluation focussed on how and why the research from this set of projects interfaced with policymaking, the gendered dimensions of the research and the unique contribution that ACIAR made to medium-term development outcomes in Laos.

As a learning organisation, ACIAR is committed to understanding the diverse outcomes delivered by the research collaborations we develop, to demonstrate the value of investment of public funds, to continuously improve research design and to increase the likelihood that ACIAR-funded research improves the lives of farming communities in our partner countries. An important mechanism for achieving our aims is to work closely with the wider Australian aid program to develop promising research into improved agricultural practices and profitable enterprises at scale. This outcome evaluation series draws together the longer-term impacts and lessons from our projects, celebrates the successes and informs future program development.

This outcome evaluation highlights that the strong focus on partnerships and centring the needs of in-country partners in the design and conduct of these 3 groups of projects meant that the outcomes delivered by the projects were closely aligned with partner needs and ensured a high level of on-going engagement from in-country partners.



Prof Wendy Umberger
Chief Executive Officer, ACIAR



Abbreviations and acronyms

APAARI	Asia-Pacific Association of Agricultural Research Institutions
APAARI	Asia-Pacific Association of Agricultural Research Institutions
ACIAR	Australian Centre for International Agricultural Research
CABI	Centre for Agriculture and Bioscience International
DFAT	Department of Foreign Affairs and Trade
DOI	Department of Irrigation (Lao PDR)
DWR	Department for Water Resources (Lao PDR)
GESI	Gender, equity and social inclusion
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
IWMI	International Water Management Institute
NUOL	National University of Laos
PDR	Government of Lao People's Democratic Republic
SOGIE	Sexual orientation, gender identity and expression

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Summary

The Australian Centre for International Agricultural Research (ACIAR) commissioned the University of Technology Sydney, Institute for Sustainable Futures to undertake an evaluation of the outcomes of 3 bodies of ACIAR-funded research in Laos. The evaluation focused on how and why the research interfaced with policymaking, the gendered dimensions of the research and the unique contribution that ACIAR made to medium-term development outcomes in Laos.

ACIAR has more than 20 years of experience undertaking research on agricultural subjects in Laos, and its work on fish passages, forest plantations and groundwater irrigation is widely understood to have significantly contributed to policy and medium-term development outcomes in Laos. This report presents the approach, methodology, findings and transferrable lessons of the evaluation of these 3 bodies of work funded by ACIAR. ACIAR leaders, research program managers and research teams, Lao researchers, university and government personnel, as well as other researchers and research agencies, may find in this report useful for insights into how research can interface with policymaking.



Evaluation approach


The evaluation team comprised 3 Australian researchers from University of Technology Sydney, Institute for Sustainable Futures and 2 Lao researchers. The team used 3 conceptual frameworks to guide the evaluation:

- i. Research Contribution Framework (Morton 2015) to identify and analyse the outcomes of the research and how the research interfaced with policymaking.
- ii. Gender at Work (Rao and Kelleher 2010) to identify and analyse the gendered dimensions of the research.
- iii. Boswell and Smith's (2017) 4 models of research-policy relations to analyse why research interfaced with policymaking.

The evaluation team undertook a document review of key program documentation. They conducted key informant interviews with:

- ACIAR representatives
- Australian research personnel
- research users, including Government of Lao People's Democratic Republic personnel
- Lao research partners
- representatives from international financial institutions and the private sector
- members of the Lao public who had engaged with the research.

The evaluation team facilitated 2 sense-making workshops with a broad range of stakeholders to validate and refine the findings and transferrable lessons. They took a highly collaborative approach, with all team members working on all aspects of the evaluation design and implementation.



What were the expected and unexpected outcomes of the 3 bodies of research?

The evaluation team confirmed that the ACIAR-funded research on fish passages, forest plantations and groundwater irrigation contributed to a range of significant medium-term policy and development outcomes. Figure 1 outlines the key outcomes of the 3 bodies of work. It was beyond the scope of the evaluation to analyse the longer-term impacts of the research; however, the team found emerging evidence of long-term impacts and useful reflections from a range of Lao and Australian stakeholders on how ACIAR might contribute to longer-term, sustainable impacts through a transdisciplinary research approach.

Some of the outcomes listed in Figure 1 were planned and expected by research teams, while others were unplanned and unexpected.

The **fish passages** research team initially expected changes in awareness, knowledge, skills, behaviours and practices among personnel from the Department of Livestock and Fisheries, and later changed strategies to enable the Department of Irrigation (DOI) and international financial institutions to change their policies and facilitate longer-term environmental and social safeguarding.

The **forest plantations** body of work similarly began with a long period of research on particular forest plantation and manufacturing practices and innovations. Unexpectedly, the Department of Forestry requested ACIAR and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) to convene multistakeholder policy dialogues, which changed the direction of the ACIAR body of work to focus on changes to awareness, knowledge and improvement of forest plantation policies.

The long-term **groundwater irrigation** research project did not initially intend to contribute to changes in policy. However, over time the project's provision of evidence and facilitation of capacity strengthening in groundwater irrigation mapping, modelling and monitoring resulted in unexpected and significant policy outcomes.

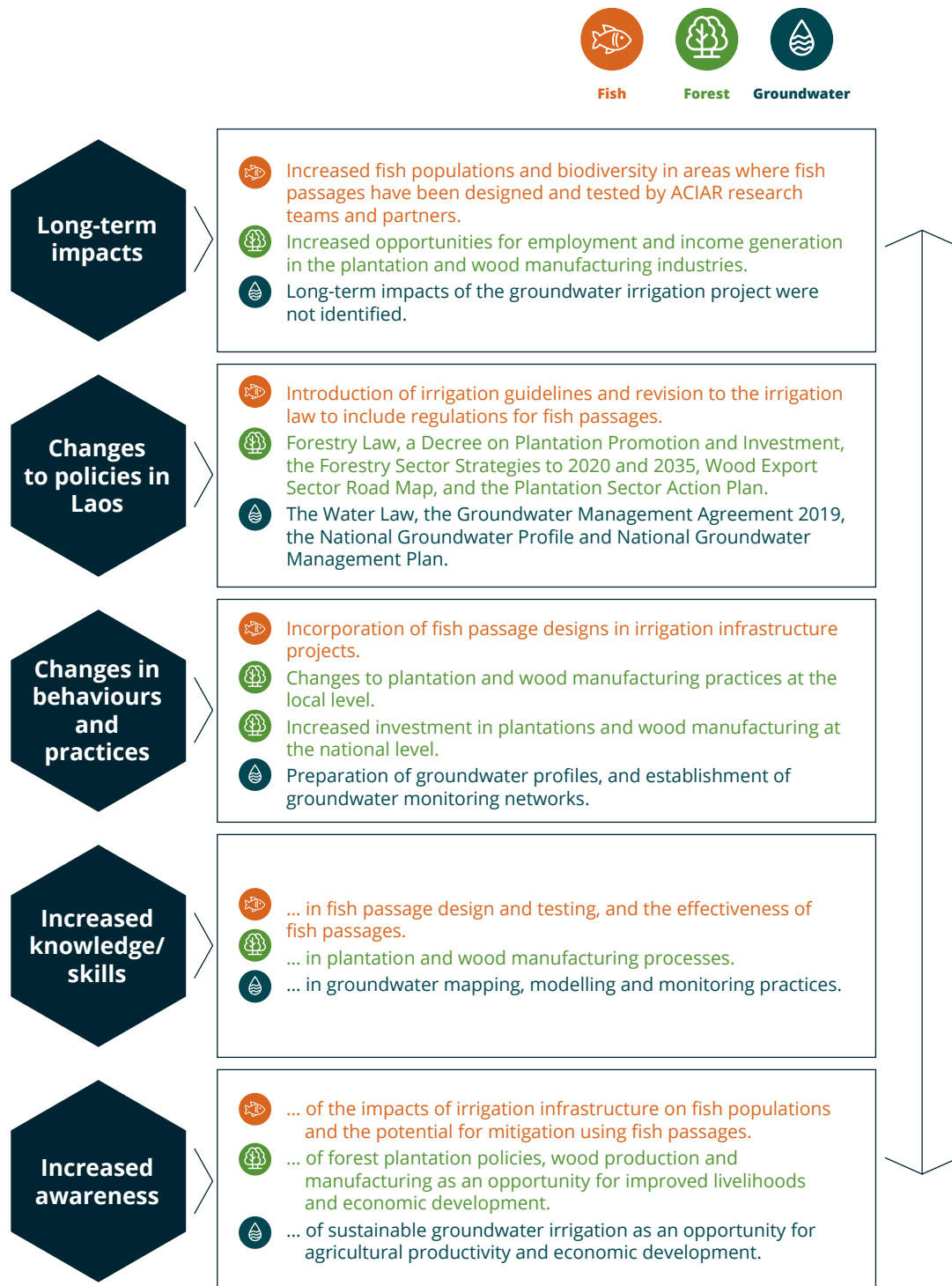


Figure 1 Key outcomes of 3 bodies of research

Key findings

1

What was the contribution of ACIAR to medium-term development outcomes?

Provision of evidence to policymakers and stakeholders who directly engage with policymakers:

Research users in Laos emphasised that ACIAR had provided the long-term body of robust evidence necessary to develop or improve policies related to fish passages, forest plantations and groundwater irrigation. ACIAR research teams provided empirical evidence of the effectiveness of fish passages, which was required before establishing new regulations for fish passages. ACIAR research teams provided a long-term, trusted body of knowledge from a range of different stakeholders to support the revision of forestry policies. ACIAR research teams also worked with the Government of Lao People's Democratic Republic to develop new data and evidence of groundwater resources that was not previously available from other sources.

Systemic capacity strengthening for a range of different institutions:

Lao stakeholders highly valued the contribution of ACIAR to capacity strengthening. This was seen in fish passage design and testing, forest plantation and manufacturing practices, and groundwater irrigation mapping, modelling and monitoring among government and university personnel, early career researchers, private sector company personnel, smallholders, growers, river and groundwater users. Several personnel from Lao research partners eventually became high-profile proponents of policy changes in the 3 sectors, having spent a significant proportion of their careers engaging with the research as both researchers and policymakers. Many project stakeholders expressed the importance of capacity strengthening, and the unique ACIAR approach to this activity, in contributing to long-term outcomes that could be sustained by people in Laos.

Collaborative research practice:

Project stakeholders recognised that multidisciplinary research approaches are relatively new to ACIAR, and that the incorporation of research and knowledge from multiple disciplines was essential to achieving policy outcomes. Participants also suggested that multidisciplinary or transdisciplinary approaches need to be well-resourced and incorporated into research designs early to be effective. Interpersonal relationships and collaborative practices between Australian and Lao researchers were also highlighted as a crucial element of ACIAR projects that enabled outcomes. Their recommendations for cross-cultural working are listed in Appendix 2.

Key findings (cont.)

2

How did ACIAR research interface with policymaking in Laos?

The pathways towards policy change were different across the 3 bodies of research. However, the evaluation identified several common factors that enabled research to policy interfaces.

Elements of research design that contributed to outcomes: Across all 3 bodies of research, the long duration of the research activities (more than 10 years in some cases) enabled the development of large and robust bodies of evidence; the establishment of methods of engagement and trusted relationships that supported uptake of research findings; and the development of systemic capacity to sustain research outcomes. The forest plantation research team also intentionally timed their research to align with government planning cycles, which enabled ease of research use. Across all 3 bodies of research, ACIAR and stakeholders in Laos had a similar or shared framing of the ‘problem’ that required evidence of effective solutions.

Inputs that contributed to outcomes: All 3 bodies of research employed highly trusted, knowledgeable and connected researchers who had a long-term and/or continual presence in Laos, which supported the building of credibility and trust with stakeholders in Laos. In some instances, particularly in the forest plantations and groundwater irrigation bodies of work, researchers were already known to a range of stakeholders through their previous work in Laos. In other instances, relationships were established and built over several years through regular informal and formal engagements. Researchers also commonly had strong contextual knowledge of government ways of working developed over long periods of time – through conducting formal context analysis (as in later phases of the fish passages research) and/or through working with Lao partners to understand the policy context. Lao researchers expressed a preference for working with Australian researchers with whom they already had long-term working relationships, who had strong contextual knowledge of Laos, and could speak at least some Lao. Australian and Lao stakeholders recognised that positive interpersonal relationships between Australian and Lao researchers developed over time and informal interactions were crucial to the achievement of development and policy outcomes.

Research uptake planning: All 3 bodies of research dedicated significant time and resources to planning and undertaking research uptake processes (any process through which research users become aware of the research), rather than solely planning research activities and outputs. Broad, purposive and ongoing multistakeholder engagement throughout the period of each body of research supported greater uptake and use. This was particularly evident in the fish passages research, which changed its approach after 6 years to include more strategic collaborations and partnerships with international financial institutions and government departments that could use the research findings. The forest plantations research was also unique in its early and ongoing collaborations with private sector companies throughout the research, which enabled both policy and practice outcomes.

Research uptake methods: Planning appropriate research uptake methods was found to be effective for enabling research use. All 3 bodies of research planned a large number and variety of research uptake methods. Some led to greater uptake than others. Lao and Australian project stakeholders noted the importance of informal interactions for research uptake. Lao and Australian project stakeholders also highlighted the effectiveness of practical engagements: workshops, training, piloting and visible demonstrations of technologies and practices. The ACIAR ethos of ‘learning by doing’ and ‘seeing is believing’ enabled changes to awareness, knowledge, skills, behaviours and practices. In the forest plantations body of research, ACIAR researchers’ facilitation of multistakeholder policy dialogues and meetings enabled a broad range of stakeholders to learn about and provide input to forestry policymaking. In the fish passages work, the dissemination of robust scientific evidence of the effectiveness of fish passages in an evaluation report was a catalyst for policy change. These findings align with Pohl’s (2022) assertion that engagement processes to produce 3 types of knowledge are required for research to contribute to real world outcomes: knowledge of facts, or ‘what is’; knowledge of values or ‘what ought to be’; and knowledge of practice, or ‘how to’ make practical changes towards ‘what ought to be’.

3

To what extent did the research engage with the gendered dimensions of the research and/or contribute to gendered outcomes?

To a large extent the 3 bodies of work did not incorporate formal gender analysis or action planning from the initial research design phase. Both research personnel and stakeholders in Laos did recognise that there are significant gender dimensions in the contexts of the research. However, most projects did not establish gender strategies beyond encouraging the participation of women in some project activities. The fish passages body of work recently introduced a gender strategy; however, the outcomes of the strategy are not yet evident. There was anecdotal evidence of increased employment opportunities for women in plantations and wood manufacturing, particularly as supervisors in one plywood mill. There was no substantial evidence of how and to what extent ACIAR contributed to these outcomes.

4

Why did research interface with policymaking in Laos?

The evaluation team referred to Boswell and Smith's (2017) 4 models of research-policy relations to analyse the underlying assumptions of why research would interface with policymaking. They identified a common implicit assumption in ACIAR research designs that research, data and evidence would directly shape policies; however, processes of engagement, uptake and use of research findings were not often captured in project documentation.

There was some evidence of how particular policy interests informed the direction of research. There was also a common thread of research teams and government stakeholders regularly collaborating in joint research and practice exercises. However, the extent to which politics informed research, or research and policy were co-produced, was not clear.

Several aspects of the 3 bodies of research aligned with Kingdon's (1995) theory of 'policy windows' that open in particular conditions.

- i. The research teams all framed the research 'problem' in the same or a similar way to government and other key stakeholders.
- ii. ACIAR and research teams each provided a body of credible evidence on particular 'policy' solutions that appealed to the needs and interests of policymakers.
- iii. The sociopolitical context surrounding each body of research was conducive to policy change.

According to Kingdon (1995), the convergence of at least 2 of these 3 conditions creates a 'policy window' in which policymakers are likely to make policy changes. All 3 bodies of research employed researchers who had the right knowledge, amount of time, relationships and reputations to effectively operate in the 'policy windows', which is also a necessary condition for policy-making, according to Kingdon.

Key findings (cont.)

5

What are the transferrable lessons of this research for other research personnel to consider?

Informed by the evaluation findings, the team identified 9 transferrable lessons that are considered relevant to different sectors, country contexts and research funders. The lessons draw on the evaluation frameworks that recognise the importance of research uptake and use to facilitate research impact.

Designing research for use in policy

1. Allow time, resources and flexibility for well-grounded context analysis and co-design processes, to engage the most appropriate stakeholders and frame the research focus appropriately. Local partners' knowledge is central as they understand the context in much more depth than international researchers.
2. Invest in local leadership, appropriate project team skills and composition. Consider which disciplinary expertise and local expertise is required from the beginning of the project, and be willing to change the composition of the team as the context evolves. Local researchers may become policy champions in the future.
3. Refer to conceptual frameworks to support planning for research impact and research-policy relations. Collaborative development, review and adaptive use of people-centred theories of change can help research teams to plan more efficiently who is expected to engage with the research, how those stakeholders will use the research, and what behaviours, practices and broader conditions are expected to change as a result of those stakeholders using the research.

Planning for research uptake

4. Allocate appropriate resources for planning and monitoring research uptake, and a variety of research uptake methods. Some research uptake methods are more effective than others for producing and disseminating different types of knowledge. For example, practical engagement methods such as training, workshops, pilot and demonstration sites or study tours can support learning about and improving practice. While deliberative engagement methods such as social research, informal discussions and meetings can support learning about different stakeholders' values and improving policy. And informative engagements such as disseminating evidence in reports and presentations can support learning about facts that can be used in policy.
5. Prioritise collaborative practice between researchers and partners. Plan and develop partnerships that are collaborative, collegial and connected with local researchers and research users. Value informal ways of working to build relationships and understanding of the context.

Planning for equitable and sustainable impact

6. Integrate systematic analysis of, and action planning for, gender, disability and social inclusion in all research projects. Every research project has gender and social inclusion outcomes, whether intended or not. If gender, disability and social inclusion dimensions are not analysed or planned for, research projects can reinforce or create discriminatory norms that cause harm.
7. Continue to develop the ACIAR approach to transdisciplinary research to support the sustainability of research outcomes. Focus on collaboratively solving problems rather than promoting existing solutions. Engage with a diverse range of potential research users from an early stage. Integrate their knowledge and practical experience throughout project implementation. Then monitor and evaluate the outcomes of their engagement. This will be more likely to contribute to sustainable and equitable research outcomes than a sole focus on producing and disseminating scientific knowledge.

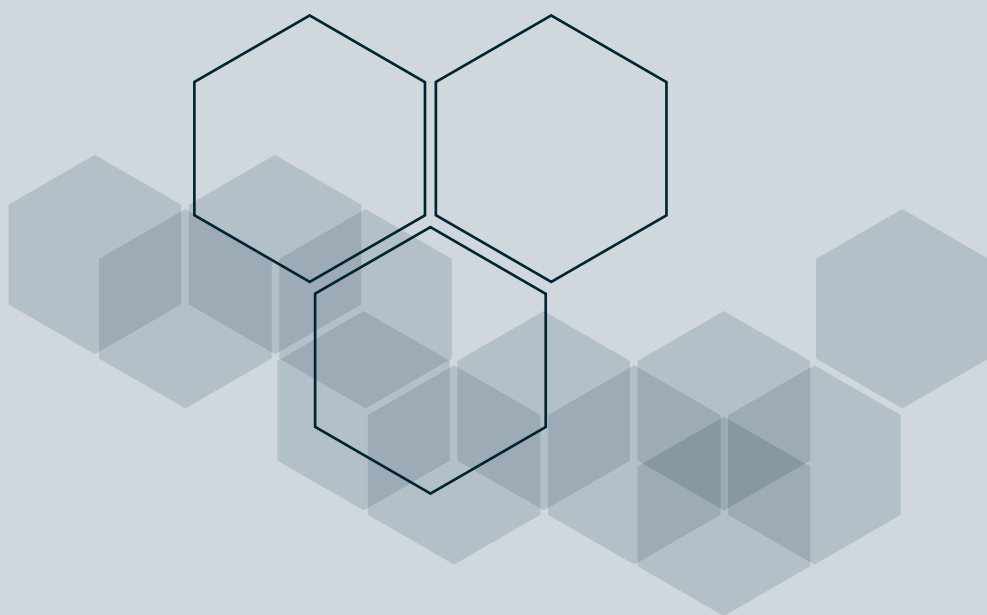
8. Long-term outcomes and impact require long-term investment. A longer duration of research allows opportunities for research to interface with policymaking as:

- a. political, social, environmental and economic conditions change
- b. research evidence becomes available and accumulates
- c. strong relationships and trust develop between researchers, policymakers and other research users.

Long-term capacity strengthening with a diverse range of institutions may support sustainability of research outcomes. Prioritise systemic capacity strengthening with researchers, government departments at different levels, international institutions and the public. The contribution of ACIAR to capacity strengthening in fish passage design and testing, forest plantation and manufacturing practices, and groundwater irrigation mapping, modelling and monitoring were highly valued by Lao stakeholders, several of whom became high-profile proponents of policy change, having spent a significant proportion of their careers engaging with the research.

More information about the evaluation findings and transferrable lessons is available:

- Practice briefs in Lao and English: <https://www.aciar.gov.au/publication/research-policy-LaoPDR-evaluation>
- Video in Lao with English subtitles: <https://www.youtube.com/watch?v=PU0HgPFteFk>
- Presentations: <https://www.uts.edu.au/isf/explore-research/projects/assessing-research-policy-interface-lao-pdr>







Introduction

This report sets out findings from a theory-based outcomes evaluation that empirically tested a retrospective hypothesis about how research contributed to outcomes, including policy, in 3 different sectors in Lao PDR.

The Australian Centre for International Agricultural Research (ACIAR) commissioned the University of Technology Sydney's Institute for Sustainable Futures to undertake the evaluation. The evaluation was carried out from May 2022 to June 2023.

Overview

ACIAR is Australia's specialist international agricultural research-for-development agency. In 1982, ACIAR was established as a statutory authority under the *Australian Centre for International Agricultural Research Act 1982* in the Foreign Affairs portfolio reporting to the Minister for Foreign Affairs. In accordance with the Act, ACIAR brokers and funds research partnerships between Australian scientists and their counterparts in developing countries.

The ACIAR 10-year Strategy (2017–2027) articulates the mission of ACIAR as 'achieving more productive and sustainable agricultural systems, for the benefit of **developing countries** and **Australia**, through international agricultural research partnerships.'

ACIAR contributes to its mission by:

- brokering and funding research partnerships
- supporting multilateral research collaborations
- contracting capacity-building programs.

ACIAR manages research partnerships through 9 thematic research programs covering agricultural sectors (crops, livestock, fisheries and forestry), the science needed to sustain the resource base (soil and land management, and water and climate), as well as the disciplines that generate economic and social benefits, including agribusiness and social sciences.

Support is provided to international and regional multilateral research collaborations, including the CGIAR, Centre for Agriculture and Bioscience International (CABI), WorldVeg and Asia-Pacific Association of Agricultural Research Institutions (APAARI). Capacity-building programs cover support for postgraduate research scholarships, leadership programs and institutional capacity strengthening. These business areas liaise with country management teams in all key geographies in order to be responsive and adaptive to partner country priorities and development objectives, and are supported by a fully staffed communications and outreach team.

Purpose and approach

One pathway to impact commonly articulated by ACIAR projects expresses an expectation that evidence from research will **inform** the development and implementation of relevant policy areas. ACIAR wanted to gain further understanding of how and why this research to policy interface occurred in a set of projects undertaken in partnership with colleagues in Lao PDR.

Scope

ACIAR has more than 20 years' experience supporting collaborative research in Lao PDR. Three bodies of work developed through these research partnerships are widely understood to have contributed to national government, private sector and international aid donor policymaking processes. This evaluation assessed these views.

The 3 bodies of work covered by this evaluation relate to:

1. Research on the potential for **fish passages** to secure the sustainability of fisheries that provide food, employment and income for millions of people, by facilitating the natural migration of fish around barriers in riverways.
2. **Forestry** research into production, processing, protection and policy. A diverse set of projects into the full spectrum of forestry activities is thought to have positioned ACIAR as a trusted knowledge brokering partner, whose work was of relevance in the formation of national forestry policy.
3. Research into the governance and management of rain fed **ground water systems**. Coinciding with policy initiatives by the Government of Lao People's Democratic Republic to bolster water resources management planning, this body of work is believed to have informed policies intended to manage groundwater resources effectively and advance the use of groundwater for agriculture.

See Appendix 1 for the full list of projects covered by this evaluation.

The evaluation had 2 main objectives:

1. To assess the extent to which selected bodies of work (in forestry, fisheries and water resources) contributed to expected and unintended outcomes, including an assessment of where, how and why research knowledge has interfaced with or also informed policymaking processes.
 - The evaluation assessed gendered dimensions of change as relevant to selected bodies of work, along the pathway to policy influence.
 - The evaluation assessed the contribution of ACIAR investment to scientific knowledge, innovation system capacity and medium-term development outcomes.
2. To identify transferable lessons on knowledge translation for policy processes, contributing to the ACIAR evaluation agenda and the field of transdisciplinary research effectiveness.



Methodology

Principles

- The evaluators used **structured frameworks** for data analysis and reporting to maximise efficiency and usability of the evaluation.
- The evaluators **foregrounded research ethics**, in aspects of data collection, and in relation to engagement and communication of evaluation findings back to research participants.
- The evaluators sought to ensure that the evaluation was **inclusive of participants** (both Australian and Laos-based), with **critical reflection** on ACIAR knowledge production processes and of evaluation findings.

Frameworks

The evaluation team used 3 different frameworks to structure and guide the evaluation, as described in Figure 2.

The evaluation team used **Research Contribution Framework** (Morton 2015) to inquire into the processes that enable research to contribute to real world outcomes, and to structure data analysis and write up. The Research Contribution Framework (Figure 3) identifies 3 key processes through which research contributes to outcomes:

1. Processes of ‘research uptake’ are processes in which research users engage with and become aware of research. For example, research users may read a briefing, attend a conference or seminar, be research partners, be involved in advising and shaping the research project in some way, or engage in some other kind of activity that means they know the research exists.
2. Processes of ‘research use’ are any processes through which research users act upon research. For example, they may discuss it, pass it on to others, adapt it to context, present its findings, or use it to inform policy or practice developments.
3. Research impact is the longer-term effect of research on particular social, environmental, political and economic conditions that occur through changes in policy and practice as a result of research (Morton 2015).

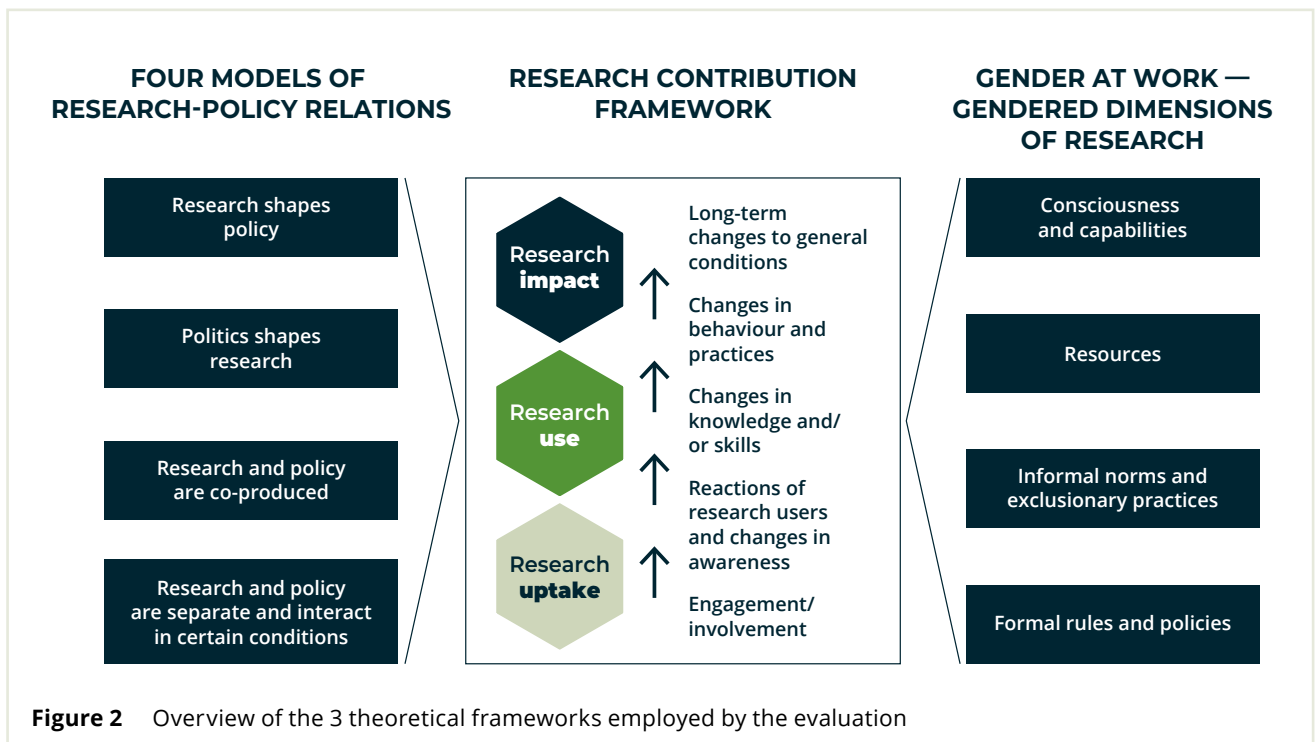


Figure 2 Overview of the 3 theoretical frameworks employed by the evaluation

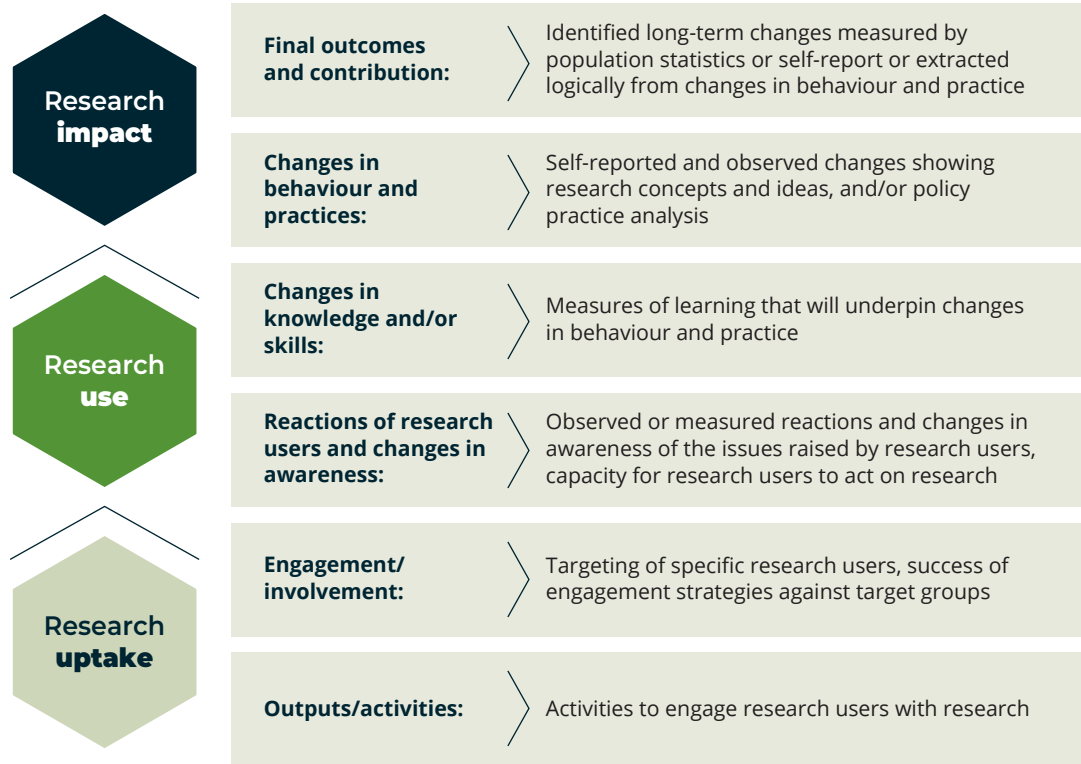


Figure 3 Overview of the standard outcomes and processes used in Research Contribution Framework
 Source: Morton 2015

Research Contribution Framework enabled the evaluation team to categorise different outcomes of ACIAR research in the 3 bodies of work and to analyse the specific processes of research uptake and research use that contributed to outcomes and impact. Research Contribution Framework was especially useful for identifying the specific and unique contributions of ACIAR to outcomes – particularly policy outcomes – as compared to other actors and conditions that contributed to outcomes.

The evaluation team employed the **Gender at Work Framework** (Rao and Kelleher 2010) to analyse individual and systemic gendered dimensions in the context of fish passages, forest plantations and groundwater irrigation. Rao and Kelleher (2010) categorise gender-transformation using 4 interrelated ‘clusters of change’ (Figure 4):

1. People of different genders’ consciousness (knowledge, skills, political consciousness, commitment).
2. People of different genders’ objective conditions (rights and resources, access to health services and safety, opportunities for a voice).
3. Informal gender norms, such as inequitable ideologies, and cultural and religious practices.
4. Formal laws and policies relating to gender as established by institutions.

The evaluation team used these ‘clusters of change’ to guide evidence collection, analyse the data and present findings on the gendered dimensions of change in research and policy interfaces.

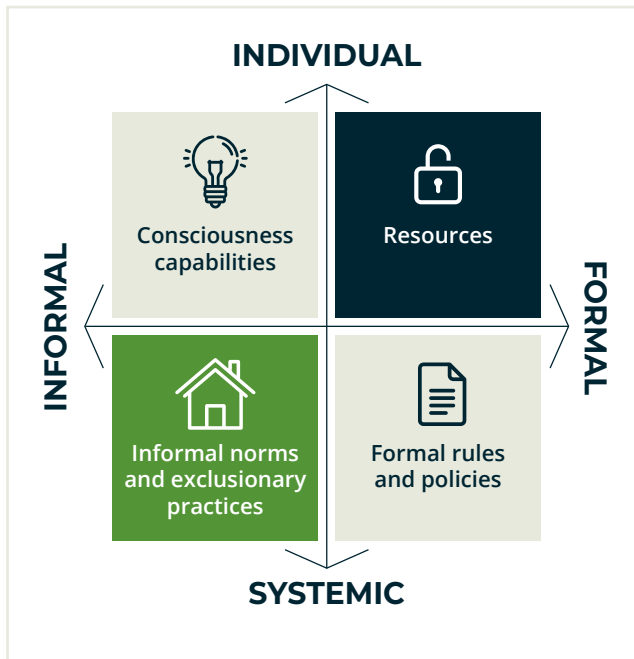


Figure 4 Overview of the 4 gendered dimensions in the Gender at Work Framework that were analysed in the evaluation
 Source: Rao and Kelleher 2010

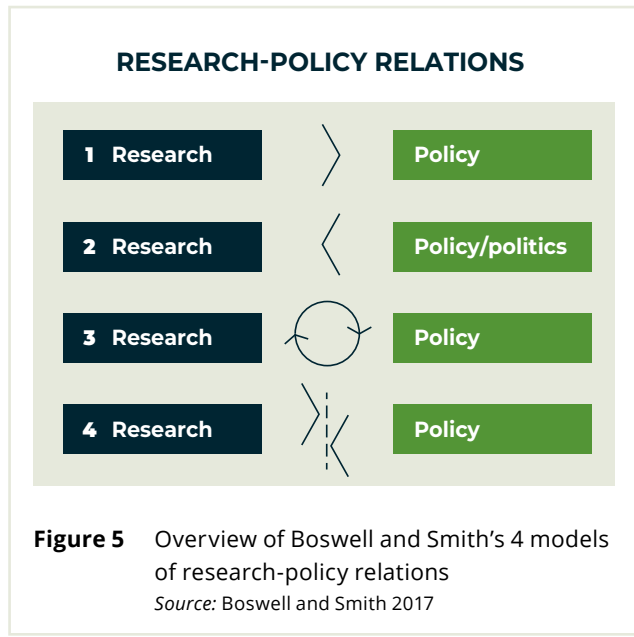


Figure 5 Overview of Boswell and Smith's 4 models of research-policy relations
 Source: Boswell and Smith 2017

Overarching the evaluation approach, the evaluation team used Boswell and Smith's (2017) **4 models of research-policy relations** to address the core evaluation question of how and why ACIAR and its partners' research interfaced with and/or informed policymaking processes. Boswell and Smith (2017) draw from wider social science literature to outline 4 different models to theorising research-policy relations (Figure 5):

1. The most common model examines how knowledge and ideas shape policy. According to this instrumentalist model, knowledge either 'drives' policy, or policy problems stimulate research to provide direct solutions.
2. The model recognises that research is not independent of politics and policy, and focuses on how political power shapes research agendas, processes and outcomes.
3. The model suggests that research knowledge and policy are co-produced through ongoing mutual exchanges between researchers and policy actors.
4. The approach suggests that there is no overarching causality between scientific knowledge and politics, rather, the political system selects and gives meaning to scientific knowledge based on its relevance to the pursuit of political power and the capacity to adopt collectively binding decisions (Boswell and Smith 2017).

The evaluators used these 4 models to categorise and analyse different research-policy relations within program level theories of change developed through document analysis and key informant interviews. These models supported the evaluators to make sense of different ways in which ACIAR research interfaced with policymaking. The 4 models offer a critical lens for theories of change that might conceptualise research to policy interfaces as linear and one directional, with implicit assumptions about who owns knowledge and research and who has power in research and policymaking processes.

The application of the frameworks in the evaluation approach is described in detail below. The frameworks informed data collection, analysis and write up and were used by all evaluation team members to make sense of evidence and inform evaluation findings.

Methods

The evaluation involved the following methods:

1. **Document review:** All evaluation team members conducted document review of key project documents across the 3 bodies of work, using the evaluation frameworks to identify and analyse the key outcomes, change pathways, gendered dimensions of the work, and research-policy relations. During a team inception workshop in Vientiane, Laos, the team collaboratively developed retrospective theories of change for each body of work, based on the document review, using the 3 evaluation frameworks. The team worked on interview design together for the next phase of the evaluation. They mapped the key informant interview questions to the evaluation questions and tailored interview design for different sectors and stakeholders. They conducted stakeholder mapping iteratively, identifying the most relevant stakeholders to interview from the program documentation, key informant interviews with ACIAR and research teams, and key informant interviews with research users.

2. **Interviews with ACIAR staff and researchers:** Australian team members conducted key informant interviews with ACIAR research program managers and Australian researchers from the 3 bodies of work. These interviews were designed using a funnel approach, starting with broad open-ended questions about:

- the context of the 3 bodies of work, design process, and the evolution of the body of work
- what informants perceived to be the most significant changes resulting from the body of work, what contributed to those changes, and who in Laos could provide greater insight into these changes
- to what extent the body of work engaged with the gendered dimensions of the context, any changes they observed in relation to gender as a result of the work, what contributed to these changes, and who in Laos could provide greater insight into those changes.

The second half of the interviews included more specific questions. These were designed to gain further insight into themes, processes and outcomes identified from the program documentation and responses to the earlier key informant interview questions, including elements of program design, research uptake, research use and long-term impacts.

3. **Interviews with research users in Laos:** The evaluation team interviewed Lao Ministry staff, international financial institution representatives, smallholders, teak growers and private sector representatives using a funnel approach, starting with broad open-ended questions about:

- the context of their work in the 3 sectors, their interest in the work of ACIAR, and their perceptions of how they engaged with ACIAR and research teams in the body of work
- what informants perceived to be the most significant changes resulting from the body of work and what contributed to those changes
- any changes they observed in relation to gender as a result of the work and what contributed to these changes.

The second part of the interviews included more specific questions. These were designed to test, verify and gain further insight into themes, processes and outcomes identified from the program documentation, key informant interviews with Australian stakeholders, Lao stakeholders' responses to the earlier key informant interview questions, and the evaluation team's analysis. Questions focused on specific elements of program design, research uptake, research use and long-term impacts. The third part of the interviews focused on Lao stakeholders' perspectives and recommendations of what researchers can do to enable research uptake, research use and long-term impacts of research.

It is important to note that the evaluation team interviewed more Government of Lao People's Democratic Republic stakeholders than Australian research stakeholders. This was because the Lao stakeholder experiences and perspectives were central to ascertaining how and why ACIAR research interfaced with policymaking in Laos, and the outcomes of this interface. Lao stakeholder perspectives are therefore overrepresented in the findings.



4. **Key informant interview analysis:** The evaluation team analysed the key informant interview data individually and then together in a series of collaborative team workshops. During the workshops, evaluation team members identified and reflected upon the evidence from key informant interviews about:

- expected and unexpected outcomes of the 3 bodies of work, using Research Contribution Framework to structure the analysis
- gendered dimensions of the bodies of work, using Gender at Work to structure analysis
- processes of research design, research uptake, and research use that contributed to outcomes, using Research Contribution Framework to structure the analysis
- why research interfaced with policymaking, using Boswell and Smith's (2017) 4 models of research-policy relations to structure the analysis.

Later analysis workshops focused on drafting and prioritising the transferrable lessons for different stakeholder groups: ACIAR and Australian researchers, and Lao research partners and government users.

5. **Collaborative sense-making workshops:**

Evaluation team members facilitated sense-making workshops with research program managers and researchers in Australia, and research coordinators and research users in Laos. These workshops aimed to validate the emerging findings from the evaluation, support participants to engage with and learn from the evaluation findings and their peers, and generate further insights on transferrable lessons.

The Australian workshop was held online over 2 separate sessions, with 19 participants, and the Lao workshop was held in person with 10 participants coming from the National University of Laos, Ministry of Natural Resources and Environment, Ministry of Agriculture and Forestry, Mekong River Commissions, and the ACIAR Regional Office based in Vientiane. The Australian and Lao workshops were held separately to:

- support open and accessible conversation and leadership of Lao evaluation team members
- enable cross-learning between stakeholders from different sectors
- help identify differences and similarities in perspectives between Australian and Lao stakeholders.

Workshop participants discussed:

- the emerging findings and their own experiences of outcomes of the 3 bodies of work
- how and why research interfaced with policymaking
- contributing factors that are particularly important in the Lao context
- gendered dimensions of the research
- the contribution of ACIAR to scientific knowledge and systemic capacity strengthening, multidisciplinary and transdisciplinary research approaches
- guidance to ACIAR and research teams on conceptualising research-policy relations
- guidance on effective cross-cultural partnership practices.

6. **Reference group meetings:** Evaluation team members facilitated 2 reference group meetings with representatives from ACIAR. The first reference group meeting introduced key evaluation users at ACIAR to the proposed evaluation approach. The evaluation team intended to facilitate additional reference group meetings with key evaluation users from ACIAR, and advisory group meetings with key evaluation users from Laos, however, due to limited availability of participants, they facilitated one final reference group meeting with ACIAR to validate and refine the transferrable lessons that the evaluation team identified through key informant interviews, collaborative analysis and sense-making workshops.

Participants

The evaluation team used purposive snowball sampling, identifying appropriate project stakeholders from document reviews, ACIAR and interviewee suggestions. In total, 26 people participated in the evaluation: 11 women and 15 men. Some participants participated in multiple evaluation activities, as outlined below.

The following stakeholder groups participated:

- Three current and former ACIAR research program managers participated in key informant interviews and the sense-making workshop in English. Six other ACIAR managers and directors, and 2 representatives from the Australian Department of Foreign Affairs and Trade (DFAT) participated in the sense-making workshop in English.
- Three Australian researchers participated in key informant interviews and 8 participated in the sense-making workshop in English.
- Eleven representatives from the Government of Lao People's Democratic Republic and research partners who had engaged in the 3 bodies of work participated in key informant interviews, and 7 representatives from the relevant government line agencies and university participated in the sense-making workshop in Laos.
- Three representatives from the Asian Development Bank who engaged in the fish passages body of work and one representative from a private company who engaged in the forest plantations body of work participated in key informant interviews.
- Two teak growers and 2 smallholders who engaged with the forest plantations body of work in Laos participated in key informant interviews.

Team

The evaluation team included 5 researchers:

- Dr Keren Winterford (Australia)
- Jessie Meaney-Davis (Australia)
- Professor Juliet Willetts (Australia) – technical advice and quality oversight
- Dr Soytavanh Mienmany (Laos)
- Dr Somphasith Douangsavanh (Laos).

All team members participated in collaborative processes to design and implement the evaluation, drawing on a range of expertise in monitoring and evaluation for international development, social research on forestry in Laos, and technical research on groundwater irrigation in Laos.

The team held a participatory team workshop in Vientiane, Laos to establish collaborative ways of working, and deepen their understanding of the bodies of work and frameworks for analysis. They participated in regular team meetings online to continue collaborative work on evaluation design, analysis and the development of reports and a video. Lao evaluation team members led the key informant interviews, sense-making workshop, Lao practice brief and video production with Lao stakeholders in Laos. Australian team members led the key informant interviews and sense-making workshop with Australian stakeholders and international stakeholders based in Laos, and writing of evaluation outputs in English. Lao evaluation team members reviewed and provided input into evaluation outputs in English, ensuring that Lao perspectives and voices were centred in the evaluation. The team also participated in regular surveys and reflections on team ways of working.



Limitations

There were several limitations to the evaluation.

Scope: The evaluation team was tasked with assessing the medium-term development outcomes – particularly policy outcomes – of ACIAR-funded research on fish passages, forest plantations and groundwater irrigation in Laos. It was beyond the scope of this evaluation to assess the longer-term impacts of the research, such as changes to social, environmental, political and economic conditions resulting from policy and practice changes. Significantly longer-term and ongoing monitoring and transdisciplinary evaluations are required to assess impact.

Timing: Some of the projects to be evaluated had started more than 10 years prior to the evaluation, and key stakeholders had since left their positions. Therefore, some key perspectives were not captured in the evaluation.

Financial information: The evaluation team did not have access to project financial information. Budget analysis may have provided transferrable lessons about the level of investment required to achieve outcomes, or how funding allocations correlated with outcomes.

Availability of ACIAR research program managers: ACIAR research program managers were often unavailable to participate in the evaluation. The evaluation findings are centred primarily on the perspectives of Lao stakeholders.

Reference and advisory group meetings: The evaluation team intended to hold periodic reference group meetings with ACIAR stakeholders, and advisory group meetings with Lao research users, to guide the evaluation and ensure relevance of the findings. However, not enough stakeholders were available to participate in advisory group meetings, and reference group meetings could only be held twice due to limited availability.

Cross-learning between Australian and Lao stakeholders: The scope of the evaluation did not allow for regular travel to and from Australia and Laos or for Australian evaluation team members to be based in Laos. Most cross-learning activities between Lao and Australian evaluation team members therefore occurred remotely online. It was not possible to bring both Australian and Lao stakeholders and perspectives together in a single sense-making workshop due to limited availability and logistical challenges. As the findings of the evaluation demonstrate, regular in-person collaboration between Lao and Australian stakeholders can support greater research relevance, uptake, use and impact.







Findings

This section presents the key findings of the evaluation. The first subsection provides a summary of each body of work, a description of how they evolved over time, and a theory of change for each body of work, outlining the research uptake processes that led to research use and the expected long-term impacts. The next section outlines the main expected and unplanned outcomes that occurred as a result of the 3 bodies of work, using the outcome categories prescribed by Research Contribution Framework (Moreton 2015). Then we elaborate on the factors that contributed to these outcomes, and analyse the gendered dimensions of the research. The final section highlights the unique contribution of the Australian Centre for International Agricultural Research (ACIAR) to the 3 bodies of work.

Findings from the 3 different sectors are weaved throughout to demonstrate similarities and differences between the 3 bodies of work, though the first section presents each sector separately to delineate the unique change pathways each body of research took.

1. How did the 3 bodies of work evolve?

The 3 bodies of research were diverse in their focus topics, approaches, methods and the specific outcomes they achieved. This section presents the unique change pathways that each body of research took. Change pathways are described using Research Contribution Framework, which unpacks the processes through which research users engaged with and became aware of the research (research uptake); the processes through which research users acted upon the research findings and/or their experience participating in research (research use); and the long-term changes to social, environmental, political and/or economic conditions that were a result of these processes (research impact).

Fish passages

In my view, there's been a real maturity of the program and moving towards understanding that they need to work in that nexus between science and policy.



ACIAR representative

The ACIAR work on fish passages began with long-term research on the technical design and testing of fish passages¹ in Laos over 6 years. This body of work did not initially have an explicit objective or detailed plan for how policymakers might incorporate considerations about fish passage technology into national laws, plans or regulations. However, after 6 years, the research team recognised that to implement fish passages at scale across the region the research would need a different approach. They changed the research approach to include multidisciplinary research on technical fish passage design, as well as the context and motivations of different stakeholders in relation to adopting fish passages, and potential governance options for fish passages. The team also changed their approach to include more purposive stakeholder engagement, shifting from engaging mainly with the Department of Fisheries and Livestock towards engaging with others. These included the Department of Irrigation (DOI), which is responsible for engineering of irrigation infrastructure and related regulations, and the Asian Development Bank and World Bank, which provide the majority of grants and financial loans for irrigation infrastructure projects in Laos.

¹ Fish passages are constructed around irrigation dams and weirs to enable fish to continue to migrate up and down waterways for feeding and breeding. The safeguarding of fish populations from the impacts of obstacles (i.e. irrigation infrastructure) is recognised by a broad range of stakeholders as important for Lao people's food security, the environment and the economy.

This change in strategy, as well as the provision of empirical evidence about the effectiveness of fish passage technology over several years, contributed to significant policy and practice outcomes that continue to evolve through new iterations of the work.

What contributed to the change is research findings with concrete evidence of a positive impact on fish biodiversity and the livelihoods of the local people. The CSU [Charles Sturt University], NUOL [National University of Laos], and LARReC [Living Aquatic Resources Research Centre] worked hard to investigate the performance of the fish passage facility and came up with a good report for DOI and the World Bank.


 Government of Lao People's Democratic Republic stakeholder 5, fish passages

Table 1 illustrates the evolution of the fish passages body of work, from its initial focus on scientific research and practice of designing and testing fish passages, towards incorporation of social research on what would motivate international lenders and government to regulate and institutionalise fish passages at a national or regional scale.

At this stage, the research has produced evidence of the effectiveness of fish passage designs for safeguarding fish populations and livelihoods, which was a catalyst for the Government of Lao People's Democratic Republic revising the irrigation law and introducing guidelines for fish passages in 2022–23. The research team has recognised the need for further social research and practice of fish passage management at local and provincial levels to ensure that these emerging outcomes are equitable and sustainable.

Table 1 Fish passages theory of change

Research Contribution Framework	Theory of change
Research impact	(Expected, evidenced to an extent by pilot evaluations): Safeguarding of fish populations, biodiversity, food security and livelihoods in Laos. (Expected, not yet evidenced): Increased adoption and sustainable management of fish passages in irrigation infrastructure projects in Laos.
Research use	International lenders and government personnel used empirical evidence from ACIAR-funded research and practice to promote and establish changes to the irrigation law and regulations for incorporating fish passages into irrigation infrastructure projects.
Research uptake	Production of knowledge about values, or 'what ought to be' (target knowledge)
	Social research engaged with international lenders and government personnel to understand their motivations for incorporating fish passage designs in irrigation infrastructure projects.
	Production of knowledge about practice, or 'how to' change from 'what is' to 'what ought to be' (transformation knowledge)
	Study tours, masterclasses and demonstration sites engaged policymakers, engineers, DOI personnel and international lenders to learn about effective design and testing of fish passages.
	Production of knowledge about scientific facts, or 'what is' (systems knowledge)
	Scientific research on designing and testing fish passages in Laos, conducted in collaboration between Australian and Lao researchers and the Department of Livestock and Fisheries.



Forest plantations

The forest plantations body of work began as a series of projects focused on researching and developing improved practices in wood production and manufacturing in Laos. A variety of projects included working with:

- smallholder teak growers to develop teak plantation practices
- the Faculty of Forestry Sciences, National University of Laos (NUOL) to develop a forestry curriculum, on the job training and infrastructure/facilities
- local Lao people and international companies to develop small and/or medium wood manufacturing processes
- forest health specialists to research control of galling wasps
- people engaged in timber value chains to investigate regulations for log transportation between provinces and wood processing.

The body of work changed direction towards policy-focused research after the Prime Minister's Order No. 15 on log export ban was issued in 2016, and when in 2018, the Government of Lao People's Democratic Republic requested the ACIAR research project leader, together with Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), to facilitate multistakeholder policy dialogues and support forest policy reform.


ACIAR researchers facilitated a range of multistakeholder engagement activities to discuss and refine forestry policies, contributing a large body of research and experience collaborating with the private sector, smallholders and government personnel to develop and update several policies.

The big impact we had was in actually feeding a lot of material into those [multistakeholder dialogues]. Those strategies, and the overall policy around investment in plantations and getting some significant shifts in the way in which the bureaucrats were thinking about plantations and about foreign investment in that area. ... we also, I think, made a big difference in relation to capacity. So, we built through a lot of the workshops and other activities we ran, we built stronger working relationships between the university and the government agencies that were developing policy and were responsible for policy ... the level of engagement improves the reliance on evidence and the acceptance.

 ACIAR representative

Multistakeholder policy dialogues and meetings also supported the production of knowledge of different stakeholders' values in relation to wood production and manufacturing, to an extent, which is a key consideration in policymaking.

Since we had multistakeholder discussions, the relationship of each sector has improved; we now have godbrothers and sisters (ai huk and nong huk) whom we can contact anytime to discuss and informal discussions emerged. We have a strong relationship.

 Government of Lao People's Democratic Republic stakeholder 1, forest plantations

Australian stakeholders suggested that the breadth and depth of this production of knowledge on different stakeholders' values could be improved in future iterations of the research to support equitable and sustainable impact.

Table 2 illustrates the evolution of the forest plantations body of work, from its initial focus on research and capacity strengthening in wood production and manufacturing, to its facilitation of multistakeholder policy dialogues. At this stage there is not sufficient empirical evidence of the long-term impacts of the body of work, and the interviewed Australian stakeholders were curious about the extent to which changes to policy will result in effective implementation at the provincial level and equitable impacts at the local level.

An increase in the volume of tree plantations is quite straightforward and obvious to notice. We have witnessed an increase in the area of forest plantation in small-scale private land, communities land or even production forest areas and degraded land areas after the new policy and the project. Some tree-growing groups have learned and gained experience in tree-growing techniques and management from the project. Some local wood processors started to make use of the small size of trees and branches as well as the leftovers from wood processing. However, there has not been clear evidence that their livelihood and income are getting better. In addition, smallholders and industrial investors seem not to tell the truth explicitly when we ask or survey their incomes/benefits. So, I think this is challenging to see the impact in a short period of time.


 Government of Lao People's Democratic Republic stakeholder 9, forest plantations

Table 2 ACIAR forest plantations theory of change


Research Contribution Framework	Theory of change
Research impact	(Expected, not yet evidenced): Equitable livelihood benefits of increased volume and value of wood production in Laos and improved environmental conditions (improved water quality and increased quantity, reduced soil erosion, increased carbon storage, increased forest coverage). (Expected, anecdotal evidence for changes to log transport permits): Effective implementation of introduced and improved forestry policies.
Research use	Growers, smallholders, plantation companies, university personnel, biohazard specialists and government personnel used ACIAR research experiences and findings to establish and implement new: <ul style="list-style-type: none"> • wood production and manufacturing processes • plantation management practices • investment in the forest plantation industry. Updated national forestry laws, plans and policies towards more efficient, effective and equitable outcomes for a range of stakeholders.
Research uptake	Production of knowledge about values, or ‘what ought to be’ (target knowledge)
	ACIAR researchers and GIZ facilitated multistakeholder dialogues to review and formulate the Forestry Law, a Decree on Plantation Promotion, and subsequently the Forestry Strategy 2020, at the request of the Lao Department of Forestry.
	Production of knowledge about practice, or ‘how to’ change from ‘what is’ to ‘what ought to be’ (transformation knowledge)
	Collaborative research and practice on/of wood production and manufacturing with teak growers, smallholders, plantation companies, university personnel, forest plantation health specialists, government personnel.
Research uptake	Production of knowledge about scientific facts, or ‘what is’ (systems knowledge)
	Engagement with scientific research on biological control of galling insect pests in eucalypt plantations in the Mekong Region and wood science and technology.





Groundwater irrigation

Throughout participation in the project and developing the groundwater profile, I have realised that data, and information collected from the ground, are important for us as policymakers. We have very little and [it was] not available in Department for Water Resources (DWR). The profile describes basic information and the current situation of groundwater resources. Once we have the profile, we further analyse and formulate the management plan.

 Government of Lao People's Democratic Republic stakeholder 2, groundwater

The ACIAR groundwater irrigation project began through a shared recognition that there was not enough data and evidence available on the availability and sustainability of groundwater for irrigation in Laos. The project did not have an explicit objective to interface with policymaking. International Water Management Institute (IWMI) researchers collaborated with Government of Lao People's Democratic Republic and university personnel in a very broad range of activities designed to explore the potential sustainable use of groundwater for irrigation in Laos. Activities that involved regular engagement of government stakeholders in practical activities such as groundwater mapping, modelling and monitoring led to policymakers utilising data and research evidence from the project in the National Groundwater Profile and National Groundwater Management Plan; revisions to the Water Law; and the Groundwater Management Agreement 2019. This outcome was not planned by the research team.

We regularly discussed the data and information with DWR. We came up with [the] research topic of mapping groundwater at the country scale. It was an academic exercise. It was not important to the government at that time, but it added value to their policy development later. We want to produce and add value to the government and ensures we don't want to just do research and publish. We often discussed with DOI, DWR, and NUOL [National University of Laos] to explore what they were interested in, then we often changed our strategy.


 Australian researcher 1, groundwater

Table 3 illustrates the evolution of the groundwater irrigation project. The project did not have an explicit policy objective; however, through the evolution of the project, policymakers decided to utilise the research evidence and practice to establish new groundwater policies and practices. Initially the project focused on data collection and capacity strengthening in groundwater mapping, modelling and monitoring. Through these collaborative, practical activities with DWR, policymakers became aware of and decided to utilise research evidence and newly developed capacity for policymaking. The research team also initially piloted the use of groundwater for irrigation together with Lao farmers in Phonhong districts of the Vientiane Province. However, they found that there were a range of barriers to farmers practicing groundwater irrigation, including high costs of investment in and maintenance of infrastructure, limited understanding of or trust in the availability of groundwater, and farmers' engagement in alternative livelihood options (Clement et al. 2019). The farmers who participated in the pilot did not continue to use groundwater irrigation. This poses a similar question to that raised by Australian stakeholders from the forest plantations body of work about the extent to which changes to national policies and plans will result in changes to practice at the local level.

Table 3 Groundwater irrigation theory of change

Research Contribution Framework	Theory of change
Research impact	<p>(Expected, not yet evidenced): Sustainable groundwater irrigation provides improved food security, nutrition and livelihoods for Lao people.</p> <p>(Expected, not yet evidenced): Regulations for sustainable groundwater irrigation management are implemented effectively and Lao farmers begin using groundwater irrigation sustainably.</p>
Research use	The DWR used the groundwater mapping, modelling and social study in the National Groundwater Profile and National Groundwater Management Plan; for revisions to the Water Law; and the introduction of the Groundwater Management Agreement 2019.
Research uptake	Production of knowledge about values, or 'what ought to be' (target knowledge)
	Lao farmers participated in social research (a survey) on their knowledge of, attitudes towards and practices of groundwater irrigation. At the time, using groundwater for irrigation was a very uncommon practice.
	Production of knowledge about practice, or 'how to' change from 'what is' to 'what ought to be' (transformation knowledge)
	Lao farmers participated in groundwater irrigation piloting with IWMI and the DOI; however, they stopped using groundwater irrigation after the pilot ended due to a range of barriers.
Research uptake	Production of knowledge about scientific facts, or 'what is' (systems knowledge)
	Joint research and practice of groundwater mapping, modelling and monitoring between Australian and Lao researchers at IWMI and Government of Lao People's Democratic Republic personnel.





2. What were the expected and unintended outcomes of the research?

The evaluation found that the 3 bodies of research in Laos contributed to a range of significant outcomes, including policy outcomes. Most of the short-term outcomes were expected from early planning of the research, for example outcomes of increased awareness, knowledge and skills, and changes to agricultural practices. All 3 bodies of work did not explicitly intend to interface with policymaking from the beginning. However, opportunities to interface with policymaking arose over the long duration of the bodies of work. In this way, policy outcomes were to an extent 'unexpected' – the exact mechanisms for policy interface were not explicitly planned, though the intention to interface with policymaking emerged over time. It was beyond the scope of the evaluation to identify unintended long-term impacts of the research. This section focuses predominantly on the medium-term outcomes of the research, with reflections on the implications for longer-term impacts.

Research Contribution Framework provides a useful approach to categorise outcomes and identify how they interrelate. Under the Research Contribution Framework, research uptake processes can lead to changes in engagement with, reactions to, and increases in awareness of the research. Research use processes can lead to changes in knowledge, skills, behaviours and practices, and this in turn can contribute to long-term impacts on social, environmental, political and/or economic conditions. This chain of outcomes was observed in the 3 bodies of research and is described below.

All key informant interview participants were asked what was the 'most significant' change resulting from ACIAR-funded research, and different stakeholder groups emphasised different outcomes as 'significant' in each sector. In the **fish passages** body of work, Australian interviewees from the research team and ACIAR emphasised the significance of changes in awareness about fish passages among a range of different stakeholders, as well as changes to skills and knowledge of fish passage designs among Lao engineers. Similarly, Government of Lao People's Democratic Republic interviewees emphasised the significance of the research findings on the effectiveness of fish passages (demonstrating their increased awareness); however, they also consistently noted the significance of these findings directly prompting their revision of the irrigation law and introduction of fish passage regulations. Interestingly, Australian and international stakeholders were not aware of these upcoming policy changes during their interviews.

Different stakeholder groups emphasised different outcomes as significant in the **forest plantations** body of work. Stakeholders who had primarily engaged in the projects focused on forest plantation practices (such as teak growers, smallholders, private company representatives) emphasised the significance of changes to skills and practices in wood production and manufacturing. Whereas Government of Lao People's Democratic Republic representatives who had engaged in the later policy-focused projects emphasised the significance of changes to national forestry policies. Australian interviewees noted the changes to policies as significant, and they had mixed views on whether the body of work had contributed or will contribute to improved livelihoods in forest plantations. Lao stakeholders tended to agree that ACIAR-funded research had contributed to improved livelihood opportunities; however, one Government of Lao People's Democratic Republic representative highlighted that there was no empirical evidence of this at this early stage.

In the **groundwater irrigation** project, both Lao and Australian stakeholders valued the same outcomes. Both Government of Lao People's Democratic Republic stakeholders and Australian stakeholders consistently emphasised the significance of having a larger body of data and evidence on groundwater (increased knowledge) that could be used for policymaking as a result of the project, and the value of institutional capacity strengthening.

Increased awareness of ‘problems’ and/or potential ‘solutions’

Across the 3 bodies of work, Government of Lao People’s Democratic Republic representatives and other research users in Laos noted the increased awareness of particular ‘problems’ and potential ‘solutions’ among government, private sector and the public, as a result of engagement with the research.

In the fish passages body of work in particular, Government of Lao People’s Democratic Republic personnel and Australian research teams noted that government stakeholders and international lenders gained **greater awareness of the impacts of irrigation infrastructure on fish populations and the potential for mitigation using fish passages.**

I have to accept that previously we didn’t have any experience/knowledge of the fish passage; the ACIAR project was the first time ever fish passage [was] studied in Laos, or I would say first study in the Lower Mekong Basin countries.

 Government of Lao People’s Democratic Republic representative 2, fish passages

ACIAR research project is important for us and the Lao government. We rely on the research findings to inform policymakers and to improve policy regarding (1) formulating the plan for fish conservation and protection, which needs to have clear evidence on how many species are available; which species are declining and going to become extinct; (2) defining regulations and measures; (3) enforcing law and regulations.

 Government of Lao People’s Democratic Republic representative 2, fish passages

Australian and Lao representatives suggested that masterclasses for government personnel and engineers, and demonstration sites for government representatives and international lenders, were key to raising awareness. However, Government of Lao People’s Democratic Republic representatives and Asian Development Bank representatives particularly emphasised the provision of evidence from evaluations (one of which found increases in fish populations and biodiversity where ACIAR fish passages were installed) was significant for raising their awareness.

In the forest plantations body of work, an ACIAR representative and private sector representative emphasised the role of ACIAR in **raising awareness among government stakeholders of the potential for improved livelihoods through the forest plantations industry**, whereas this awareness was more implicit in responses from Lao interviewees.

ACIAR brought the knowledge to the public sector while the private sector was driving the development in the industry. Without ACIAR I think the government would have been even further behind the private sector (they’re still behind) ... Natural forests we basically have nothing left of, so it’s plantation forestry that’s going to carry the forestry industry. ACIAR worked in a very good way with the university and the public sector. So, there was the knowledge development in the public sector and university but also forestry partners and other entities and then there was the push from the private investors, it all went parallel, that was good.


 Private sector representative, forest plantations

The commitments of the policymakers have changed, which added forest plantation into the forest development and strategy and in all reports of the department in [Ministry of Agriculture and Forestry]. Forestry plantations have become a priority for commodities in Laos. Compared to the past, forest plantation has never been mentioned or discussed; [policymakers] mostly discussed forest protection and conservation.

 Government of Lao People’s Democratic Republic representative 1, forest plantations

In the groundwater irrigation project, Government of Lao People’s Democratic Republic personnel gained **increased awareness of sustainable groundwater irrigation as an opportunity for agricultural productivity and economic development.** However, project stakeholders did not emphasise this as a significant outcome.

Overall, the research findings are greatly stimulating our groundwater policy, improving awareness of groundwater management, and enhancing the importance of research and data to policy development.

 Government of Lao People’s Democratic Republic stakeholder 1, groundwater




Increased or improved knowledge and skills

Across the 3 bodies of work, project stakeholders described the increased or improved knowledge and skills that stakeholders gained through the research. In the longer-term, this increased capacity across a range of stakeholders contributed to policy outcomes.

In the fish passages body of work, both Government of Lao People’s Democratic Republic stakeholders and Australian stakeholders consistently emphasised that Government of Lao People’s Democratic Republic personnel, researchers and irrigation engineers **increased their technical knowledge of, and skills in, fish passage design and testing**. Masterclasses in which government personnel and engineers learned how to design effective fish passages on live projects were seen as particularly useful for building the technical skills required to introduce fish passages at scale. The World Bank and DOI evaluation of fish passages designed by ACIAR research teams also provided the empirical evidence required to enhance government and lenders’ knowledge of fish passage effectiveness.

My colleagues and other technical staff had been trained in many topics such as tagging fish, evaluating and navigating fish that we tagged to passing through the fish ladders, and using a toolset of gears to collect fish samples for experimental activities. We have learned new techniques quite a lot from the job training, which is important for knowledge capacity building for our staff and organisation.

 Government of Lao People’s Democratic Republic stakeholder 2, fish passages


The masterclasses are a great social learning experience because they come together, [in that] they work with fisheries, [when] they’ve probably never met fisheries before. The co-design component of that is that they design the fish passage, they execute it, then they build it. They have to follow all the processes all the way through.

 ACIAR researcher, fish passages


In the forest plantation body of work, teak growers, smallholders, plantation company personnel, and forest health specialists **gained further knowledge and skills in various forest plantation practices**, including teak growing practices, plantation management practices, small wood manufacturing skills, and market skills across the timber value chain. This view was most consistently expressed by Lao stakeholders who had engaged in the earlier research projects focused on forest plantation practice, more than those who had engaged in later work focused on policy reform.

Both Lao research users and Australian researchers noted that these skills and knowledge were developed over many years of practical learning at the Faculty of Forestry Science, NUOL, and in the field, which helped to establish trust in, and credibility of, ACIAR research teams’ knowledge of forest plantation practice and policy in Laos.

Tree growers now understand and know about market prices and understand about forest plantation management (e.g. thinning and pruning). [This] knowledge and experience [has] increased wood log quality and price. Furthermore, households are able to produce or [be] involve[d] in wood processing (be small-scale wood processing/entrepreneurs), and they apply their knowledge and experience that they have learned from the ACIAR projects.

 Government of Lao People’s Democratic Republic stakeholder 5, forest plantations

There are lots of changes because in the past we planted teak without any good techniques; we left the teak with weeds and our teak has lots of branches; we were afraid that if we cut the branches, the teak would die. But when the project came, they trained us how to do thinning and pruning. As a result, we can see that our teak grows faster. I feel that there are many good things from that project. We understand better about teak management and calculation when it comes to selling teak.

 Lao teak grower 2, forest plantations

Both Lao and Australian project stakeholders highlighted that Lao university and government personnel **increased their knowledge of, and skills in, groundwater mapping, modelling and monitoring practices** through joint implementation with IWMI as part of the ACIAR research project. The expertise of government and research personnel was developed to the extent that the DOI developed additional groundwater maps and district-level groundwater monitoring without the assistance of IWMI. The research project leader acknowledged that more skill development is still required in groundwater modelling, but the project had facilitated significant capacity development in groundwater management practices in Laos.

During the time with the project, we managed to complete drafting a groundwater profile for the 4 districts in the Vientiane Plaine in corporation with the respective provincial and district office of natural resources and environment offices. This is the first time ever profile in our division; from this experience, we continued to develop and upscale to the national groundwater profile and a lot of research findings from the project were used in profile development.

 Government of Lao People’s Democratic Republic representative 2, groundwater

Changes in behaviour and practice

The increased knowledge and skills developed through the 3 bodies of work enabled further, sustained changes in specific behaviours and practices. For example, in the fish passages body of work, an Australian researcher and a representative from the Asian Development Bank highlighted that irrigation infrastructure project managers and engineers **began incorporating fish passage designs into irrigation infrastructure projects**, which had not previously been a standard practice. International lenders also worked with the Ministry of Finance and the DOI, Ministry of Agriculture and Forestry to establish fish passages in irrigation projects.

In addition to changes to practices in wood production and processing, the evaluation found anecdotal evidence that increased skills and capacity in wood production in Laos had **encouraged further private investment in plantations and wood manufacturing**. Further research would be required to validate this claim.

Some of these projects ... have had tremendous impact in Laos in allowing people to use a low value resource and convert it to a high value product. ... it's attracted a whole bunch of greenfields investment that's now at about \$80 million. So, it's significant. And it's employing hundreds of people who wouldn't have been employed in the industry before, and it's stimulated university enrolments in wood tech, and then those people have good jobs, and so it's had a lot of impact in that [economic] sphere.

 ACIAR representative, forest plantations

By contrast, a private sector representative suggested that increased attention toward, and investment in, forest plantations and wood manufacturing in Laos was the result of a groundswell of momentum in the industry and government, propelled by a range of different actors (including ACIAR) and contributing factors.

The plantation sector until 5 years ago was not really of interest to the Lao government. ... That has changed very much from 2017 to the start of this year. Then ACIAR comes in and their research; the companies' lobbying; the Swedish government's study trips for high-ranking officials to Sweden, it all comes together – it's been a massive movement. Suddenly it just opened up in 2018/19, and that has completely changed the environment for investment in private forestry – ACIAR has had a big part in that, but not the only part. It's all these things together, it has given results.

 Private sector representative, forest plantations


With increased capacity among government and university personnel in groundwater management practices, the groundwater irrigation project provided technical support. It helped to stimulate the Groundwater Management Division, which had been established a few years prior to the project, **prepared additional groundwater profiles, and established groundwater monitoring networks** at the provincial level, to continue to develop groundwater irrigation databases and practices.

Changes to policies in Laos

Perhaps most significantly, the Government of Lao People's Democratic Republic introduced and/or revised national laws, policies, plans and strategies in relation to fish passages, forest plantations and groundwater irrigation, having engaged with ACIAR research over a long period of time.

In 2023, the Government of Lao People's Democratic Republic introduced irrigation guidelines for fish passages and revised the irrigation law to include regulations for fish passages in irrigation infrastructure projects.


Once the fish passage evaluation turned out to be a great positive impact on fish biodiversity in southern Laos (Xebangfai) and ACIAR fish passage at Pak Peung, I and my colleagues regularly consulted with the DOI and we proposed to have new legislation on fish-friendly irrigation. The new legislation has been recently formulated and approved on 20 September 2022. The current irrigation law is being revised and will be approved in the near future at the national assembly meeting. There is a guideline detail under the new legislation which describes the future irrigation plan that has to comply with a set of criteria defined in the guideline as well as the recommendation where fish passage could be constructed on the existing irrigation infrastructures.

 Government of Lao People's Democratic Republic stakeholder 5, fish passages


Over the past 5 years, the Government of Lao People's Democratic Republic revised the Forestry Law and introduced a Decree on Plantation Promotion and Investment. ACIAR research contributed to the government establishing the Forestry Sector Strategies to 2020 and 2035, Wood Export Sector Road Map, and the Plantation Sector Action Plan.



Previously, the regulation of tree plantation was based on the regulation of natural forests. This caused so many problems and difficulties to tree growers to sell their trees, but after several discussions, the regulation has improved. The new policy and regulations on tree plantation have improved – shorter steps and easier. However, we are still monitoring; it may have some gaps in the new regulations.


 Government of Lao People's Democratic Republic stakeholder 4, forest plantations

The ACIAR projects have made significant impacts on forest regulation in Laos, e.g. Plantation Promotion Decree and Forest Law, which opened opportunities for forest plantations to be planted in the production forest and also cut down the processes that burdened the plantation forest development. In the past, it was so difficult for forest plantations to harvest trees in the plantation forest because it had so many processes (17–18 steps) to get approval. But now it's so easy to harvest trees in the plantation forest and export logs, including teak.


 Government of Lao People's Democratic Republic stakeholder 1, forest plantations

As a result of its engagement with IWMI and ACIAR the Government of Lao People's Democratic Republic also revised the Water Law and established the Groundwater Management Agreement 2019, the National Groundwater Profile and National Groundwater Management Plan.

As mentioned in our mandates, to manage sustainable water resources and align with the national socioeconomic development, we have revised the water and water resources law and managed to get it approved in 2017, which set out comprehensive principles, regulations, measures, and strategies for basin management. Under the law, we recently developed an Agreement on Groundwater Management signed by the Minister of MoNRE [Ministry of Natural Resources and Environment] which set out groundwater regulations, etc., as well as the national groundwater profile is being developed with most technical information/data obtained from previous ACIAR/IWMI research.

 Government of Lao People's Democratic Republic stakeholder 1, groundwater

As the National Assembly and others are worried about the over-extraction of groundwater, which might result in several negative impacts such as depleted groundwater storage and surface water, soil collapse, etc., DWR recently organised a meeting discussing how to define groundwater extraction rate in the policy. ... The previous groundwater recharge map produced by the ACIAR/IWMI project and other relevant case studies are important for this policy improvement. It also helps us to speed up.

 Government of Lao People's Democratic Republic stakeholder 1, groundwater

These changes in policy were universally described by all project stakeholders and, most significantly, by Government of Lao People's Democratic Republic officials responsible for such changes. The key contributing factors that led to these major policy outcomes are described later in the report.

Of all of the outcomes that have occurred as a result of the bodies of research, the policy outcomes noted above are most likely to be described as 'unexpected'. The fish passages research team did not initially explicitly plan for their research to interface with policymaking. Over time, they changed their strategy to influence greater uptake of fish passages in Laos. Eventually, in 2023, the Government of Lao People's Democratic Republic did revise the irrigation law and introduce fish passage regulations, in part due to the provision of evidence on the effectiveness of fish passages from a World Bank and DOI evaluation. Similarly, the early projects in the forest plantations body of work did not explicitly plan to interface with policymaking; however over time, research was planned to align with government forestry planning cycles, and the Government of Lao People's Democratic Republic unexpectedly requested an ACIAR researcher to facilitate multistakeholder dialogues for policy reform in 2018. The groundwater irrigation project also did not explicitly plan for its research and evidence to interface with policymaking in Laos. However, through the Government of Lao People's Democratic Republic's engagement with the project, policymakers decided to utilise the research data and evidence in new groundwater policies and plans. These outcomes were not pre-planned by ACIAR and Australian research teams.

Evaluation team members are of the view that the exact pathways to policy outcomes cannot be pre-planned with a standardised approach at the beginning of a project. During research design, and at regular intervals throughout a research project, the development and refinement of a people-centred theory of change may, however, support planning for research-policy interfaces. Commonly, project activities, outputs and the dissemination of research products (research uptake processes) are understood to be in the sphere of control of the project team. That is, the research team has direct control over the methods through which stakeholders engage with the research. The outcomes of research are within the 'sphere of influence' of the project (Figure 6). That is, the research team has some influence, but no control, over how the research may be used, including in policymaking. Research impact is beyond the direct control and indirect influence of the research team; however, it is of interest and can be monitored and researched over the long-term. Transferrable lessons for further discussion on planning for the research-policy interface are covered later in the report.

Longer-term impacts

Assessing the longer-term research impact of the 3 bodies of research was beyond the scope of this evaluation. Long-term monitoring and interdisciplinary or transdisciplinary research would be required to establish robust evidence of the longer-term impacts of the 3 bodies of research. However, during the evaluation some evidence emerged in relation to long-term impacts, as well as risks and considerations for achieving and sustaining long-term impacts.

A World Bank and DOI evaluation of fish passages established with ACIAR in Laos provided empirical evidence that **fish populations and biodiversity increased in areas where fish passages have been designed** and tested by ACIAR research teams and partners. This was the strongest empirical evidence available of the longer-term impacts of ACIAR-funded research on broader environmental conditions in Laos, though stakeholders from the Government of Lao People's Democratic Republic and Asian Development Bank representatives suggested more evidence is required in the long-term. Similar evidence of the impacts of the new and revised policies on environmental, social, political and economic conditions in Laos could be collected if ACIAR research teams plan and budget for long-term monitoring and evaluation.

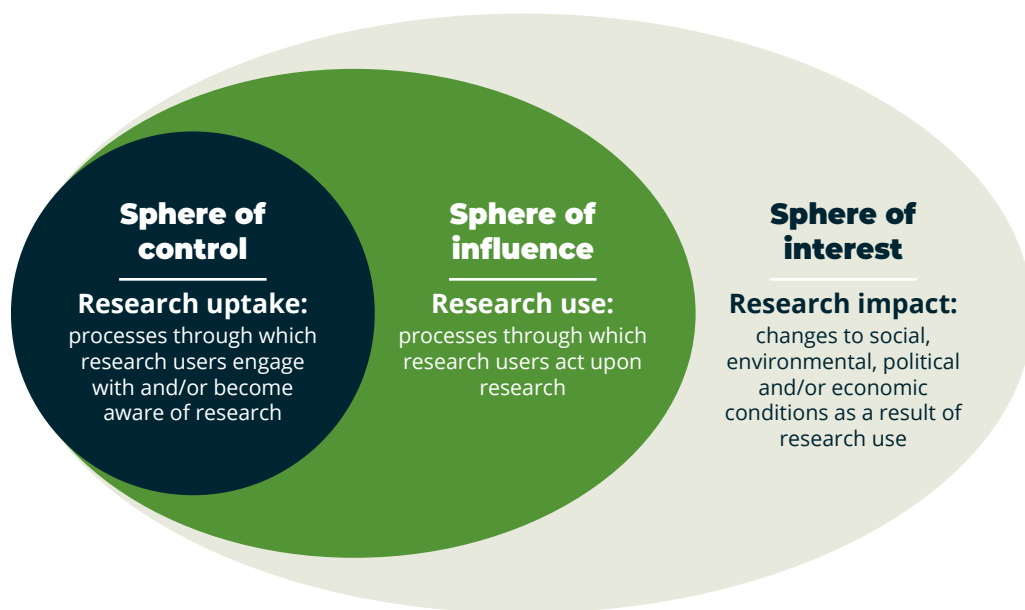



Figure 6 The spheres of control, influence and interest in research design
 Source: Adapted from Earl et al. (2001) and Morton (2015)



Lao teak growers and government representatives, a private sector representative and an ACIAR representative all suggested that ACIAR research on forest plantations had facilitated **increased opportunities for employment and income generation in the plantation and wood manufacturing industries**. However, there was no empirical evidence available on the extent to which this was true or to demonstrate the specific contribution of ACIAR to this outcome.

The project provided training on ... [agroforestry, thinning and pruning]. So, we can get additional income, which is [a] good thing for us. In the past, most teak traders often measured the small part of the trees which we received at low prices – whatever traders offered the prices, we had to accept it. But since the project came, we have known how to measure the trees, and traders can't take too much benefit from us. ... Selling teak is easier and we get a better price. We sell teak at the plot site which traders come to buy. We didn't harvest them and sell them to sawmills. Overall, our life is improving when we have teak trees; we have trees on our land and don't have to cut and search for logs in other places. For example, if we want to build a place for our livestock (poultry and pigs) we can cut from our plantation.

 Lao teak grower, forest plantations

Other project stakeholders from the forest plantations sector mentioned that **changes to policies, laws and plans at the national level do not necessarily result in uptake and effective implementation at provincial and local levels**. Long-term engagement and research with research and policy users at those levels may be required to ensure the medium-term outcomes of the body of research are sustainable.

We're able to change a lot of the kind of words in the policies, but whether it's leading to a real change in practice on the ground, we're still waiting to see that. So, it may, but I think there are other drivers, like, particularly provincial government, kind of self-interest that can be a constraint. So, the national policy is one thing, but then getting the provinces to see that it [is] really getting the incentives right for the provinces to be in that, I think is still a challenge in the Lao context.

 Australian researcher, forest plantations

Australian researchers from the fish passages and groundwater irrigation sectors recognised that scientific and practice-based research had interfaced with policymaking. However, some also recognised the **need for more social research on sustainable management of fish passages**, and the **limitations of the groundwater project in changing irrigation practices at the ground level**.

We run the risk that we build a \$500,000 or \$5 million ... fishway and 4 or 6 months later you come back and it's not working. If we don't figure out the governance structures of how they are operated and maintained, then we will fail miserably. ... how do we stop that short-term versus long-term failure of implementation and institutionalisation?

 Australian researcher, fish passages

In sense-making workshops, research teams reflected on the role of social research, research with provincial and ground-level practitioners and research users, and multidisciplinary or transdisciplinary research in enabling more sustainable impact. All 3 bodies of research took multidisciplinary approaches, to an extent. The fish passages body of work began with scientific and technical research on fish passage design and testing, and then incorporated social research and research on policies and governance at much later stages. The forest plantations body of work included scientific research, for example on parasitoids for managing forest health; social research and capacity strengthening on forest plantation practices; and later, research and uptake activities to build knowledge on and inform forestry policies and governance. The groundwater irrigation project included scientific and technical research on groundwater availability and environmental sustainability, and a separate, smaller component of social research on community members' attitudes and practices in groundwater irrigation.

Research teams from all 3 bodies of work observed some limitations to their multidisciplinary approaches. They recognised that more social, economic and political science research on current and/or future *practice*, engagement with a more diverse or different set of stakeholders, and piloting of research findings would be required to ensure new agricultural practices, policies and policy outcomes could be sustained in the longer-term. For example, research, broader engagement and piloting of fish passage maintenance and management is required to ensure fish passages are managed and governed sustainably. Research on the effectiveness and equitable outcomes of implementation of forestry policies with a different range of stakeholders at the provincial and local levels and private sectors may be required to monitor and support sustainability of research and development outcomes. Further research on public uptake and the sustainable use, management and governance of groundwater irrigation is likely to be required to achieve sustainable outcomes.

A key difference between multidisciplinary research and transdisciplinary research is that multidisciplinary research engages with academic experts from a range of different disciplines separately. Whereas transdisciplinary research engages with a broader range of relevant stakeholders from civil society, government and industry (not only academia) and integrates their knowledge and experiences to understand a complex 'problem', collaboratively identify potential 'solutions', and support transformational learning across the system of actors to increase the likelihood of persistent, sustainable change (Mitchell et al. 2015). In contrast, ACIAR-funded fish passages and groundwater irrigation projects began with a scientific and/or technical focus on producing evidence about specific scientific or technological solutions and then later incorporated social research on the values and practices that could inform or promote the use of these solutions. Both bodies of work have since encountered barriers or challenges to the sustainable use of technological solutions. The fish passages body of work is exploring how fish passages can be sustainably managed at the local level, for example how to prevent people from fishing in fish passages. The groundwater irrigation project found that local farmers hesitated to use groundwater for irrigation and stopped using groundwater for irrigation after the pilot project ended, due to high costs of investment in and maintenance of infrastructure, limited understanding of or trust

in the availability of groundwater, and farmers' engagement in alternative livelihood options (Clement et al. 2019). ACIAR can continue to refine its approach to transdisciplinary research to enable sustainable outcomes co-produced by people in the local context, as discussed later in transferrable lesson 7.

Transdisciplinary research typically incorporates 3 different types of knowledge, rather than solely focusing on scientific knowledge (Figure 7). It incorporates:

- scientific knowledge about facts, or 'what is' (systems knowledge)
- knowledge about values, or 'what ought to be' (target knowledge)
- knowledge about practice, or how to make the change from 'what is' to what ought to be' (Pohl 2022).

Transdisciplinary research focuses on collaboratively solving problems within particular contexts, rather than promoting existing solutions from different contexts.

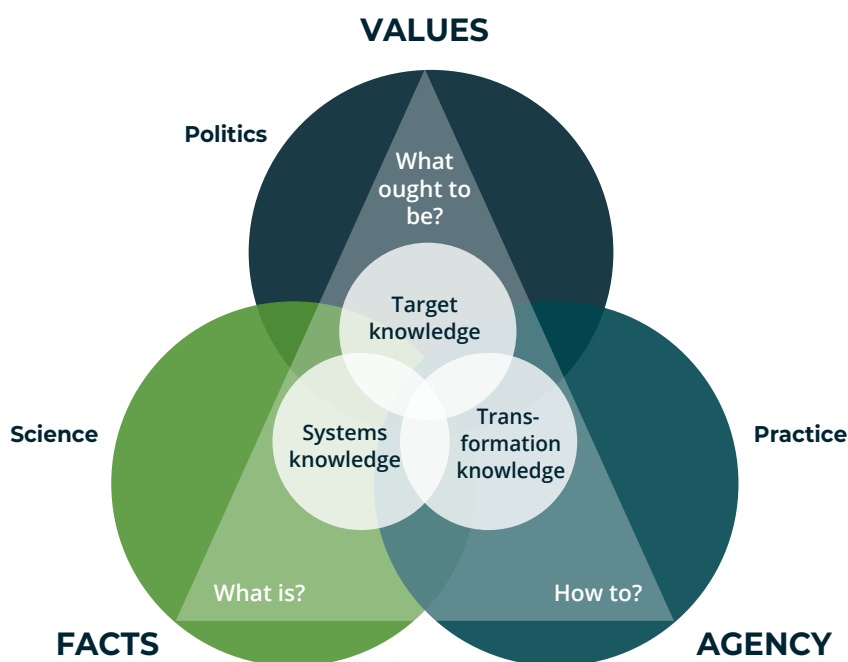


Figure 7 Three types of knowledge in transdisciplinary research
Source: Pohl 2022



3. How did ACIAR research interface with policymaking in Laos?

The 3 bodies of work evolved via very different strategies and followed very different change pathways, and the exact pathways to research-policy interface were not pre-planned. However, the evaluation found 11 common factors that contributed to all 3 bodies of research interfacing with policymaking. All of the factors stem from high-quality research design and planning practices, both at the beginning and at regular intervals throughout the research through adaptive management practices.


Elements of research design that contributed to the research-policy interface

All 3 bodies of work were implemented over a long period of time. The **long duration of the research** supported the development of strong, trusting relationships between researchers, policymakers and other stakeholders that had a direct interface with policymaking. This supported the systemic capacity strengthening of a range of institutions that required appropriate skills and knowledge to implement new or revised policies. It enabled the development of a large body of evidence on effective fish passage designs, wood production and manufacturing practices, and availability and sustainability of groundwater resources. Establishing strong relationships, building knowledge and skills, and developing a large body of evidence in turn led to government personnel using ACIAR research in and for policymaking at the appropriate time according to the context. These views were expressed consistently from all of the different stakeholder groups.

I see more impact from the smaller funding in ACIAR because it was a consistent investment over the long-term. It doesn't change every 5 years.

– ACIAR representative

What the Australians had was a tremendous amount of information, knowledge, skills, understanding. And so, we asked them: Can you take a look at what's going on here? And they did, and because of their prior work, they were able to say, 'Well, look, you can do this, this and this.'

 Asian Development Bank representative, fish passages


Over time, research teams developed **strong contextual knowledge** of the interests of government, private and public stakeholders, and preferred ways of working in government policymaking. After 6 years of designing and testing fish passages in Laos, the fish passages research team utilised stakeholder mapping and a formal context analysis methodology, motivations and abilities framework to understand the motivations of Government of Lao People's Democratic Republic personnel and international lenders for incorporating fish passage designs in irrigation infrastructure projects. The forest plantations and groundwater irrigation research teams emphasised that Lao research partners' contextual knowledge was especially useful for framing policy 'problems' and 'solutions' and planning appropriate research uptake methods. In addition, the forest plantations research teams took into account the context of government forestry planning processes, and planned the timing of the research to align with the timing of government forestry planning cycles.

It's often the in-country partners that really pick up the moment of 'oh this has policy relevance'. Sometimes we design projects and have an intention that we'll influence policy, but really from an outsiders' view, and often it doesn't have policy influence, because what we thought was important, wasn't. I remember other times, not just in Laos, where there was no intention to have policy influence, but something was done. Local partners are suddenly like, 'the government needs to know, we need to put this into policy'.

 ACIAR representative, groundwater

Research teams collaborated with local research partners and in some cases, government personnel, to design the research. This ensured that the **research questions, 'problems', and/or policy 'solutions' were framed in the same or similar ways among a range of stakeholders**. In the fish passages body of work, the Government of Lao People's Democratic Republic, Charles Sturt University researchers, Lao researchers and international lending institutions all had a shared interest in the 'problem' of irrigation infrastructure blocking fish migration routes and the safeguarding of environmental biodiversity, social wellbeing and livelihoods. In the forest plantations body of work focused on plantation policymaking, policymakers, researchers, plantation companies, growers and smallholders all had a shared interest in improving forestry policies to enable efficient and equitable forest plantation practices and livelihood outcomes. In the groundwater irrigation project, government personnel and IWMI had a shared interest in understanding the availability and sustainability of groundwater irrigation resources and practices.

There is a need to close the gaps and challenges in forestry policy and to impact smallholder tree growers and industry. ACIAR forestry research was the first project that came to Laos in 2014 to review and contribute to informing the policy.

 Government of Lao People's Democratic Republic representative 9, forest plantations

All 3 bodies of research employed **highly trusted, knowledgeable and connected researchers with a long-term, continual presence in Laos**. In some instances, particularly in the forest plantations and groundwater irrigation bodies of work, researchers were already known to a range of stakeholders through their previous work in Laos. In other instances, relationships were newly established and built over several years through regular informal and formal engagements. Both ACIAR personnel and Lao research users who participated in the evaluation frequently described research leaders as empathetic, good listeners, non-judgemental, respected and loved by Lao research teams and users. Their long-term, continual presence in Laos and knowledge of Lao culture and language was highly valued. Australian researchers and ACIAR representatives also emphasised that strong interpersonal skills, listening and relationship-building were essential to enabling policy outcomes in the longer-term.

I have been working with many organisations, but it is different from working with [specific Australian researcher]; she is very generous. We can discuss with them, and they are a very open and supportive team. ... Our team of students and staff cried [when the projects ended]. Our team can't hold our emotions because we have been working together with love and care for each other. ... [specific Australian researcher] understands Lao culture and I respect him like my brother. Those who came [a] very short time are also okay, but for those who have worked with us for so long, we have a very good relationship.

 Lao research partner, forest plantations


I think having a research team that was based in country, being well-embedded in the country. [Specific Australian researcher] had been there a long time, speaks Lao, kind of knows everyone, so he had a lot of credibility and respect and had the insight into the government to know which groups had to be involved and which groups might do what. Avoiding the situation of leaving people out and creating tension, people not being consulted. I think that was really fundamentally important in the project.

 ACIAR representative, groundwater

All 3 bodies of research took a deliberate approach to long-term systemic capacity strengthening in Laos. The fish passages body of research invested in strengthening the capacity of engineers and government personnel from the Department of Livestock and Fisheries and DOI to design, test and understand the effectiveness of fish passage technology in Laos. The forest plantation body of research invested in strengthening capacity of researchers, growers and plantation companies to implement efficient, effective and equitable forest plantation practices. The groundwater irrigation project invested in skills development of Lao professionals in groundwater mapping, modelling and monitoring. Across all 3 bodies of work, this investment in capacity strengthening resulted in early- and mid-career professionals who had gained knowledge and skills through the programs later entering into policymaking positions where their knowledge and skills were utilised in policymaking. Australian stakeholders, international financial institutions and private sector representatives, and Government of Lao People's Democratic Republic stakeholders, all consistently mentioned the value of long-term systemic capacity strengthening. Government of Lao People's Democratic Republic stakeholders in particular emphasised how much they valued this contribution.




In my opinion, the development of local capacity over an extended period of time has been a key to the success of fish passages in Laos. The first fish passage experiment was more than 15 years ago. There have been many participants of fish passage workshops from different departments within Laos. These workshops have had a significant impact on local knowledge levels and helped to develop a number of local fish passage champions.

 Australian researcher, fish passages

Without ACIAR I think the government would have been even further behind the private sector (they're still behind) [in their knowledge of forestry] because no one, NO ONE, of all the aid donors, no one except ACIAR and except [previously] East Germany ..., worked with the university or the training institutions on preparing students for plantation forestry, which has taken over completely now.


 Private sector representative, forest plantations

Division of Groundwater Management is still young and small compared to other divisions; as you will see how many technical staff there are. Field equipment and knowledge are limited as well. This is the first groundwater study project which contributes significant benefits to the staff and our work.


 Government of Lao People's Democratic Republic stakeholder 1, groundwater

Project stakeholders across all 3 sectors noted the **effectiveness of research partnerships between Australian and Lao stakeholders with different expertise and skill sets**. Informal interactions were described as particularly important in supporting partnership development and identifying effective strategies for research implementation and uptake. Appendix 2 provides a list of cross-cultural partnership practices that Lao and Australian researchers recommended during the evaluation.

I think that's largely what it was, this was very slow, step by step, piece by piece, continuous information moving through and obviously there were a lot of Lao staff involved who were the best proponents for sharing information and putting it across to the government. Being local people, they had the cultural understanding of how to put information forward, how to do things, like how to suggest things, the subtlety of informing higher up people of different cultures. ... Because it was a very well-integrated team of Laotians and international researchers, that aspect could be shared around. Good strategies for information sharing and influence could be developed.

 ACIAR representative, groundwater

In parallel we became aware of what the Australian researchers were doing. We talked to them informally. We heard about them through word of mouth, seeing them around in the same coffee shops we all go to. We said, 'let's have a coffee and talk' and it started that way. Once we had that connection, we started. The important thing we found out was the Australian group were very keen on cooperating with us.

 Asian Development Bank representative, fish passages

We get along well with the Australian expert team; we worked as a team and listened to each other's points and reasons. Some issues happened during the project, but we managed to solve them with open and frankly spoken negotiation, for instance, the budget for construction materials and labour costs were a bit higher than the initial plan due to the inflation situation, etc. I appreciated working with them, and this project was the prioritised project for the NUOL [National University of Laos] and Faculty of Agriculture.


 Government of Lao People's Democratic Republic representative, fish passages

Researchers noted the value of **the flexible approach of ACIAR, which allows researchers to adapt their research focus, strategies and activities over time**, while also maintaining a long-term focus on a specific policy issue. The fish passages, forest plantation and groundwater irrigation bodies of work all changed their strategies over time to respond to the interests and ways of working of government departments, international lenders and the policymaking context.

One of the beauties of working with ACIAR is the flexibility within results-based type frameworks. So instead of working to an exact deadline, they're a research-based organisation and if a direction changes that is evidence-based and makes sense, they'll allow that to occur. As opposed to many organisations ... where there's rigidity on the dates.

 Australian researcher, fish passages

We came up with one type of research as groundwater potential mapping at the country scale; it was an academic exercise. It was not important to the government at that time, but it added value to their policy development later. We want to produce and add value to the government, we don't want to just do research and publish. We often discussed with DOI, DWR, and NUOL to explore what they were interested in, then we often changed our strategy, many times.

 Australian researcher, groundwater


Elements of planning for research uptake and use that contributed to the research-policy interface

All 3 bodies of research dedicated significant resources to planning and implementing a variety of research uptake methods. Some methods were more effective than others in supporting research users to use the findings of research in policymaking.

All 3 bodies of research planned **broad, purposive, ongoing multistakeholder engagement**. The fish passages team initially engaged with a narrower range of stakeholders while designing and testing fish passage designs, and later expanded their engagements to include more stakeholders who directly interface with irrigation policymaking, such as the DOI, the Asian Development Bank and World Bank. The forest plantation research teams intentionally engaged with a very broad range of stakeholders from early on to build systemic capacity in forest plantation management, and later supported the Government of Lao People's Democratic Republic by facilitating multistakeholder policy dialogues, since they had the required experience and reputation to facilitate such a process. The groundwater irrigation project partnered with government departments to jointly conduct mapping, modelling and monitoring activities in regular, ongoing engagements.

The fish passages and forest plantations research teams **collaborated with non-government research users to facilitate greater opportunities for research use**. Partnerships with the Asian Development Bank and the World Bank were invaluable for the fish passages research team to establish evidence of the effectiveness of fish passage designs and establish a shared understanding between international lenders and the Government of Lao People's Democratic Republic that led to the revision of the irrigation law.

I think that's where we could help – we highlighted to higher authorities because they're working maybe at one level. We're working with ministries of Finance and the Minister and the Deputy Minister, and so on. And we can highlight the advantage at these levels. They provided the data to prove that it was worth doing. They had already proven the technology, they had the data; we could make the case on economics and on food security. With our local knowledge – we could take [it] to government people.

 Asian Development Bank representative, fish passages

The forest plantation research team also **collaborated with private forest plantation companies to understand their research needs and policy perspectives**. This continuous private sector engagement was seen as unique to ACIAR and highly valued by private sector partners.

What ACIAR has been able to do is to dive deep into regulations and policies, list them, discuss them, and also give background information for people like me but not only me, to raise these issues with the government, which is also a very important part. ... I think it's the only way to do it. You cannot avoid including the private sector in an activity which is driven by the private sector. That would be totally stupid. I think ACIAR did that in a very good way. Because from the very beginning they were involving the private sector. And I have a lot of examples, I'm sorry to say, from other development partners where that is not the case. I think ACIAR did that well.

 Private sector representative, forest plantations

All 3 bodies of research **incorporated regular, practical engagements and demonstrations to facilitate research uptake**. The fish passages research incorporated hands-on workshops with government personnel to design and test fish passages using live examples. They developed demonstration sites and facilitated study tours for government and international financial institutions' personnel to gain awareness and knowledge of fish passages through observation. Similarly, forest plantation research incorporated regular practical training and workshops for a range of different research users, as did the groundwater irrigation project. Australian stakeholders recognised this as a core ethos of ACIAR, that 'seeing is believing' and people 'learn by doing'.



The evaluation team noted that the effectiveness of research uptake methods was correlated with the type of knowledge that the method aimed to produce: knowledge of science and facts (systems knowledge), knowledge of values (target knowledge) and knowledge of practice (transformation knowledge) (Pohl 2022). All 3 bodies of research incorporated methods for the production of knowledge about *practice* through workshops, training, study tours, and pilot and demonstration sites. In the forest plantation body of work, multistakeholder policy forums were particularly effective for supporting policymakers, private sector representatives and smallholders to engage with, produce and take up knowledge of different stakeholders' values. While in the fish passages body of work, engaging government and international financial institution representatives in motivations and abilities framework studies was effective for identifying different stakeholders' values (target knowledge). In regard to producing scientific (systems) knowledge, the production and dissemination of scientific evidence in written reports was an effective uptake method for targeted research users. For example, in the fish passages evaluation report for the World Bank and DOI, and in groundwater maps produced for DOI. Interestingly, in the fish passages and groundwater irrigation projects there was limited evidence that components of social and policy research were engaged with and used by policymakers, whereas scientific and technical components of the research were readily used. The differences in these methods and their outcomes demonstrate the value of carefully planning research uptake methods early in project design.

Representatives of the Government of Lao People's Democratic Republic and public research users particularly emphasised the necessity and value of **producing research in accessible formats**. Both Australian and Lao stakeholders in the forest plantation body of work described how producing research reports and manuals in Lao, and producing research outputs in the formats requested by government representatives, supported greater research use than research outputs written solely in English. When asked how researchers could enable research use, almost all Lao stakeholders recommended that research be published in Lao, not only English. It was not evident whether the fish passages and groundwater irrigation projects had produced outputs in Lao and/or adapted outputs to suit the needs of research users.

Other contextual contributing factors

ACIAR-funded research was found to have significantly contributed to policy and development outcomes; however, there were a multitude of other contextual factors that also contributed. In the fish passages body of work, the Mekong River Commission's research and engagements complemented and leveraged the work of ACIAR research teams. International financial institutions' obligations for environmental and social safeguarding and interests in partnerships for development were also significant contextual factors contributing to policy outcomes.

Project stakeholders in Laos commonly described a range of different external contributions to forestry policy and development outcomes. Factors included:

- pressure from the private sector and smallholders to change forestry policies
- the decline of natural forests, and changing international market demands for forest products
- forest plantation development projects (particularly those funded by German donors)
- influential events, such as the Lao Prime Minister's visit to forest plantations in Sweden.

One private sector representative described the significant changes in the forest plantation sector as resulting from a gradual build in momentum across the sector, with the main contribution of ACIAR being the production and dissemination of a large body of evidence and experience developed over many years.

Government of Lao People's Democratic Republic stakeholders noted that IWMI research on groundwater irrigation, supported by ACIAR, was the first project to invest in long-term capacity strengthening in groundwater irrigation across a range of institutions, though the evidence base established by the project had built upon previous research funded by Japan International Cooperation Agency (JICA).

Stakeholders in Laos consistently described the most significant or unique contributions of ACIAR to the 3 sectors as:

- i. the provision of robust evidence that had been developed over many years of experience and could be trusted and used by policymakers
- ii. the long-term investment in systemic capacity strengthening in Laos among university, government and industry actors, which enabled greater research use and sustainability
- iii. the collaborative practices of ACIAR research teams, working in partnership with local institutions, and valuing the knowledge and skill sets of different team members, which was also found to have enabled context-relevant research uptake and use.


4. What were the gendered dimensions of change in the 3 bodies of work?

Analysis of and planning for gendered dimensions


Government of Lao People's Democratic Republic representatives, Asian Development Bank representatives and ACIAR research team members across the 3 sectors recognised that there were significant gender and social inclusion dimensions in the contexts they were working in. For example, the significance of small fishing for the livelihoods of women and people experiencing poverty, gender norms in collecting and using groundwater, and gender norms in employment in the forest plantation sector. However, in most cases (not all), project designs did not incorporate formal analysis of, or action planning for, gender dimensions, disability and social inclusion.

Where projects incorporated activities or strategies for gender, both Australian and Lao stakeholders focused primarily on encouraging and/or recording women's participation in project activities, rather than exploring other gendered dimensions.

Originally gender was approached I would say in the normal way that technical-based programs tend to approach it, where they just say, 'well we had 40 women and 60 men, so that's probably about right, we'll report on that'. It was very much at the output level.

 Australian researcher, fish passages

I have set the target for women's participation in any project activities should not be lower than 30%. [For example], when we organise training or [a] workshop, we will set how many women and how many men. So, when we have men and women working together [it] is enjoyable. Sometimes, women often have self-doubting [tendencies], so we want to empower them and show them that they have opportunities and can do [the same] as men.

 Government of Lao People's Democratic Republic stakeholder 4, forest plantations


Approaches to encouraging women's participation were not consistent across program activities, and other important gender dimensions were not considered during design. The Gender at Work Framework developed by Rao and Kelleher (2010), for example, identifies 4 different 'clusters of change' in relation to gender, which could be identified and analysed by project teams if gender analysis and planning is adequately and consistently resourced in ACIAR projects.

The clusters of change in Gender at Work are:

1. Women's and men's consciousness (knowledge, skills, political consciousness, commitment).
2. Women's objective conditions (rights and resources, access to health services and safety, opportunities for a voice).
3. Informal norms, such as inequitable ideologies, and cultural and religious practices.
4. Formal laws and policies that institutions have established in regard to gender.

Some projects incorporated gender analysis into later iterations of research design, and the fish passages body of work recently developed a gender, disability and social inclusion strategy. Some researchers interviewed in the evaluation were hesitant to engage in gender analysis and action planning either because they did not feel they had the right local expertise in gender, disability and social inclusion in their research teams, or because of a perception that these dimensions are not valued by local stakeholders.

We try to do things where there is a demand – quite often this is technical research. When we talk about GESI [gender, equity and social inclusion], their eyes glaze over. We try to be pragmatic, demand-driven.

 Australian researcher, groundwater irrigation



We need to have a clear role and responsibility for gender involving in projects. We need to start to change attitude on gender dimensions aspects. For example, stereotype of traditional practices that women are responsible only for housework or admin stuff. So, something new that we might do differently such as encourage women to engage in education/training and have various role and responsibilities. Also, involve women in decision-making processes, and women's perspectives and voices are needed in the decision-making processes.

– Lao sense-making workshop participant

The evaluation team notes that without consistent, systematic GESI analysis and planning, there is a risk that important gender dimensions and barriers to inclusion will not be considered and potentially reinforce or create gender dimensions and barriers to inclusion that cause harm. The evaluation did not find any evidence of such harm; however, larger-scale, long-term research specifically on GESI in the work of ACIAR would be required to identify unplanned GESI outcomes.

Gendered outcomes

The evaluation found some anecdotal evidence of outcomes for women in the bodies of work; however, the contribution of ACIAR to outcomes was not clear. Interviewees from the forest plantations body of work suggested that the research had increased opportunities for women in the wood production and manufacturing industries, and highlighted the large proportion of women employed by at least one wood processing mill. ACIAR did encourage women to participate in university forestry training. However, there is no empirical, quantitative evidence of the effect this has had on women's employment opportunities, income, agency, or access to resources, or qualitative evidence of how this may have changed informal gender norms. A study on women's employment in a wood manufacturing mill was conducted as part of the body of research, but it did not specify what the contribution of ACIAR had been to women's employment in the mill.







Discussion: Why does research interface with policymaking?

Theorising research-policy relations


The evaluation team referred to Boswell and Smith's (2017) 4 models of research-policy relations to examine why the 3 bodies of research interfaced with policymaking.

Using these 4 models as categories of research-policy relations, the evaluation team analysed interview data and the theories of action produced for each body of work. During sense-making workshops, the team also asked project stakeholders to reflect on the extent to which the way they perceived their work aligned to or diverged from any of the 4 models.

All 4 models were observed in the bodies of work, by both evaluation team members and participants. The evaluation team identified a common implicit view that research, data and evidence could directly shape policies, particularly in early project planning documentation. Australian sense-making workshop participants (ACIAR representatives, Australian researchers, Department of Foreign Affairs and Trade (DFAT) representatives) similarly recognised that often projects began with the implicit assumption that research would directly inform policymaking. Over time as they built relationships with stakeholders in Laos, they moved into what they perceived as a model of co-producing research knowledge and policies through ongoing mutual exchanges between research and policy users. In the sense-making workshop organised in Vientiane, Lao participants expressed the view that the 3 bodies of research followed the 'research to policy model', especially in earlier projects. Later projects in the forest plantations sector were described as following the 'policy to research model'. When asked what guidance they would provide to researchers on conceptualising research-policy relations, most participants expressed a preference for the 'co-production model'.

The evaluation did not identify explicit evidence that policy and politics shaped research agendas. However, political interests were evident in the ways in which policymakers, researchers and industry representatives framed policy 'problems'. For example, government representatives, ACIAR research teams and Asian Development Bank representatives all recognised the need to safeguard fish populations and food security from the negative impacts of irrigation infrastructure projects. A range of stakeholders in the forest plantations body of work also understood the political motives of improving forest plantation policies to facilitate equitable livelihood benefits.

Politics was driving research – [because of the problem of] running out of wood, while trying to encourage foreign investment in plantations – there was a pull for solutions.

 Australian researcher, forest plantations

Across all 3 bodies of research, many activities were designed and implemented in close collaboration with government and other research users. However, the extent to which this equated to co-production of research and policy is not clear. For example, in the forest plantations research, a core focus of more recent research projects has been the establishment of multistakeholder engagement activities to discuss and refine forestry policies, contributing a large body of research and experience collaborating with the private sector, smallholders and government personnel to develop and update several policies. The process of research uptake carried out by the forest plantations body of work enabled Laos end-user engagement and key inputs into the direction of the research, but the extent to which this was informed by co-production principles and practice was not clear.

Working with ACIAR is enjoyable, and we have a good teamwork environment; I like it. They also listened to our ideas and comments and took these into the project design and implementation.

 Government of Lao People's Democratic Republic representative, forest plantations

Working with the ACIAR team is good. I was co-leader for the Objective 1, and I had comments and open discussions with the ACIAR team. We can share and provide comments and they took it on board. So, working with ACIAR had no problems because they have been working for many years, and they are professional in working with us; they respect us and give us authority/power during meetings and working together. I enjoyed working with the ACIAR team.

 Government of Lao People's Democratic Republic representative, forest plantations

The evaluation identified strong engagement of the groundwater research with key stakeholders from the Government of Lao People's Democratic Republic and end users of the research, though the evaluation did not find substantiative evidence of co-produced research agendas. As described further below, the groundwater project is representative of policy windows where research agendas aligned with existing priorities of government policy, rather than the research being produced in co-production relationships with Government of Lao People's Democratic Republic representatives and ACIAR researchers.

The evaluation team also observed elements of model 4 in all 3 bodies of research, particularly Kingdon's (1995) theory of 'policy windows'.


Policy windows can be predictable. For example, policies often change according to standard policy planning timelines. They can also be unpredictable, with some policy windows open as a result of controversies or dramatic events that prompt policy solutions. Policy windows can sometimes be created in the right conditions. Kingdon (1995) emphasised that to recognise and operate effectively in policy windows, researchers or other policy proponents must have sufficient knowledge of the issue, time, relationships with policymakers and other actors that influence policymaking, and strong reputations. In the ACIAR bodies of work, researchers and policymakers shared similar or the same framing of policy 'problems'. They had large bodies of evidence supporting possible policy solutions, and their policy solutions were salient to a range of different stakeholders in the context.

Kingdon's (1995) theory of 'policy windows' as it applies to the 3 bodies of work was similarly described by Smith et al. (2022) as 'hot topics' in related ethnographic research on research-policy relations in Laos. Smith et al. (2022) explain that 'hot topics' are short-term, immediate and urgent responses to current events, or policy responses to disasters and decrees made in response to emergency situations:

Hot topics were identified as one of the main entry points for researchers into policymaking processes: when a topic was really 'hot', researchers may be invited to present at the NA [National Assembly]. ... Researchers may also be asked to study hot topics at length. ... Hot topic research often involves providing an 'answer' and 'a way out' of a difficult and pressing situation. (Smith et al. 2022)


In the fish passages body of work, government personnel, ACIAR research teams, the Asian Development Bank and the World Bank shared the same framing of the 'problem' – that irrigation infrastructure is having a negative impact on fish populations, biodiversity and livelihoods.

... the impacts [of irrigation infrastructure] on the Mekong are very serious. There are more than 200 hydropower schemes on the Mekong and its tributaries and serious problems are being faced in the delta, and it's a worry for everybody, not only [Asian Development Bank].

 Asian Development Bank representative, fish passages


ACIAR had a body of evidence collected over multiple years on a potential 'solution' to safeguard fish populations, biodiversity and livelihoods through the use of fish passages.

What the Australians had was a tremendous amount of information, knowledge, skills, understanding. And so, we asked them: Can you take a look at what's going on here? And they did, and because of their prior work, they were able to say, 'Well, look, you can do this, this and this'.

 Asian Development Bank representative, fish passages

The political context, particularly relationships between international financial institutions and government, was also conducive to opening a 'policy window' for fish passages.

I think that's where we could help – we highlighted to higher authorities because they're working maybe at one level. We're working with ministries of Finance and the Minister and the Deputy Minister, and so on. And we can highlight the advantage at these levels. [ACIAR] provided the data to prove that it was worth doing. They had already proven the technology ...; we could make the case on economics and on food security. With our local knowledge – we could take it to government people.

 Asian Development Bank representative, fish passages




As per Kingdon's (1995) suggested requirements for operating in a policy window, the fish passages research team had:

- sufficient knowledge of the issue
- a long period of time to conduct the research and engage the right stakeholders in findings
- relationships with policymakers and other actors (Asian Development Bank, World Bank) that directly influence policymaking
- strong reputations for their work.

In the forest plantations body of work, government personnel, private sector representatives, smallholders and ACIAR framed the 'problem' in similar ways: that forestry policies needed to be improved to be more efficient and facilitate equitable livelihood and economic outcomes. ACIAR had the required body of evidence generated over a long period of time to support forestry policy reform, and the political context supported the improvement of forestry policies. ACIAR research teams had the knowledge, time, relationships and reputations to recognise and operate in a predictable policy window – the government's forestry planning cycle.

There is a need to close the gaps and challenges in forestry policy and to impact smallholder tree growers and industry. ACIAR forestry research was the first project that came to Laos in 2014 to review and contribute to informing the policy.


 Government of Lao People's Democratic Republic representative 9, forest plantations

'Hot topics' become apparent during research projects in Laos. If they're there in the right time at the right place, you can use that opportunity to get research into policy spaces. Timing is important and the longevity of the research is important to be strategic. [Policy outcomes] still came as surprises.

 Australian researcher, forest plantations

In the groundwater irrigation project, government personnel and the research partner International Water Management Institute (IWMI) framed the 'problem' in the same way – as a lack of data and information about the availability and sustainability of groundwater in Laos. Over several years, IWMI and the Department of Irrigation (DOI) generated the required evidence together in joint activities, which could be used in policy and planning. The political context also supported groundwater irrigation as an option for improved livelihoods and economic growth, with key government personnel taking a specific interest in groundwater irrigation as an option for improved livelihoods and economic growth in Laos. The policy window was unpredictable in that the research team did not plan for or anticipate that the Government of Lao People's Democratic Republic would create new groundwater policies and plans; but they had the required knowledge, long period of time, relationships and reputations to recognise and operate in the policy window when it opened.

This groundwater study project is the first project that DWR [Department for Water Resources] involved in practical technical exercises. We had similar ideas of doing these before the project, but it did not happen due to several difficulties. Luckily this project had come. Even [though] DWR [were] not involve[d] in the whole component of the project, the research findings are greatly contributing to water resources policy development at the national levels as well as the basin levels. It was a starting point for the groundwater study, and this helps to stimulate and raise awareness of the importance of the groundwater profile/knowledge for Laos.

 Government of Lao People's Democratic Republic stakeholder 1, groundwater

It is not always possible to have visibility or evidence of the extent to which research shapes policy, politics shapes research, research and policy are co-produced, or research interfaces with policymaking in 'policy windows'. It is nonetheless helpful for research teams to reflect on their assumptions regularly and critically about how research interfaces with policymaking, who owns knowledge and research, and who has power in research and policymaking processes. These 4 models are a useful starting point for that deeper level of reflection.

Recommendations and lessons learned

The evaluation team collaborated with project stakeholders and an evaluation reference group to identify 9 key lessons from the bodies of work that could be applied to future research programs that are intended to contribute to policy and development outcomes. The lessons relate to designing research for use in policy, planning for research uptake, planning for equity and sustainability, and planning for long-term impact.

Designing research for use in policy

1. Allow time, resources and flexibility for well-grounded context analysis and co-design processes, to engage the most appropriate stakeholders and frame the research focus appropriately.

Appropriate context analysis and relationship-building can support the co-design of appropriate research questions that are of interest and benefit to policymakers, stakeholders that directly interface with policymaking, and other research users.

Invest time and budget for detailed context analysis, including political economy analysis, stakeholder mapping, and gender analysis, including regular review and updates.

Local research partners are central as they understand the context in much more depth than international researchers. As Smith et al. (2022) highlight, what English-speakers refer to as 'policy' may be quite different to what Lao-speakers refer to and understand to be 'policy', and it can take time and contextual knowledge to understand what relevant 'policy' issues are and what 'hot topics' are of interest to policymakers.

Research teams working on forest plantation and fish passages research in Laos changed their strategies after several years to focus on policy options rather than technical issues alone, having established strong relationships and learned more about the context. Both formal and informal context analyses supported them to adapt new strategies that contributed to policy outcomes.

We want to produce and add value ... we don't want to just do research and publish. We often discussed with DOI [Department of Irrigation], DWR [Department for Water Resources], and NUOL [National University of Laos] to explore what they were interested in, then we changed our strategy many times.

– Australian researcher

At a later stage, the fish passages research team recognised shared interests of different government and international financial institutions in safeguarding fish populations along the Mekong. Collaborating with these stakeholders enabled the research team to provide the evidence that policymakers in government and decision-makers in international financial institutions required to revise the irrigation law and introduce regulations for fish passages.

The right partners made a big difference – the fish people understood the idea, but the engineers were the people that needed to change practice. [We] needed to engage with [the] irrigation sector – this is where the real gains were.

– Australian researcher

Context analysis and co-design can also support research teams to plan the optimal timing of research phases. Research can be planned to align with longer-term policy planning cycles – as in the forest plantations body of research – or other important timeframes that enable research uptake at the right time or 'policy window'. Research teams can also consider the optimal timing of scientific research together or in parallel with research about practice, different stakeholder values, and how practices can change to create long-term, sustainable impact.

The research needs to happen in country context – you need time up front to know the context and content – and to design in [a] way that science works in [the] local context – we need resources to understand the local context and policy perspectives [and] what capacity is necessary to lever the policy perspective.


– Australian sense-making workshop participant



2. Invest in local leadership, appropriate project team skills and composition.

Across all 3 bodies of research, a range of project stakeholders, including government representatives, Asian Development Bank and private sector representatives, research partners and people who participated in practice research all emphasised the value of the long-term, continual presence of highly trusted, credible and empathetic researchers in building trust and expertise. This finding echoes other research findings and theory. For example, Kingdon's (1995) assertion that to operate effectively in policy windows, people who intend to engage with policymakers need to have sufficient knowledge of the issue, time, relationships, and strong reputations.

We requested Australian experts to help us review and formulate forestry policies because (1) their skill sets, networking, and experiences working in Laos for this particular [subject] are suitable for these missions, (2) we don't have the resources (budgets) and inadequate staff capability to well achieve these missions, and (3) we would like to develop these policies to align and integrate with ASEAN countries.

 Government of Lao People's Democratic Republic stakeholder 9, forest plantations

Government of Lao People's Democratic Republic and ACIAR representatives emphasised the importance of investing in local leadership and early career researchers. There were several examples across the 3 bodies of research in which Lao research partners' personnel later became high-profile proponents of policy change, having engaged in the research for a large proportion of their careers and held positions in both research and policymaking.

Australian project stakeholders emphasised the need to consider which disciplinary expertise and local expertise is required from the beginning, and be willing to change the composition of the team as the context evolves. Scientific researchers may not always feel comfortable or have the appropriate skills to engage with policymakers, and local expertise on, for example, gender, equity and inclusion (GESI) is required from the beginning of research design, rather than being added at a later stage.

Australian researchers commonly commented on the value of having multidisciplinary teams from the beginning of research. Across the 3 sectors, several Australian researchers reflected that their research may have been more impactful if they had a more diverse range of expertise embedded in their team from the beginning of the work, rather than adding them at later stages.

ACIAR projects have historically been scientific, positivist questions. The multidisciplinary work comes in late, which can be problematic in terms of ensuring those disciplines are embedded in projects.

– Australian researcher

In relation to interdisciplinarity, embedding that in the structure of teams allowed more impact than if there was a narrower range of expertise.

– Australian researcher

[The] social science perspective was on the periphery – not so integrated into the project teams – they were not part of the formulation of the project – that makes a big difference.

– Australian researcher

I would say different departments and institutes have different skill sets and capabilities, I would love the project to be able to engage all relevant institutes from the beginning until the end of the project. So that every stakeholder will have a common understanding of the research.

– Government of Lao People's Democratic Republic representative

3. Refer to conceptual frameworks to plan research impact and research-policy relations.

Referring to conceptual frameworks can support research teams to strategically foreplan for research-policy relations while also allowing the flexibility required to adapt project design and approaches at regular intervals. Collaborative development of people-centred theories of change by research teams can help more efficient planning of who is expected to engage with the research, how those stakeholders will use the research, and what behaviours, practices and broader conditions are expected to change as a result of those stakeholders using the research. ACIAR project design processes and documents do not always explicitly plan processes of research engagement, uptake and use. Using a framework such as Research Contribution Framework (Morton 2015) can help research teams to efficiently and explicitly foreplan these processes, and monitor and evaluate who is engaging with and using research, what is changing as a result of research use, and what strategies and activities need to change to enable research uptake and use in the changing context.

Both local and international research teams need knowledge, skills and/or support to develop and re-visit people-centred theories of change.

There's been more of a shift in ACIAR and DFAT [Department of Foreign Affairs and Trade] towards a programmatic approach and developing program logics. I've found that the majority of our partners don't understand program logics and why they're important. It's probably a bit of work that needs to come in on the ACIAR side, to help understand why that's important. I find it difficult to explain as a fish expert.

– Australian researcher

Theoretical frameworks such as Boswell and Smith's (2017) 4 models of research-policy relations can help to unpack assumptions about how research and policymaking interface. Different researchers and research users may have different worldviews on how research and policy do or should interface. Surfacing these differences provides opportunity to clarify research purpose and research processes. It also helps to better understand and plan for research contributions at outcomes and impact levels.

[Different stakeholders engaged in the research] need to talk about what they mean by research and policy early on in the project, and not assume everyone has a shared understanding of what they are. Researchers and policymakers sometimes have different views of what they are, it should be an intentional discussion at the beginning of projects.

– Australian researcher

We came to the frameworks after the work – if we had the frameworks – we may have been more systematic about how to influence policy.

– Australian researcher

Planning for research uptake

4. Allocate resources for planning and monitoring research uptake, using a variety of research uptake methods.

Plan, budget for and explicitly document the specific ways in which research users are expected to become aware of and engage with the research, and the extent to which they do engage with and use the research, rather than assuming research will reach the audiences who will want to use it.

Research teams across all 3 sectors planned a large number and broad range of research uptake strategies and activities, including regular engagement with policymakers and other research users through:

- facilitating workshops and training
- establishing pilot and demonstration sites
- facilitating study tours for research users to observe how technologies work in other contexts
- producing research reports and practice manuals written in Lao and in bespoke formats as requested by policymakers
- presenting at conferences and symposiums
- facilitating multistakeholder policy forums
- producing evaluation reports for research users that demonstrate the effectiveness of the policy option with robust evidence.

However, the processes and outcomes of this broader range of activities were not often documented in ACIAR reports, in part due to the structure and content of the report template.

Research teams can use a variety of different methods to engage research users (for example policymakers, the public, the private sector) in their research on an ongoing basis to help facilitate research uptake and use. For example, continuous **practical engagements** such as pilot and demonstration sites, study tours and/or workshops may be appropriate in some contexts, particularly for producing knowledge of current and potential future environmental management practices.

The successes I've seen in [research] uptake, has been where they start at the ground level and work up from there. 'Seeing is believing' is the starting point for all of this, always. I've seen a number of ACIAR projects that have tried to start at a policy level. We'll go in and advise, and they tend to get nowhere, because what they're offering is a hypothetical interaction. You haven't got something tangible on the ground to show what needs to happen.

– ACIAR representative



Engaging a range of stakeholders in **deliberative engagements** such as social research, informal discussions, meetings or policy forums may be appropriate for co-producing knowledge about values or ‘what ought to be’; for policymakers to use to inform policy and other stakeholders to use to establish new practices. This was evident in ACIAR research teams’ facilitation of multistakeholder policy forums in the forest plantations body of work; and in social research with government personnel and representatives from international financial institutions about their interests and motivations for adopting fish passages.

Engaging with policymakers and partners through **informative engagements**, for example disseminating specific evidence in reports, presentations, meetings and media, can be appropriate for producing knowledge about scientific facts or ‘what is’, for policymakers to use in policy. This was particularly evident in the fish passages body of work, in which the dissemination of empirical evidence on the effectiveness of fish passages in an evaluation report for DOI and the World Bank became a catalyst for changes to irrigation infrastructure regulations.

Research uptake methods need to be designed according to the local context. Local research partners are likely to have invaluable contextual knowledge of different stakeholders’ preferred ways of engaging with and using research, as observed in the 3 bodies of research in Laos.

I would say research reports and working papers are very important for us, but they are in English and are pretty long. It would be great if the project can manage to translate them into Lao or to have a short policy brief and video in Lao because the policymakers or leaders of [Ministry of Agriculture and Forestry] will be able to understand the concept of the project faster and easier.

– Government of Lao People’s Democratic Republic representative

Some posters with photos illustrating fish passage working mechanisms, and documentaries broadcast on TV and social media like Facebook and YouTube are also important for general people to understand and be aware of.

 Government of Lao People’s Democratic Republic representative

5. Prioritise collaborative practice.

Plan and practice partnerships that are collaborative, collegial, informal and connected with local researchers and research users. Working in partnership between Australian and Lao researchers provides opportunity to use complementary expertise and experience. Relationship-driven partnerships which are grounded in mutual respect and trust ensure that research activities are informed by shared agendas and focus to realise change.


Value informal ways of working to build relationships and understanding of the context.

Work with local partners to clarify preferred ways of communicating and working with policymakers. Plan who will facilitate research uptake; for example, specific researchers, local or international stakeholders, partners or other research users.

You have to invest time socially – not just formal meetings, but a lot of the success of our project was having steering committee member [meetings] and other meetings in nice locations, eating together, spending time in the field to build relationships.

– Australian sense-making workshop participant

I had comments and open discussions with the ACIAR team. We can share and provide comments and they took it on board. So, working with ACIAR had no problems because they have been working for many years, and they are professional in working with us. They respect us and give us authority/power during meetings and working together. I enjoyed working with the ACIAR team.


 Government of Lao People’s Democratic Republic stakeholder 3, forest plantations

Spending time socialising with international researchers and local research staff is also crucial to maintaining good relationships and strengthening teamwork. Important issues can be discussed and clarified during social events. Common practices such as sharing meals, offering drinks, and warmly welcoming visitors, guests/experts, and donors are essential to continue these positive interactions.

– Lao sense-making workshop participant

Researchers in the 3 long-term bodies of research recognised the value of collaborative partnerships with local institutions and supporting early career researchers, who later became directly involved in policymaking. Informal ways of working were particularly highly valued by both Lao and Australian stakeholders.

Working with the Australian team was good; their finance/working system is different from [other financial institutions]. It has more freedom and is more flexible. If we like to have publications, we can also learn and work with the team, which is great. This is different from [other donor] funds; they are too strict and mostly they bring their own staff, but for the ACIAR project, we can bring our young researchers to become team members; we can train them.

 Lao university representative 1, forest plantations


Planning for equitable and sustainable research outcomes

6. Integrate systematic analysis of, and action planning for, gender, disability and social inclusion in all research projects.

Every research project has gender and social inclusion outcomes, whether intended or not. If gender, disability and social inclusion dimensions are not analysed or planned for, research projects can reinforce or create gender and other discriminatory norms that cause harm. GESI frameworks and tools can be used to consider gendered dimensions beyond rates of participation and barriers to not only participation but equitable outcomes for people with disabilities and other socially excluded groups. For example, Gender at Work (Rao and Kelleher 2010) identifies 4 different gendered clusters of change, including changes to individuals' capabilities and consciousness, changes to individuals' access to resources, changes to informal norms relating to gender, and changes to formal rules and regulations in relation to gender.

Most of the research projects assessed in this evaluation did not incorporate deliberate GESI analysis or action planning into research designs from the beginning of the research, even though both Lao and Australian stakeholders who engaged in the research were aware of and concerned about the significant gender dimensions of the context of fish conservation and livelihoods, groundwater management and use, and forest plantation practices and livelihoods.

Certainly, women are highly involved in elements of the river fisheries supply chain. Particularly in trading. ... That's where we want an evidence basis. We want to see what are the actual results, the impacts on the fish, and the impacts on the communities whose livelihoods depend on those fish.

 Asian Development Bank representative 2, fish passages

ACIAR representatives and research teams should refer to the most up to date GESI policies and protocols at ACIAR, DFAT, as well as local and international standards, and invest sufficient resources to GESI in research design and implementation, using the relevant Development Assistance Committee markers to monitor investments.

7. Continue to develop the approach to transdisciplinary research in ACIAR to support the sustainability of research outcomes.

ACIAR can continue to develop its approach to transdisciplinary research and incorporate a diverse range of knowledge on scientific facts, or 'what is' (systems knowledge); knowledge about values, or 'what ought to be' (target knowledge); and knowledge about practice, or how to make changes from 'what is' to 'what ought to be' (Pohl 2022).

Collaboratively solving problems rather than promoting existing solutions, engaging with a diverse range of potential research users from an early stage, integrating their knowledge and practical experience throughout project implementation, and monitoring and evaluating the outcomes of their engagement – this focus is more likely to contribute to sustainable and equitable research outcomes than a sole focus on producing and disseminating scientific knowledge.

Projects often start as scientific – and then move to multidisciplinary – we are increasingly moving to TD [transdisciplinary research] – does there need to be more capacity in project review to consider how the project is working in [a] TD way – to focus on the how?

– Australian sense-making workshop participant

As the evaluation participant above suggested, ACIAR could incorporate transdisciplinary research expertise early in research design, and systematically incorporate questions about transdisciplinary research into project monitoring, review and evaluation systems. For example, to analyse and make recommendations about the extent to which:

- research and knowledge about science and facts, practice and agency, and politics and values have been integrated into projects to create sustainable policy solutions
- relevant research users have been engaged in research uptake processes
- research users are experiencing equitable outcomes through the research.

Lao sense-making workshop participants also suggested that ACIAR could dedicate more time and resources to multidisciplinary or transdisciplinary research approaches. They noted that transdisciplinary research approaches are necessary to gain a deeper and clearer understanding of policy 'problems' and develop more sustainable 'solutions' that take into account a broader range of stakeholders' perspectives and needs.



8. Long-term outcomes and impact require long-term investment.

A broad range of Australian, Lao and international stakeholders highlighted that the long period of research implementation – in some cases more than 10 years – was a significant factor that contributed to ACIAR-funded research interfacing with policymaking in Laos. A longer duration of research allows opportunities for research to interface with policymaking as:

- political, social, environmental and economic conditions change
- research evidence becomes available and accumulates
- strong relationships and trust in research findings develop between researchers, policymakers and other research users.

9. Development outcomes may be sustained through systemic capacity strengthening.

Prioritise systemic capacity strengthening with researchers, government departments at different levels, international institutions and the public. The contribution of ACIAR to capacity strengthening in fish passage design and testing, forest plantation practices and wood processing technology, and groundwater irrigation mapping, modelling and monitoring were highly valued by Lao stakeholders and contributed to a range of stakeholders having the required knowledge and skills to sustain development outcomes.

There's a huge difference between training and capacity building – capacity building leaves people linked with support networks. Training by itself doesn't work. Tools, skills, opportunities and support mechanisms are important – it's an aspect of ACIAR that's very, very important. It's probably what has the most long-term impact in the long run.

– ACIAR sense-making workshop participant

Investing in local researcher capabilities over the long-term can also support them to become leaders in their field, enter positions that directly engage in policymaking, and sustain development outcomes that have resulted from their research.

We have been working on this on a long-term basis, there have been strong relationships built over the years. We've been consistently building local capacities. The early- and mid-career researchers that we worked with years ago are actually transitioning the ranks, they're occupying the roles of policymakers and positions where they're part of broader policy discussion.

– ACIAR sense-making workshop participant

The ACIAR project is for long-term impacts that policymakers may not see as immediate impacts because the ACIAR project has built/supported the capacity building of staff, created a research capacity for this faculty and the results of the research being used by many research institutions and other organisations. There are many staff who went to study ... When they returned, they also developed curriculums which are positive impacts. ... The wood processing technology and techniques at the [research] centre are already advanced [as a result of ACIAR investment].



Lao university representative 1,
forest plantations

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Appendices

Appendix 1: List of projects assessed by the evaluation



Fish passages:

- Development of fish passage criteria for floodplain species of central Lao PDR (FIS/2006/183)
- Development of fish passage technology to increase fisheries production on floodplains in the lower Mekong and Murray-Darling River basins (FIS/2009/041)
- Quantifying biophysical and community impacts of improved fish passage in Lao PDR (FIS/2014/041)
- Assessing fisheries mitigation measures at Xayaburi Dam in Lao PDR (FIS/2017/016)
- Assessing upstream fish migration measures at Xayaburi Dam in Lao PDR (FIS/2017/017)
- Translating fish passage research outcomes into policy and legislation across South East Asia (FIS/2018/153)
- Application of fish passage design principles to enhance sustainability of inland fishery resources in the Southeast Asian region (FIS/2015/006)



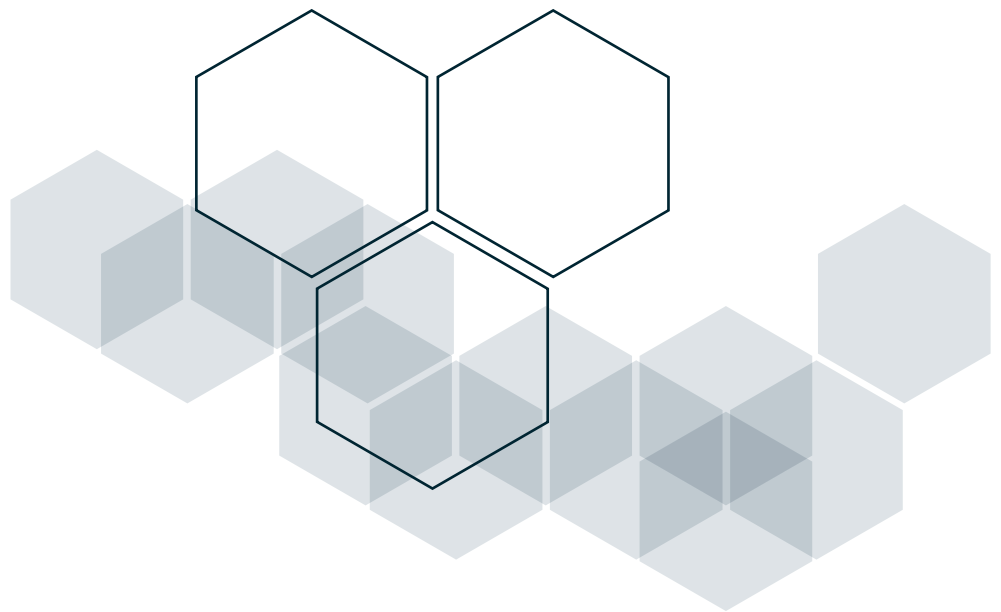
Forest plantations:

- Improving policies for forest plantations to balance smallholder, industry and environmental needs in Lao PDR and Vietnam (ADP/2014/047)
- Teak-based agroforestry systems to enhance and diversify smallholder livelihoods in Luang Prabang province of Lao PDR (FST/2012/041)
- Biological control of galling insect pests of eucalypt plantations in the Mekong Region (FST/2012/091)
- Advancing enhanced wood manufacturing industries in Laos and Australia (FST/2016/151)
- Policy analysis for forest plantations in Lao PDR and Vietnam (FST/2019/121)



Groundwater irrigation:

- Enhancing the resilience and productivity of rainfed dominated systems in Lao PDR through sustainable groundwater use (LWR/2010/081)



Appendix 2: ACIAR research teams' suggestions for working cross-culturally with Lao and Australian stakeholders





Appendix 3: Outcome summary

	Evidence of outcome found	Supporting reference in report
Science		
Advancement of science through the production of highly credible quality science research indicated by the following:	n/a	n/a
(i) The project published in peer-reviewed journals AND	n/a	n/a
(ii) X% of outputs are articles published in peer-reviewed local language (where English is not the academic language of the context).	n/a	n/a
Development of knowledge unique for application in context which includes:		
(i) Development of appropriate science outputs that contribute to application including training manuals, handbooks, technologies AND	Yes	(list of outputs in appendices)
(ii) Translation of the above science outputs for use by a clearly identified next user.	Yes	pp 3, 4, 13, 14, 16, 17, 18, 23, 24, 35
Socioeconomic outcomes		
Improved access to social-economic institutions and organisations , (e.g. markets, social organisations, producer groups, cooperatives, unions, etc.) which includes (i) a reduction in barriers to access (i.e. regulatory, logistic, informational), OR (ii) the enhanced capacity to meet requirements for participation (i.e. quality and food safety standards in markets).	n/a	n/a
Expanded range of social-economic opportunities , which are realistic and appropriate in the context, and includes (i) expanded range of employment opportunities, OR (ii) expanded range of agricultural production options, OR (iii) expanded range of post-harvest value-add options, OR (iv) expanded range of options to extract/harvest natural resources (i.e. forests, fisheries).	i, ii, iii, and iv in relation to forestry	pp 15, 16, 21, 22, 23, 27
Reduced barriers to switching between alternative social-economic activities , which includes (i) reduction in social barriers (e.g. gender norms, stigmas, status, etc.), OR (ii) improved knowledge which facilitates switching (i.e. from cropping to livestock raising), OR (iii) decreased financial barriers to switching (i.e. better access to micro-credit, or improved application of government subsidies), OR (iv) reduced regulatory/legal barriers to switching.	ii and iii in relation to forestry	pp 15, 16, 21, 22, 23, 27
Reduced exposure to risk (e.g. human health risk, production risk, social risk), which includes (i) improved risk management/response, OR (ii) increased avoidance of risks, (iii) OR improved opportunities to mitigate risk through community, government or financial arrangements (i.e. crop insurance).	iii in relation to fish passages	pp 12, 13, 14, 22, 24
Increased social-economic returns , (e.g. wellbeing, profits) which for the systems households engage with, includes increased (i) increased benefit flows for same cost outlay, OR (ii) sustainment of benefit flows with decreased cost outlays, OR (iii) increased benefit flows and decreased cost outlays. Examples include (1) 'more with same', such as increased availability of food or resources to the household from the same outlay of effort, (2) 'same with less', labour-saving techniques allow same income to be achieved with less time, and (3) 'more with less', new crop variety generates higher incomes with less labour time and land.	iii in relation to forestry	p 27

Appendix 3: Outcome summary (cont.)

	Evidence of outcome found	Supporting reference in report
Gender		
Increased inclusion and opportunity for women and/or diverse SOGIE researchers within the project , in both the Australian and partner country teams, specifically:		
(i) project team composed of a minimum of either 40% women or men	n/a	n/a
(ii) women and/or diverse SOGIE researchers held position of project leadership	n/a	n/a
(iii) women and/or diverse SOGIE researchers appeared as first author on at least one of the peer-reviewed or conference publications/presentations produced in a relevant and high-ranking journal	n/a	n/a
(iv) women and/or diverse SOGIE researchers were given scholarships and/or training opportunities.	Yes	p 37
Where appropriate, projects may also be working toward outcomes that include:		
Partners identify the project as influencing organisational decisions to adopt gender-inclusive policies and procedures , including: (i) a clear gender strategy, (ii) HR policies are gender-sensitive, (iii) representation of women &/or SOGIE researchers has increased in the higher-level functions within an organisation.	n/a	n/a
The generation of gender-sensitive knowledge , which includes gender-specific publications and/or publications that include gender-disaggregated data, and there is evidence that the research has been translated for use at (i) the project level, (ii) the organisational level, (iii) the community level.	Yes, in relation to groundwater	p 18
Positive socioeconomic outcomes women and/or diverse SOGIE community members , which includes: (i) improved access to social-economic institutions and organisations, (e.g. markets, social organisations, producer groups, cooperatives, unions, etc.), (ii) expanded range of social-economic opportunities, which are realistic and appropriate in the context, (iii) reduced barriers to switching between alternative social-economic activities (iv) reduced exposure to risk, (e.g. human health risk, production risk, social risk), (v) increased social-economic agency, (vi) Improved social-economic equity (i.e. an improvement in an individual's equity share in their outputs).	Yes, ii in relation to forestry	p 37
Policy		
Implementation of a policy that informed stakeholders acknowledge draws on ACIAR-supported research , which is evident (i) in such a way that observable changes in state can be determined to be positive AND (ii) qualitative evaluations with a deliberate sample that demonstrate an acknowledged contribution to the policy process of a piece of research and analysis of the impact of these policies.	ii	whole report
Direct referencing of research in publicly available policy documents , which include (i) reference to technical manuscripts (ii) sections of ACIAR support research text directly incorporated into policy (iii) footnoting of research documents in formal policy papers OR (iv) reference to ACIAR-supported research in Ministerial statements and/or speeches.	ii	pp 23–25
Policy actors acknowledge that there was a contribution to the policy formation process from the research outputs , which includes an acknowledgement by policymakers in (i) impact Evaluation interviews that the research was 'one of many influences' (ii) emails and other written communication received by researchers from individual policy actors demonstrating engagement with research.	i and ii	pp 16, 18, 20, 21, 22, 23, 24, 25
The research team self-reports that policy-relevant findings were produced and communicated to known actors within the policymaking realm , which includes the following activities being undertaken during the life of the project: (i) policy dialogues convened; (ii) policy briefs produced and distributed (iii) high-level stakeholder meetings held to discuss policy-relevant findings.	Yes, i ii and iii	pp 12–35



	Evidence of outcome found	Supporting reference in report
Improved natural resource management outcomes		
Reduced production and/or better management of pollutants , which includes (i) reduction in the use of harmful chemicals (herbicides, pesticides etc.), (ii) reduction in the overuse/ run-off of nutrients, OR (iii) reduced discharge and/or better management of wastewater.	n/a	n/a
More efficient and sustainable use of available water resources , which includes (i) growing more food using less water (reducing agricultural water demand), OR (ii) reducing groundwater depletion.	n/a	n/a
Increased natural resource stocks , which includes (i) improved soil health (i.e. improved soil structure, pH level, nutrient levels) (ii) increased forest/vegetation cover OR (iii) increased wild aquatic species stocks.	Yes, iii	p 26
Increased ecological resilience , which includes (i) increased or restored ecosystem biodiversity (including increased soil carbon), OR (ii) rehabilitated ecosystems (i.e. coral reef systems/wetlands).	Yes, i	p 26
Improved biosecurity , which includes (i) better management of pests and diseases (animal, plant and human).	Yes, in relation to forestry	pp 14–16
Improved climate change mitigation , which includes (i) an observed improvement of natural resources (i.e. increased forest cover, improved soil carbon), OR (ii) a reduced energy consumption (e.g. solar water pumps), OR (iii) establishment of new climate mitigation incentive schemes, support mechanism, extension at an institutional level.	n/a	n/a
Establishment of a sustainable natural resource management system , which includes the institutionalising and implementation of sustainable practices and management of natural resources (i.e. groundwater systems, salinity management, forest resources, waterways, biodiversity).	Yes	pp 17, 18, 22, 23, 24, 25
Innovation system outcomes		
Enhanced individual capacity achieved for the project team members , which includes (i) improved skills development of the individual, OR (ii) career progression for an individual (i.e. a promotion), OR an individual on the project team was awarded an ACIAR fellowship including a John Allwright Fellowship, Pacific Scholarship or John Dillon Fellowship, OR (iv) an individual gains an external grant for professional development, OR (v) an individual is formally part of a mentor program with senior academics in Australia, OR (vi) ACIAR-funded individuals are contributing in the international research-for-development space.	Yes, i, ii, vi	pp 21, 22
Improved capacity of implementing partners at an organisational level , which includes (i) improved processes and procedures, OR (ii) improved human resources procedures, OR (iii) the organisation has developed a clear strategy, OR (iii) the team has the appropriate skill set for the work, OR (iv) stronger organisational leadership is demonstrated, OR (iv) strengthened culture of research innovation and collaboration is demonstrated.	Yes, iii	pp 3, 21, 22
Improved capacity of groups and/or individuals in the local community who were members of the project team (i.e. directly engaged people within the target community) , which includes (i) improved skills development within the engagement target area of the project; (ii) completion of training programs (including work placements) as part of the project that are relevant to their employment/daily activities, OR (iii) completion of a formal qualification relevant to their employment/ daily activities.	Yes, i, ii and iii	pp 21, 22
Improved capacity of groups and/or individuals in the local community who were not directly engaged with the project , including (i) the community has increased knowledge and resources relevant to the environment, OR (ii) the community has improved skills to continue the project.	n/a	n/a

Appendix 4: ACIAR outcome evaluations

No	Author(s) and year of publication	Title	ACIAR project numbers
1	Davis P (2022)	An evaluation of the ACIAR Agriculture Sector Linkages Program	ADP/2010/091 HORT/2005/153 HORT/2005/157 HORT/2005/160 HORT/2010/001 HORT/2010/006 HORT/2012/002 LPS/2005/132 LPS/2010/007
2	Hanley C and Passfield L (2022)	An evaluation of the ACIAR Transformative Agriculture and Enterprise Development Program	ASEM/2014/095 FST/2014/099 HORT/2014/094 HORT/2014/096 HORT/2014/097
3	Davis P and Hanley C (2023)	A programmatic evaluation of the TADep and ASLP programs	ADP/2010/091 ASEM/2014/095 FST/2014/099 HORT/2005/153 HORT/2005/157 HORT/2005/160 HORT/2010/001 HORT/2010/006 HORT/2012/002 HORT/2014/094 HORT/2014/096 HORT/2014/097 LPS/2005/132 LPS/2010/007
4	Campbell J, Gimelli F, Chamberland G, Stempel A and Breen J (2022)	An evaluation of fruit and vegetable market development research in north-western Vietnam	AGB/2006/112 AGB/2008/002 AGB/2012/059 AGB/2012/060
5	Myers R and Cininta P (2023)	Improving the sustainability of cocoa production in eastern Indonesia	HORT/2010/011
6	Gimelli F, Campbell J, Chamberland G, Stempel A, Mienmany S and Zalcman E (2023)	Evaluation of village-based livestock biosecurity in Laos and Cambodia	AH/2012/067 AH/2012/068 AH/2011/014 AH/2010/046 AH/2006/159 AH/2005/086
7	Piper E and Sirajulmunir N (2023)	Illegal, Unregulated and Unreported Fishing in Indonesia	FIS/2006/142
8	Meaney-Davis J, Winterford K, Mienmany S, Douangsavanh S and Willetts J (2023)	Assessing the research to policy interface in Lao PDR	FIS/2006/183 FIS/2009/041 FIS/2014/041 FIS/2017/016 FIS/2017/017 FIS/2018/153 FIS/2015/006 ADP/2014/047 FST/2012/041 FST/2012/091 FST/2016/151 FST/2019/121 LWR/2010/081



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