



ASEAN-CGIAR
Innovate for Food
and Nutrition Security

ASEAN-CGIAR Innovate for Food and Nutrition Security Regional Program

FINAL REPORT 2025-2026





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Foreign, Commonwealth
& Development Office



Australian Centre
for International
Agricultural Research

MAFF

Ministry of Agriculture,
Forestry and Fisheries

農林水産省



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The **ASEAN-CGIAR Innovate for Food and Nutrition Security Regional Program (IFNRP)** is a collaborative research partnership among ASEAN Member States, the ASEAN Secretariat, and CGIAR Centers, supported by the United Kingdom, Australia, and Japan. The program's long-term vision is to scale integrated innovations that strengthen the resilience of ASEAN's agri-food systems to climate change, improve livelihoods across value chains, increase access to affordable and nutritious food, and contribute to a healthier natural environment. Funding is provided through the Foreign, Commonwealth & Development Office (FCDO) of the Government of the United Kingdom, the Australian Centre for International Agricultural Research (ACIAR), and the Ministry of Agriculture, Forestry and Fisheries (MAFF) of Japan.

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Intervention Package	Convening Center	Participating Center	Geographic Scope for 2025-26	IP Convener
IP1+ Scaling Regenerative Agrifood System Practices	WorldFish	Alliance, ILRI, IRRI, CIMMYT, IWMI, IFPRI	Cambodia, Laos	Eddie Allison
IP1: Regenerative Agriculture/ Aquaculture Practices and Judicious Agrochemical Use	WorldFish	Alliance, ILRI, IRRI, CIMMYT and IWMI	Cambodia, Indonesia, Laos, Myanmar, Vietnam	Eddie Allison Mike Akester
IP2: Climate Neutrality and Circular Agriculture	IRRI	Alliance, ILRI, IRRI, and IWMI	Cambodia, Indonesia, Malaysia, Myanmar, Laos, Philippines, Thailand, Vietnam	Kazuki Saito
IP3: Enhancing ASEAN Agrobiodiversity Use and Landscape Biodiversity	Alliance Bioversity-CIAT	CIP, ILRI, WorldFish	Cambodia, Laos, Philippines, Thailand, Vietnam	Danny Hunter Quennie Vi Rizaldo (Co-convener)
IP4: Enhancing Value Chains and Regional Trade	IFPRI	ILRI	Cambodia, Indonesia, Myanmar, and other AMS	Kevin Chen
IP5: Transboundary Pests and Diseases	ILRI IRRI	Alliance, CIMMYT, CIP	Vietnam, Laos, Cambodia, Philippines	Fred Unger Nurmi Pangesti (Co-convener)
IP6: Private Sector Investment and Sustainable Financing	Alliance Bioversity-CIAT	IFPRI	Indonesia, Philippines	Dharani Burra
IP7: Farmer-Led Irrigation for Climate-Resilient Agri-Food Systems	IWMI	CIMMYT, IRRI	Cambodia, Laos	Paul Pavelic
IP8: Food Systems Transformation for More Nutritious and Healthy Diets	Alliance Bioversity-CIAT	ILRI	Cambodia, Vietnam	Tuyen Thi Thanh Huynh

Acronyms

ADB	Asian Development Bank
AMS	ASEAN Member States
AMR	Antimicrobial Resistance
AMU	Antimicrobial Use
APRACA	Asia Pacific Rural and Agricultural Credit Association
ARDB	Agriculture Rural Development Bank
ASEAN	Association of Southeast Asian Nations
BDN	Better Diets and Nutrition
BRIN	National Research and Innovation Agency (Indonesia)
CARD	Council for Agricultural and Rural Development
CGIAR	Consultative Group for International Agricultural Research
CIMMYT	International Maize and Wheat Improvement Center
CopSyS	Community of Practice for Systems Science
CSA	Climate-smart Agriculture
DOST-FNRI	Department of Science and Technology – Food and Nutrition Research Institute (Philippines)
DSS	Decision Support System
DSRC	Direct-Seeded Rice Consortium
FAO	Food and Agriculture Organization
FLI	Farmer-Led Irrigation
FSTWG	Food Safety Technical Working Group
GEI	Gender Equality and Inclusion Program Accelerator
GESI	Gender Equality and Social Inclusion
GHG	Greenhouse Gas
GR-STIB	Gender-Responsive Socio-Technical Innovation Bundles
IIRR	International Institute of Rural Reconstruction
IFPRI	International Food Policy Research Institute
ILRI	International Livestock Research Institute
IP	Intervention Package
IPSR	Innovation Packaging and Scaling Readiness
IRRI	International Rice Research Institute

Acronyms

ISG	International Support Group
ISPAE	Institute of Strategy and Policy on Agriculture and Environment
IWMI	International Water Management Institute
JIRCAS	Japan International Research Center for Agricultural Sciences
mAC	Modern Agricultural Cooperatives
MAE	Ministry of Agriculture and Environment
MAFF	Ministry of Agriculture, Forestry and Fisheries (Japan)
MARD	Ministry of Agriculture and Rural Development (Vietnam)
MRV	Monitoring, Reporting, and Verification
NAFRI	National Agriculture and Forestry Research Institute (Lao PDR)
NDC	Nationally Determined Contributions
OH	One Health
PDAFF	Provincial Department of Agriculture, Forestry and Fisheries
PCRL	Promoting Climate Resilient Landscapes
PFSM	Planet-Friendly School Meals
RBET	Reach, Benefit, Empower, Transform
RUA	Royal University of Agriculture
S4I	Scaling for Impact
SAAF	Sustainable Animal and Aquatic Foods
SME	Small and Medium Enterprise
SRP	Sustainable Rice Platform
STIB	Socio-Technical Innovation Bundle
TARASA25	Transitioning towards Agroecology and Regenerative Agriculture: A Contribution to Food Systems Transformation 2025
ToC	Theory of Change
ToT	Training of Trainers
TPD	Transboundary Pests and Diseases
VOHUN	Vietnam One Health University Network
WCS	Wildlife Conservation Society
WFP	World Food Programme
WVI	World Vision International

ACHIEVEMENTS TOWARDS END-OF-PROGRAM OUTCOMES

The ASEAN-CGIAR Innovate for Food and Nutrition Security Regional Program was established to strengthen regional collaboration on science-based innovations that build climate-resilient agri-food systems, improve livelihoods across value chains, and ensure more affordable and nutritious food while safeguarding the environment across ASEAN Member States. By Year 3, the program had moved beyond identifying and piloting innovations across eight Intervention Packages to a more deliberate focus on how the most promising innovations can translate into impact at scale. This shift was reflected in the 2025–26 establishment of IP1+, which synthesized results from IPs 1–8, focused on Cambodia and Lao PDR, and concentrated on strengthening scaling pathways and enabling environments for regenerative agriculture. During the closing workshop, the Program emphasized “from innovation to impact” and “beyond the farm,” highlighting results, outcomes, scaling-readiness insights, lessons learned, and next steps for regional collaboration and resource mobilization beyond 2026.

Across Phase 1 (2023–2026), the program generated a portfolio of innovations and built a regional platform for evidence generation, policy engagement, institutional coordination, and partnership development. In Year 3, the program’s strongest contribution was not simply additional activities, but the consolidation of a regional scaling logic: identifying which innovations are most ready to scale, which transformation accelerators are needed, and how these can be combined into context-specific socio-technical innovation bundles. This same logic is now shaping the emerging Phase 2 vision of a demand-driven regional scaling platform aligned with the ASEAN Food, Agriculture and Forestry Sectoral Plan 2026–2030 and focused on enabling uptake at scale for broad-based impact. Importantly, this strategic direction is reinforced by the 2026 partner feedback assessment, which found that partners valued the regional platform for fostering strategic alignment, facilitating knowledge exchange, and enabling outcomes that would have been difficult to achieve independently. Across 22 partner

organizations, the assessment conducted in 2026 found an average score of 4.17 across partnership dimensions, overall satisfaction of 4.27, and a Net Promoter Score of +68, indicating a highly satisfied partner base that is very likely to recommend collaboration with CGIAR.

Phase 1 therefore closes with four main achievements. First, it generated credible technical, institutional, and financial evidence across production, irrigation, trade, food safety, nutrition, and climate-smart agriculture. Second, it strengthened the enabling conditions for uptake by engaging market intermediaries, financial institutions, policymakers, technical agencies, and regional platforms. Third, it demonstrated that the ASEAN-CGIAR model is valued not only for technical delivery, but also for the trust-based relationships, purposeful engagement, and collaborative value it created among partners across the region. Fourth, it positioned ASEAN-CGIAR Program for a Phase 2 agenda centered on partner-led scaling of regenerative agriculture through investable, context-specific bundles of innovations and support systems. At the same time, the partner assessment also clarified the main areas that require strengthening in a second phase: simplifying administrative and legal processes, improving cross-CGIAR and regional-national coordination, engaging partners earlier in co-design and planning, and ensuring more flexible resources to support scaling at country level.

Improved environmental sustainability. The program strengthened the foundations for more sustainable and climate-resilient production systems by showing that diversified and regenerative practices can improve ecological performance while also creating viable pathways for uptake. Across the portfolio, rice–fish, rice–prawn, low-carbon rice, mechanization, biological control, and solar irrigation were no longer treated only as isolated pilots, but increasingly as part of wider transition pathways that can improve soil and water stewardship, reduce harmful agrochemical use, and support more resilient farming systems. The Year 3 pivot under IP1+ was especially important because it connected production-level

innovations with transformation accelerators such as advisory systems, finance, regulation, market intelligence, and inclusion strategies, thereby improving the likelihood that environmental benefits can be sustained and expanded over time.

Improved agri-food trade and value chains. The program strengthened the enabling environment linking regenerative agriculture to markets, standards, and value chain development. Rather than focusing only on farm-level practices, Year 3 generated clearer evidence on the institutional and market conditions required for regenerative products to compete and scale. Regional assessment and dialogue under IP4 identified policy coherence gaps, certification constraints, market disincentives, and trade bottlenecks, while IP1+ further identified market intermediaries, enterprise-oriented cooperative models, and commercialization pathways that can better connect regenerative producers to domestic, regional, and international markets. Together, these results moved the program closer to an outcome of more inclusive and better coordinated value chains that can reward sustainable production rather than leave innovations stranded at pilot level.

Improved access to capital. The program made practical progress toward more accessible and better-structured finance for sustainable agrifood innovation. IP6 demonstrated that science-based risk assessment can be used to design bundled climate-smart loan products that reduce lending risk while improving the feasibility of farmer investment in new production systems. In parallel, IP1+ and IP7 highlighted that scaling regenerative agriculture and solar irrigation will require coordinated finance mechanisms, de-risking instruments, and stronger alignment between banks, farmers, insurers, and service providers. As a result, the program did more than identify finance as a barrier: it began to define workable financing architectures that can support future uptake at scale.

Better prevention, control, and management of transboundary plant and animal pests and diseases, and improved food safety. The program strengthened regional preparedness and coordination through One Health, crop health, and food safety work that improved both technical

capacity and institutional linkages. IP5 advanced biological control pathways, antimicrobial use assessment and intervention design, food safety risk assessment, and One Health field-site models that support safer and more preventive approaches to pest, disease, and food safety management. These contributions matter because they improve the basis for reduced chemical dependence, more robust surveillance and response systems, and stronger regional cooperation on food safety and transboundary risk management. The work also reinforced a broader program outcome: regenerative and resilient agriculture depends not only on productivity gains, but also on healthier crop, livestock, and food systems.

Increased productivity and production through better and more affordable access to water resources. The program improved the basis for more productive and climate-resilient water use by generating actionable evidence for farmer-led irrigation expansion. IP7 developed a spatial suitability framework and online mapping tool for Cambodia and Lao PDR, helping identify where irrigation investments are most viable, while rapid assessments of solar irrigation systems clarified that long-term performance depends on governance, cost recovery, system design, and viable farming models, not hardware alone. IP1+ built on this by co-developing scaling pathways for solar-powered irrigation and linking irrigation more clearly to diversified and regenerative production systems. The result is a stronger foundation for irrigation investments that are more targeted, sustainable, and aligned with broader food system resilience objectives.

Better nutrition through greater availability of more nutritious, safe, and healthy diets. The program strengthened the evidence base and institutional processes needed for nutrition-sensitive food systems transformation. IP8 completed and advanced participatory food system country profiles and indicator validation processes that can inform future planning, coordination, and monitoring in Cambodia, Vietnam, and the Philippines. IP3, meanwhile, strengthened the case for using planet-friendly school meals as a pathway to connect regenerative agriculture, agrobiodiversity, climate finance, and improved

diets. Together, these efforts contributed not just to new analyses, but to stronger national ownership of food systems transformation agendas and clearer leverage points for improving diet quality, food environments, and nutrition outcomes over time.

Improved institutional coordination of policies, programs, and projects in the agriculture, food, and forestry sector in the region. One of the clearest outcomes of Phase 1 is that ASEAN-CGIAR matured into a regional coordination and learning platform, not only a collection of technical workstreams. Across Year 3, the program convened agriculture, trade, finance, irrigation, food safety, and nutrition actors through regional workshops, consultations, profiling processes, and policy dialogues. This coordination role is also reflected in partner feedback: the strongest-rated dimensions of the partnership were trust-based working relationships, the value created relative to the time and effort invested, and purposeful meetings and consultations. These findings confirm that the program was experienced by partners as a collaborative platform rather than only a funding mechanism. At the same time, feedback on administrative complexity, occasional siloed delivery, and the need for stronger joint planning provides a clear agenda for improving institutional effectiveness in Phase 2.

Better access by women, youth, and marginalized groups to resources in the agri-food value chain. The program strengthened inclusion not only through participation in activities, but by making it part of the logic of future scaling. Across IP1+, IP5, IP7, and IP8, gender and social inclusion were increasingly treated as enabling conditions for scale rather than as stand-alone considerations. IP1+ explicitly linked STIB development to gender-transformative approaches and identified women's and youth engagement as necessary conditions for scaling rice-fish, diversification, poultry, and solar irrigation. IP7 integrated gender and inclusion analysis into farmer-led irrigation work, while other packages broadened participation in national and regional technical and policy processes. This strengthened the basis for future agrifood transitions that are not only productive and resilient, but also more equitable in who can participate, benefit, and

influence outcomes.

Overall, Year 3 shows that the program's contribution to end-of-program outcomes lies less in the number of activities delivered than in the stronger pathways now in place for sustained uptake. Phase 1 generated and tested innovations; Year 3 helped clarify how those innovations can be translated into scalable, investable, and policy-relevant pathways. The partner feedback assessment reinforces this conclusion: Phase 1 is seen as having created real collaborative value and a strong regional platform, while also pointing clearly to the operational adjustments needed to move from successful partnership and piloting toward more effective scaling. In that sense, the program closes Phase 1 with a stronger foundation for achieving healthy, equitable, resilient, and sustainable agrifood systems in ASEAN through a next phase focused on partner-led scaling of regenerative agriculture.

Illustrative Success Stories

1. Solar-powered irrigation pumps: from pilot evidence to policy and finance

What began as pilot work on farmer-led solar irrigation evolved into a clear scaling pathway for climate-resilient diversification in Cambodia and Lao PDR. Evidence showed that solar-powered irrigation can outperform diesel systems, with lower operating costs, high user satisfaction, and a private-sector return on investment of less than five years. By early 2026, this work had contributed to measurable policy and financing shifts: in Lao PDR, solar irrigation was embedded in national irrigation policy and in a new USD 5 million decentralized irrigation project, while in Cambodia a state-owned agricultural development bank prioritized solar irrigation in channeling over USD 400 million toward climate-adaptive technologies. The significance is that solar irrigation is no longer only a technical option; it is becoming part of mainstream planning and investment for climate-resilient agriculture.

2. Building regional capacity for low-emission rice systems in ASEAN

A major constraint on low-emission rice transitions in ASEAN has been the lack of standardized, high-

quality GHG measurement and analytics. Through ASEAN-CGIAR engagement, this gap helped catalyze a new MAFF-supported project worth USD 2.7 million to accelerate development and scaling of agricultural innovations for reducing GHG emissions. The initiative has already installed four gas chromatography units and trained 32 researchers and practitioners through two specialized programs in field sampling, laboratory analysis, and emissions data interpretation. This has strengthened the regional platform needed for more robust MRV systems, evidence-based policy, and future access to climate finance.

3. A practical digital tool supporting efficient scaling of SRP assurance

Sustainable rice initiatives increasingly require reliable farm-level data to verify compliance with sustainability standards, yet no publicly available tool previously existed to systematically collect and manage data aligned with the Sustainable Rice Platform (SRP) Standard. In response, IRRI developed the SRP Data Collection Tool, a standardized digital checklist that enables farmers, extension officers, project implementers, and auditors to document management practices and performance indicators in a consistent way. By 2025, the tool had been formally integrated into the SRP Assurance Scheme and was supporting sustainability verification across 11 countries, covering more than 90,000 hectares and an estimated 460,000 metric tons of rice production. This has strengthened transparency, reduced transaction costs, and improved the credibility of sustainability assurance in rice markets.

4. One Health field sites: making cross-sector coordination real at community level

Regional and national One Health structures are well established in Southeast Asia, but practical community-level implementation has often remained weak. In Lao PDR, ASEAN-CGIAR helped expand a field-based One Health model linking universities, local authorities, and communities to address problems such as antimicrobial use, rabies prevention, food safety, environmental cleaning, and flood response. The approach provides a “learning by doing” platform for students and local actors while also generating community benefits. With two field sites

now established and more than 1,000 community members reached, this work shows how One Health can move from committee structures into locally grounded action.

5. Three ASEAN Member States adopted food systems profiles for more coherent national food systems policy and programs

Countries across ASEAN have committed to food systems transformation, but many existing analytical frameworks are too complex for practical national planning. In response, the program co-developed country food systems profiles in Vietnam, Cambodia, and the Philippines through participatory processes involving national partners and stakeholders. These profiles helped strengthen national understanding of food system drivers, challenges, and leverage points for action. The Vietnam profile was unveiled by the Ministry at COP28, while the Philippine profile was adopted as a co-developed knowledge product under the PALIGID program. Together with the ASEAN transect food systems profile, these results are helping countries move toward more coherent, multisectoral food systems planning and implementation.



INTERVENTION PACKAGE ACHIEVEMENTS

In Year 3, the Intervention Packages increasingly contributed not only as technical workstreams, but as building blocks for wider agrifood system transformation. Across the portfolio, achievements were strongest where technical evidence was linked to institutions, partnerships, and enabling conditions for uptake. Reflecting the 2025 program pivot, IP1+ is presented first as the package that synthesized lessons from the earlier intervention packages and translated them into stronger scaling pathways and enabling environments for regenerative agriculture in Cambodia and Lao PDR.

IP1+: Scaling Regenerative Agrifood System Practices

Starting in 2025, IP1+ became the program's main integrative platform for translating Phase 1 innovations into stronger pathways for uptake at scale. Its central achievement was not simply to continue piloting regenerative agriculture practices, but to connect production-level innovations with the wider systems needed for scaling, including extension, finance, markets, governance, gender inclusion, and consumer demand. In Cambodia and Lao PDR, IP1+ focused this work on two priority agroecological contexts—lowland/floodplain rice-based systems and upland mixed farming systems—thereby turning the program's earlier technical work into a more coherent scaling agenda for regenerative agrifood systems.

A major achievement was the continued refinement of the rice–fish innovation package in Takeo, Cambodia, which by Year 3 had evolved from a promising integrated production model into a more realistic and farmer-informed package for wider uptake. The 2025 wet season results showed that improved rice–fish practices outperformed monocrop rice in both production and profitability, while also generating more grounded lessons on the limits and trade-offs of intensification. The introduction of a cage system responded directly to farmer demand for higher fish production, but the results showed that intensified production could be only marginally profitable when feed costs are high. This was an important outcome because it moved the innovation beyond technical optimism and toward practical recommendations that are more credible for farmers, extension services, and future scaling partners. IP1+ also strengthened uptake pathways around this innovation through a Learning Alliance, exchange visits, and incorporation of proven rice–fish practices into extension materials and Farmer Field School processes linked to the PCRL initiative, creating a clearer route from pilot evidence to wider dissemination.

Beyond the Takeo site, IP1+ strengthened the broader scaling architecture for diversified rice-based systems in Cambodia. Network mapping identified a large set of relevant stakeholders and highlighted which actors are best positioned to influence uptake, while the analysis pointed to Cambodia's Modern Agricultural Cooperatives program as a promising commercialization pathway for regenerative diversification. This shifted the focus from isolated producer support toward more enterprise-oriented and market-linked pathways, where technical assistance, financing, clustering, and cooperative models can work together to support transition. In this sense, IP1+ contributed not only improved innovations, but a clearer institutional logic for how regenerative production could be organized and expanded.

A second major achievement was the advancement of scaling pathways for solar-powered irrigation as enabling infrastructure for diversified, climate-resilient agriculture in the Mekong floodplain. In Cambodia, the Year 3 process validated a scaling roadmap and a strong business case for solar irrigation, while in Lao PDR the work produced three distinct pathways tailored to different regions and implementation contexts. These consultations helped move solar irrigation

from the level of technical demonstration toward a more systemic agenda centered on governance, service standards, financing access, and groundwater safeguards. The significance of this achievement lies in showing that scaling irrigation is not mainly a matter of technology diffusion; it requires coordinated investment, service ecosystems, institutional alignment, and resource governance. This is precisely the type of systems-level transition that IP1+ was designed to support.

For upland mixed farming systems in Lao PDR and Cambodia, IP1+ also advanced the scalability of decision-support systems and regenerative agriculture mechanization by engaging stakeholders to define realistic delivery pathways. Rather than treating tools and machinery as stand-alone outputs, the package worked to identify what kinds of advisory platforms, service models, financing arrangements, and institutional anchoring would be required for these innovations to operate at scale. This produced a more mature view of the transition challenge in upland systems: scaling depends not only on the quality of the tools themselves, but on whether farmers can access services, parts, training, finance, and trusted intermediaries. By clarifying those conditions, IP1+ strengthened the program's contribution to more durable system change in resource-constrained and often underserved farming areas.

Finally, IP1+ extended beyond specific innovations to work on the cross-cutting “scaling accelerators” needed for regenerative agrifood system transformation. These included:

- i. strengthening market linkages between regenerative agriculture producers and national planet-friendly school meals programs;
- ii. developing a framework to ensure that scaling-ready Socio-Technical Innovation Bundles (STIBs) are socially disaggregated and driven by gender-transformative approaches;
- iii. identifying ways to strengthen the enabling regulatory, financial, and policy environment for transition to regenerative agrifood systems; and
- iv. building consumer awareness and preference for regeneratively produced food through behaviour-change approaches.

IP1: Regenerative Agriculture/Aquaculture Practices and Judicious Agrochemical Use

IP1's contribution was primarily to consolidate the technical and partnership foundation built over Phase 1 and provide the tested evidence base on which IP1+ could build scaling pathways. Across regenerative agriculture and aquaculture innovations, IP1 generated practical learning on what works under real farm conditions, especially in diversified rice-based systems, and clarified the production, profitability, and management trade-offs that matter for adoption. Its importance in Year 3 was therefore less about launching new lines of work and more about converting earlier experimentation into a more credible base for extension, policy engagement, and future scaling. In that sense, IP1 closed Phase 1 by providing the field-tested evidence, local partnerships, and implementation experience needed to support the program's later pivot from piloting to uptake.

IP2: Climate Neutrality and Circular Agriculture

IP2 helped move low-emission rice systems from a largely technical agenda toward a more enabling environment for broader uptake. Its strongest contribution was to strengthen regional capacity for credible greenhouse gas measurement and analysis, deepen private-sector engagement around low-carbon rice innovations, and position science-based mitigation options within policy and market discussions. This matters because scaling low-emission practices in ASEAN depends not only on the technologies themselves, but on trusted MRV systems, stronger evidence for NDC implementation, and greater readiness for climate finance and private-sector participation. IP2's Year 3 achievements therefore strengthened the technical credibility and regional partnerships required to support wider transition to climate-neutral rice systems.

IP3: Enhancing ASEAN Agrobiodiversity Use and Landscape Biodiversity

IP3's main achievement was to position planet-friendly school meals as a strategic pathway for linking agrobiodiversity, regenerative agriculture, nutrition, and future financing opportunities. Rather than focusing only on awareness raising, the package helped frame school meals as a demand-side entry point that can create incentives for more diverse and climate-resilient production systems while also improving diets. Through regional and national engagement, IP3 strengthened understanding among partners that public food procurement and school feeding can serve as practical mechanisms for scaling regenerative agriculture, while also opening pathways to climate and environmental financing. Its contribution was therefore to expand the program's scaling logic beyond production and into food environments, public systems, and investment opportunities.

IP4: Enhancing Value Chains and Regional Trade

IP4 helped reposition regenerative agriculture within the broader systems of trade, standards, and green finance. Its major achievement was not simply producing analytical work, but clarifying the market, policy, and institutional bottlenecks that must be addressed if regenerative agriculture is to move beyond pilots and into competitive value chains. By linking evidence generation with regional dialogue, IP4 showed that scaling regenerative agriculture requires more than better production practices: it also depends on standards, MRV credibility, market incentives, trade facilitation, and cross-border coordination. This strengthened the program's contribution to outcome areas on value chains, institutional coordination, and access to finance by making regenerative agriculture more legible and relevant within ASEAN's trade and competitiveness agenda.

IP5: Transboundary Pests and Diseases

IP5 maintained momentum on One Health, crop health, and food safety despite resource constraints, while strengthening the basis for safer and more preventive approaches to pest and disease management. Its achievements were most significant where technical work also reinforced institutional and regional coordination, including biological control pathways, food safety risk assessment capacity, and the expansion of One Health field-site models. These contributions matter because they help shift the program from reactive control toward more resilient systems that reduce dependence on chemical inputs, strengthen surveillance and preparedness, and connect crop, livestock, and food safety concerns within a single risk management framework. In this way, IP5 supported both environmental sustainability and stronger prevention and management of transboundary risks.

IP6: Private Sector Investment and Sustainable Financing

IP6's most important achievement was to translate discussion of sustainable finance into practical product design with local financial institutions. By using science-based risk analysis to help structure bundled climate-smart agriculture loan products, the package showed how CGIAR evidence can reduce perceived production risk and improve the bankability of sustainable agriculture investments. Even where full rollout remains constrained by due diligence and pipeline realities, IP6 clarified the architecture needed for finance-enabled scaling: defined roles for lenders, aggregators, insurers, and suppliers; more targeted use of proceeds; and stronger links between technical risk insights and lending decisions. Its main outcome contribution was therefore to move finance from being treated mainly as a barrier toward being designed as an enabling mechanism for future uptake.

IP7: Farmer-Led Irrigation for Climate-Resilient Agri-Food Systems

IP7 strengthened the basis for scaling farmer-led irrigation by moving the discussion beyond hardware and pilot sites toward planning, governance, and service systems. Through suitability mapping, case-study analysis, market and inclusion work, and structured stakeholder dialogue, the package generated more decision-ready evidence on where irrigation expansion is viable and what institutional and financial conditions are needed for long-term performance. This helped reposition solar-powered irrigation as part of a broader climate-resilient diversification strategy rather than a stand-alone technology. As a result, IP7 contributed not only tools and evidence, but a clearer pathway for integrating irrigation into national planning, investment discussions, and more inclusive livelihood strategies in Cambodia and Lao PDR.

IP8: Food Systems Transformation for More Nutritious and Healthy Diets

IP8 strengthened national ownership and regional learning for food systems transformation by advancing participatory food system profiling and related policy processes in Vietnam, Cambodia, and the Philippines. Its key achievement was to provide governments and partners with a more coherent evidence base for understanding food system drivers, identifying leverage points, and supporting future planning and coordination. By developing and sharing a regional transect food system profile methodology, IP8 also created a basis for cross-country comparison and learning, which is important for ASEAN-wide dialogue on food systems transformation. Its Year 3 contribution therefore lies not only in generating assessments, but in improving the ability of national and regional actors to use evidence for more coordinated, nutrition-sensitive, and systems-oriented action.

Adjustments to Workplan and Theory of Change

IP1/1+: A new workplan for IP1 (IP1+) was developed for 2025–26 to better support bundles of primarily production-system innovations by linking them more explicitly with the program's wider agrifood system interventions under IPs 3–8. In effect, IP1 was largely concluded in 2024 and replaced by IP1+, which operated under a revised workplan designed to move beyond identifying and piloting innovations toward understanding how the most promising innovations could be scaled within a broader agrifood system transition under agroecological and regenerative agriculture principles. This adjustment represented a deliberate shift in both workplan and theory of change: from innovation testing to scaling pathway development, with greater attention to enabling conditions such as markets, finance, gender, policy, and consumer demand.

IP2: In 2025, program activities were primarily concentrated on IP1 (Regenerative Agriculture). As a result, IP2 implementation relied largely on carry-over funds from the previous year. In response, IRRI prioritized high-leverage actions that strengthen the enabling environment for scaling low-carbon farming systems, focusing on (i) regional capacity development, (ii) private sector engagement, and (iii) generation and dissemination of scientific evidence through policy dialogues, events, and knowledge platforms. This pivot towards identifying and capacitating scaling pathways was consistent with IP1+.

IP3: In 2025, IP3 relied heavily on carryover funds which meant the focus was on activity 2.1.1 national policy forums and workshops. There wasn't adequate funding for activity 2.1.2. on capacity building. This was informed to the strategy management in mid-2025 and that IP3 would focus on policy forum workshops and follow-up actions to support national partners to explore climate and environment finance opportunities.

IP4: In 2025, IP4 operated under constrained funding and refined its workplan to prioritize high-impact, system-level interventions. Rather than expanding geographically, the package concentrated on Cambodia and Lao PDR as strategic entry points for linking regenerative production with trade integration and market development. The workplan shifted from broad diagnostics toward strengthening enabling conditions for scaling, with greater emphasis on institutional and policy barriers to market access and competitiveness instead of launching multiple small-scale pilots. Additional support through IP1+ reinforced this shift. Resource allocation focused on high-leverage platforms: the regional assessment became the main evidence base for policy engagement, while the ASEAN–China workshop served as a catalytic mechanism linking regenerative production with trade and green finance systems. Targeted consultations and greater reliance on strategic partnerships helped maintain momentum despite budget limitations, while positioning the package for Phase 2 work on value chain pilots and green investment mobilization.

IP5: No adjustments were made for this reporting period.

IP6: Implementation of the bundled CSA loan for maize required more rigorous environmental and financial due diligence of farmer applicants than initially anticipated. Given the additional time and effort required—together with changes in budget availability—the maize loan was not released during the reporting period. In contrast, the vegetable loan did not face the same constraint, and the bank was able to identify and provide the loan to a farmer through its pipeline and implementation mechanisms. Development and testing of a bundled loan for rice-fish in Cambodia was conducted under IP1+.

IP7: No formal adjustments were reported; implementation proceeded with limited divergence from the original plan. Scaling readiness analysis and identification of scaling pathways for solar powered irrigation was completed under IP1+.

IP8: Year 3 implementation largely aligned with the strategic plan outlined in the 2024 progress report, with targeted adjustments in response to funding constraints. IP8 successfully extended food system assessment activities to the Philippines as planned, completed core Outcome 1 activities across the three countries, and developed the regional transect food system profile methodology to support cross-border learning. However, budget limitations required deferring several planned activities, including expansion of food safety risk communication training to Cambodia and the Vietnam Food Safety Technical Working Group meeting that was initially scheduled for Q1 2025.

Cross-cutting: In addition, a partner feedback assessment conducted in early 2026 provided evidence on the strengths and operational bottlenecks of the ASEAN–CGIAR partnership model and will inform Phase 2 design, particularly on coordination, co-design, and support for scaling.

INTERVENTION PACKAGE PROGRESS

The Intervention Packages (IPs) generally progressed as planned for 2025–26. With adjustments to budgets and timelines, key activities and deliverables across the IPs remain on track:

IP	Traffic light	Progress rating	Rationale
1+	Green	On track	Through scaling readiness analysis, identification of the most promising bundles of regenerative technologies and continued investment in decision-support tools, partnership and capacity development, IP1+ achieved stronger scaling pathways for regenerative agri-food systems in Cambodia and Laos. Through focused policy analysis, engagement of market intermediaries and regional platforms, linkage with school feeding programs, exploration of food environment and focus on empowering women and youth to participate in transformations in agrifood systems, IP1+ was able to foster an enabling environment for scaling regenerative agrifood systems across mixed farming systems in Cambodia and Laos. Together these two outcomes will enable thousands of farmers – and the processors, traders and consumers they supply – to subsequently be able to access the technologies, finance, inputs, markets and information and advisory services they need to support transition to a regenerative system of production.
1	Green	On track	Completed field and pilot testing of regenerative diversified lowland farming systems (rice-fish, rice-prawns, rice-vegetables). Developed, tested and applied decision-support tools for mixed-lowland and upland farming (complex rice-based systems, upland mixed crop-livestock systems, poultry farms). Produced and disseminated guidelines for sustainable and soil-health-benefiting mechanization strategies. Identified production system practices and policy measures to reduce use of antimicrobials in poultry and livestock systems. Advanced the development of soil health measurement and monitoring tools. Through partnerships, conducted training and sensitization events for all the above in one or more of: Cambodia, Laos, Indonesia, Myanmar, Philippines and Thailand.
2	Green	On track	Delivered core Year 3 outputs across MRV capacity building and low-carbon rice systems, including two regional GHG trainings, a technology demonstration with private-sector partners, and continued rice-fish innovation trials with strong performance signals, alongside active engagement in regional policy/science platforms. Through strategic adjustments, it ensured continued progress toward scaling low-carbon farming systems despite resource constraints.
3	Green	On track	Progressed as planned in 2025, in light of above, through national consultations and dissemination of advocacy materials and continual support to countries to tap into climate and environment finance.
4	Green	On track	Achieved planned Year 3 outputs focused on enabling conditions for scaling regenerative value chains, including completion of a regional assessment (with Cambodia/Lao PDR engagement) and convening the ASEAN–China trade, value chains & green finance workshop, strengthening institutional coordination and trade/finance alignment.
5	Green	On track	Advanced priority Year 3 deliverables on transboundary pests/diseases and One Health through: completion of a BCA scoping study and policy recommendations, progress on standardized BCA screening/efficacy protocols, delivery of scaling pathway workshops (BCAs and diversification), and continued strengthening of food safety / One Health coordination and capacity building.
6	Green	On track	Completed design of the bundled CSA loan products (maize and vegetables), including clear stakeholder roles, cost structures, and risk-layering/waterfall mechanisms.
7	Green	On track	Delivered planned analytical and engagement outputs to support FLI scale-up, including a spatial suitability framework and online mapping tool, case study assessments of communal solar irrigation systems, farmer/inclusion surveys, and stakeholder dialogues/forums translating evidence into actionable pathways for Cambodia and Lao PDR.
8	Green	On Track	Progressed as planned through national consultations and dissemination events to develop country food system profiles (Vietnam/Cambodia/Philippines), with validated indicator sets and stakeholder engagement identifying leverage points for action; regional methodology dissemination further supports cross-country learning.

INTERVENTION PACKAGE KEY RESULTS & MILESTONES

IP1+: Scaling regenerative agri-food system innovations in ASEAN Enhanced Intervention Package 1

IP1+ aims to support scaling of regenerative agri-food systems innovations and practices in a cluster of focal sites in Laos and Cambodia, representing two major agroecological zones: upland mixed crop–livestock systems and lowland/floodplain rice–fish systems (Figure 1).

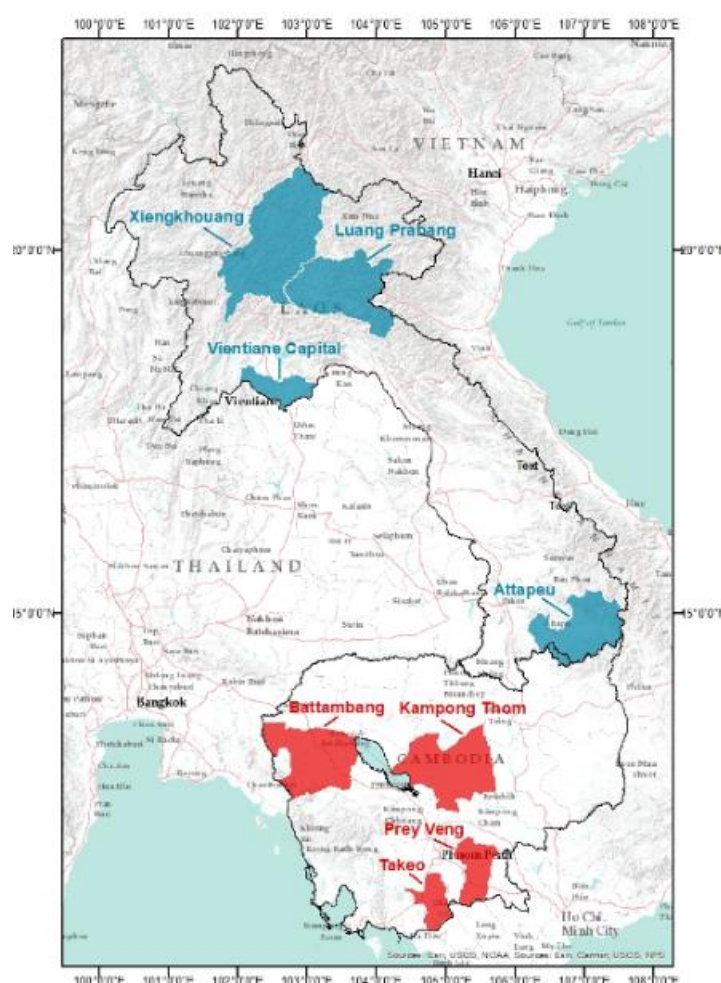


Figure 1. Sites where activities to build scaling pathways for regenerative agricultural practices were focused, 2025-2026.

Scaling pathways are combinations of markets, finance, production technologies, decision-support systems, and regulatory systems that increase the uptake of innovations. They involve public- and private-sector partnerships that serve producers and other value-chain actors pursuing regenerative agriculture strategies in these focal sites. The objective of IP1+ for 2025–26 was to strengthen such scaling pathways for regenerative agriculture practices and judicious use of agrochemicals that had already been developed and piloted over the previous years.

Scaling pathways indicate ways in which socio-technical innovations (such as diversified rice, IPM, alternatives to antimicrobials in poultry and livestock farming, etc.) can be linked with key

transformation accelerators (improved access to finance and markets, strengthened and harmonized policies, strengthened technical capacity in applying decision-support tools, improved systems of accreditation and monitoring, trusted relationships). Figure 2 illustrates how IP1+ built on the work of all eight IPs in 2023-25, to identify key combinations of location-based and production-system level innovations that could be scaled by strengthening the enabling context for their uptake and scaling. The resultant 'Socio-Technical Innovation Bundles (STIBs) represent scalable solutions to the problems of over-use of agrochemicals, low profitability and high climate-risk exposure that are seen in ASEAN production systems, and the concerns over food safety and food and nutrition insecurity that drive the search for regenerative, agroecological and nature-based solutions.

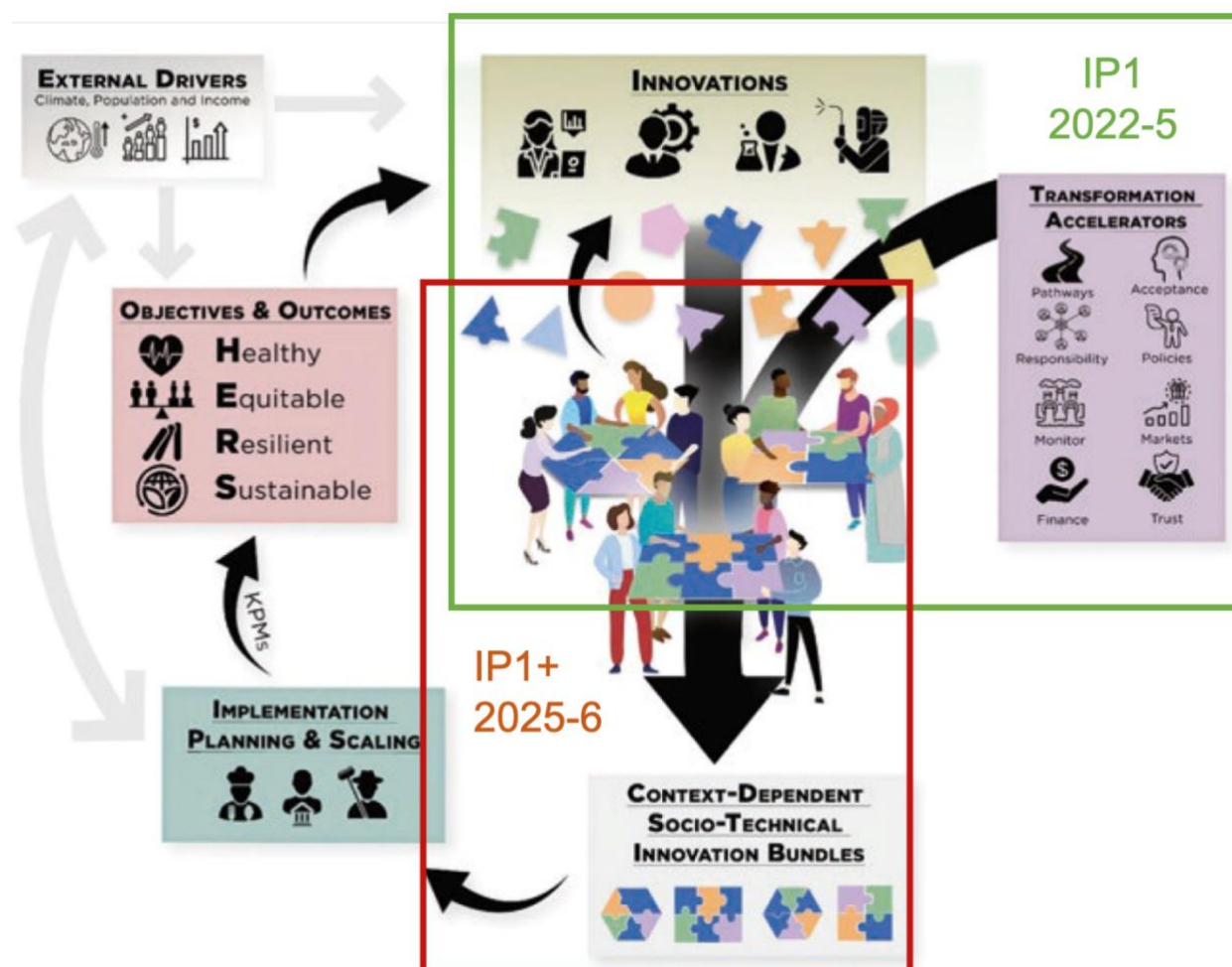


Figure 2. The ASEAN-CGIAR Innovate for Food program focused on piloting a range of socio-technical innovations and building the capacity of agrifood innovation system accelerators needed to scale them (IP1 to 8 from 2023-25).

In 2025-26, IP1+ focused on combining innovations and work to strengthen accelerators to identify scalable context-dependent socio-technical innovation bundles. A second phase of the program, or the independent development of identified STIBs by partners in the region, are positioned to scale STIBs, resulting in Healthy, Equitable, Resilient and Sustainable Agrifood systems in ASEAN countries.

*Source: modified from Barrett et al 2022 Agrifood system innovation systems *Nature Sustainability*

The IP1+ objective for 2025-26 was to strengthen scaling pathways for regenerative agriculture practices and judicious use of agrochemicals that have been developed and piloted over the previous three years in these locations. These scaling pathways are to be mobilized to serve one or more of each of the following regenerative practices, depending on locality:

- Integrated rice-fish and rice-prawn farming systems to optimize soil, water and biodiversity sustainable use in floodplain systems
- Practices supporting transition to low-carbon rice farming systems
- Improved disease management and productivity in SME poultry systems
- Improved upland crop-livestock systems to avoid soil loss and reduce forest loss/land conversion
- Adoption of One Health approaches to manage productivity, environmental health, animal welfare, farmer and consumer health and safety.
- Mechanization for improved productivity and soil health

In all cases, the identified scaling pathways were designed to serve the needs of women, youth, and other vital but under-served groups in the agri-food system, while also fostering best practices in climate change mitigation and adaptation. These pathways lead to identified STIBs—combinations of technologies together with the means to accelerate their uptake and scaling. Furthermore, STIBs were linked to a Reach, Benefit, Empower, Transform (RBET) framework to ensure that scaling pathways are fully cognizant of the gendered impacts of innovation and aspire to go beyond reaching and benefiting potentially disadvantaged groups (such as women, youth, Indigenous Peoples, and ethnic minorities) toward empowering them to participate in regenerative agricultural transitions and helping to transform relations of power that have previously limited access to, and benefits from, agrifood system improvements.

Key Results and Milestones:

Outcome 1: Stronger scaling pathways for regenerative agri-food systems in Cambodia and Laos

Outcome area 1.1 and 1.3 - Scaling pathways for diversifying lowland rice-based systems and for adopting improved integrated pest management systems

These seven key results together form a context-dependent socio-technical innovation bundle for lowland rice-based systems in Cambodia. Collectively, they moved the program beyond pilot testing toward a stronger pathway for uptake by combining farmer learning, institutional embedding, scaling-readiness analysis, commercialization pathways, enabling irrigation infrastructure, de-risked finance, and lower-chemical pest and disease management. In practical terms, the bundle clarified how diversified lowland rice systems can become more profitable, climate-resilient, and less dependent on harmful agrochemicals when linked with the right mix of extension support, market organization, finance, and enabling services.

Key Result 1: Learning Alliance generated ownership and locally grounded refinement of rice–fish scaling pathways (Cambodia)

A multi-stakeholder **Learning Alliance** in Takeo strengthened the social and institutional foundations for scaling rice–fish systems by bringing together farmers, extension actors, and input suppliers to jointly assess constraints, refine practices, and build working relationships across the system. The result was not only improved technical learning, but a stronger local platform for collective problem-solving and for shaping a scaling pathway that better reflects real farmer needs and climate pressures. This matters because uptake depends as much on trust, coordination, and practical refinement as on the technical package itself. The alliance engaged 61 participants, including 28 women.

Key Result 2: Rice–fish scaling lessons were transferred into an operational extension pathway in the Tonle Sap landscape (Cambodia)

Scaling insights from Takeo were successfully transferred to partners in the Tonle Sap landscape through an exchange process linked to the Promoting Climate Resilient Landscapes in the Tonle Sap (PCRL) project. Proven bundled rice–fish practices were incorporated into extension materials and Farmer Field School processes, creating an institutional route through which the innovation can reach far beyond the original pilot area. This represents an important outcome because the innovation is no longer confined to a trial site; it has entered a broader extension pathway linked to a program targeting 35,000 farmers in Tonle Sap in 2026. The exchange involved 44 participants, including 6 women, from government, local agencies, civil society, cooperatives, and farmer groups.

Key Result 3: Scaling readiness for rice–fish was clarified and an enabling agenda for wider uptake was co-developed (Cambodia)

The IPSR process for rice–fish produced a more realistic scaling pathway by distinguishing between what is already relatively ready for scale and what still constrains uptake. Stakeholders identified bottlenecks around technical knowledge, trust, access to quality inputs, capital, water scarcity, weak engagement of women and youth, and lack of production clustering. They also co-developed an enabling agenda that included better targeting, stronger input systems, finance for value-chain actors, integrated water–land governance, youth enterprise pathways, and production clusters linked to markets. The outcome here is strategic clarity: the program now has a more explicit roadmap for which conditions can be leveraged immediately and which require further investment. The IPSR workshop engaged 35 stakeholders; enabling solutions generally scored 6–9 for readiness, while financing and youth-champion pathways remained lower at 2–3. Current innovation use levels for the relevant innovations and enablers are generally at 2–4, with improved targeting scoring of 6.

Key Result 4: A more viable commercialization pathway was identified for diversified rice-based systems through Modern Agricultural Cooperatives (Cambodia)

Stakeholder network analysis moved the diversification agenda from broad interest to a clearer institutional pathway for scaling. By identifying 114 relevant actors and highlighting central and influential players, the analysis showed that Cambodia’s Modern Agricultural Cooperatives (mAC) program could provide a more promising route for scaling than conventional cooperatives, because of its stronger enterprise orientation, technical support, and access to financing and guarantee mechanisms. This is an important outcome because it gives the diversification package a more plausible organizational model for commercialization and wider uptake, rather than leaving it as a technically attractive but institutionally under-anchored innovation.

Table 1. Innovation package components which inform the scaling strategy for diversification in Cambodia

Innovation Package for Scaling	Description
1. Awareness and demonstration trials	Exchange visits for farmers to observed diversified farming practices locally and internationally
2. Building trust through pilots	Adopting tested innovations to build confidence in diversification efforts
3. Mechanization in diversification	Increasing access to farm machinery tailored for diversifying crops and maintaining soil health

4. Value chain improvements	Strengthening agricultural value chains from farm to market and consumer
5. Food processing innovations	Enhancing food preservation and processing to minimize post-harvest losses
6. Engaging women entrepreneurs	Promoting women in agricultural entrepreneurship forums, training and financing
7. Delivering a diversification policy framework	Develop government policies to support diversified agricultural practices
8. Multi-stakeholder and community engagement	Involving local communities and multiple sectors in decision-making.

Key Result 5: Solar-powered irrigation emerged as a scaling-ready enabling technology for year-round cropping and diversification in lowland rice systems

Solar-powered irrigation was validated not simply as a promising technology, but as a stronger scaling pathway for diversification in lowland rice systems in both Cambodia and Lao PDR. The key result was a shift from isolated pilot experience toward clearer evidence that SPI can support year-round cropping, reduce reliance on diesel pumping, and enable more diversified and climate-resilient production when combined with appropriate governance, farmer capacity, and support services. In both countries, solar systems showed high user satisfaction and documented readiness for scaling, while also demonstrating stronger commercial potential than diesel-based alternatives, with a private-sector ROI of less than five years. In Cambodia, the business case showed USD 2.10 in revenue for every USD 1 invested, with SPI outperforming diesel systems and achieving a scaling readiness score of 7/10. In Lao PDR, the readiness assessment reached 6/10 and produced three tailored scaling pathways, helping reposition SPI from isolated pilots to a national scaling strategy.

The broader outcome significance lies in moving irrigation from a stand-alone hardware intervention to a core enabling component of diversified, regenerative lowland farming systems. In Cambodia, 27 key stakeholders from government, academia, and the private sector were convened to bridge the gap between SPI research and field-level scaling. In Lao PDR, more than 40 stakeholders were brought together to assess how SPI could transition from fragmented pilots into a coordinated national strategy. This process also generated stronger policy and financing traction: in Lao PDR, SPI is now embedded in the 2025 national irrigation policy and is being mainstreamed in new irrigation development projects, including a new USD 5 million project implemented by the Department of Irrigation in Khammouane province; in Cambodia, a state-owned agricultural development bank has prioritized SPI in channeling over USD 400 million in loan capital toward climate-adaptive technologies. Together, these results show that SPI is no longer only a technical option, but an increasingly viable systems-level pathway for scaling diversification and resilience in lowland rice-based systems.



Photo 1. Scaling readiness workshop for solar-powered ricefield irrigation systems held in December 2025 at the DoubleTree Hotel, Vientiane

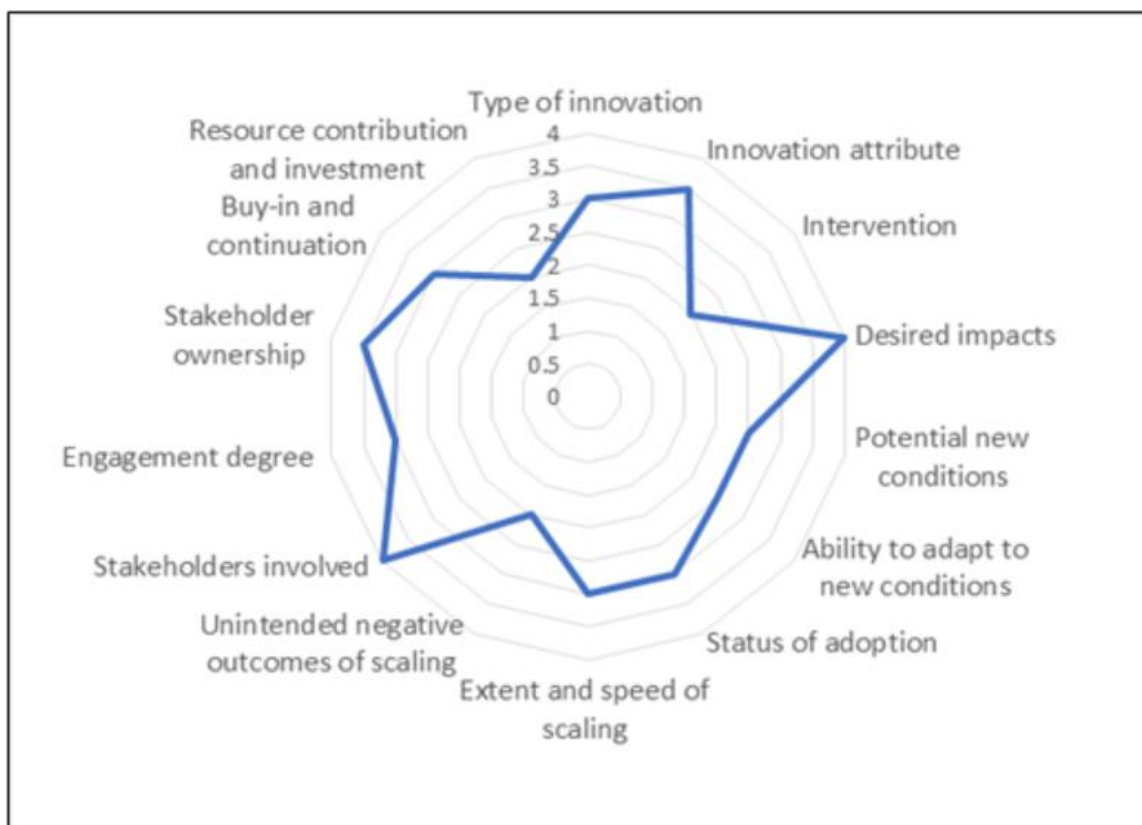


Figure 3. Visualization of scaling readiness of SPI bundles in Laos.
Note: Scores from a 5-point scale used in the workshop have been normalized to a 10-point scale for consistency with the Cambodian dataset.

Key Result 6: Financial packages were designed to reduce investment barriers for transition to regenerative/agroecological production

The program converted a major systemic bottleneck—farmer access to capital—into a more concrete scaling pathway by designing climate-smart agriculture loan products linked to de-risking mechanisms. In Cambodia, previously developed bundled loan logic from IP6 was adapted with ARDB and farmers to support transition to vegetable production under net houses using solar-powered irrigation, while a parametric insurance product was piloted for community-supported agriculture. The outcome relevance is strong: the work begins to bridge the persistent gap between promising regenerative innovations and the financial products required for smallholders to adopt them. This is not yet large-scale rollout, but it represents a practical shift from identifying finance as a constraint to building a working financial architecture for scale.

Key Result 7: Scaling readiness and enabling solutions co-developed for biological solutions to rice-based systems pest and disease management (Cambodia)

The scaling pathway for biological control was clarified through an IPSR process that showed the innovation package is more ready than its current level of use suggests. The process brought together 28 participants, including 10 women, from government, private sector, universities, and farmer groups to identify scaling strategies and enabling conditions for wider uptake. The key result was a clearer understanding of why biological solutions remain underused despite strong potential to contribute to lower-agrochemical rice systems. Major barriers identified included low awareness and trust, limited local production, unstable prices and market access, and weak support for entrepreneurs. At the same time, stakeholders co-developed a package of enabling solutions, including training, demonstration trials, stronger local production, contracts between producers and farmer groups, and greater cooperative engagement.

The outcome significance lies in the fact that the program now has a more explicit pathway for how biological solutions can contribute to reduced agrochemical use in rice-based systems. The innovation package scored 8 for readiness but only 2 for current use, indicating that enabling conditions are advancing faster than farmer adoption. This suggests that the next stage should focus less on proving the value of the innovation itself and more on stimulating uptake, strengthening market development, and building user confidence. Together, these results position biological control as a more credible component of future socio-technical innovation bundles for regenerative lowland rice systems.



Photo 2. Innovation packaging and scaling readiness for biological solution workshop on 11 September 2025, Phnom Pehn, Cambodia.

Khmer Times News: <https://www.khmertimeskh.com/501755540/irri-workshop-in-phnom-penh-promotes-sustainable-rice-farming-video/>

Work conducted under Outcome areas 1.2 and 1.4, relating to decision-support tools and socio-technical innovation bundles for upland mixed farming, yielded two linked results that together provide the means to identify and scale STIBs in these systems in Cambodia and Lao PDR.

Together, these results moved the upland agenda beyond fragmented tools and machinery prototypes toward a more integrated scaling pathway in which decision-support systems and mechanization are anchored in advisory services, institutional coordination, and service-based delivery models. The outcome significance lies in shifting upland transitions from isolated innovation testing toward more practical and scalable system solutions for regenerative mixed crop–livestock systems.

Key Result 8: Decision support system co-designed to scale regenerative agri-food systems innovations in ASEAN (Lao PDR, Cambodia; ASEAN-wide applicability)

A regional Decision Support System (DSS) was co-designed to address a persistent scaling bottleneck in smallholder upland systems: the gap between tool development and real-world application. Decision-support tools are often developed in academic and research settings, piloted only in limited geographies, and remain insufficiently adapted for institutionalization in extension systems and farmer advisory services. The key result was therefore the development of a more practical and scalable DSS package for upland mixed farming systems in Lao PDR and Cambodia. A multi-stakeholder co-design workshop convened 20 participants from academia, research, extension, government, NGOs, private sector, and farmer organizations to shape this package around real user and institutional needs.

The package integrates two complementary components: (i) a farmer advisory platform to support adaptation of decision-support tools, contextual validation, and user-centered feedback loops; and (ii) capacity development through a regional Systems Science Community of Practice (CopSyS) to strengthen sustained uptake of DSS by scaling partners across ASEAN. A structured co-design process showcased six decision-support tools—FarmDESIGN, G-FEAST, I-CLEANED, TropicalForages.info, D4R, and MyFarmTrees—and advanced three scenario workstreams focused on a policy roadmap for regenerative transitions, transition pathways to diversified crop–livestock systems, and farmer advisory platform design. Together, these results shifted DSS from a fragmented set of technical tools toward a more coherent pathway for institutional use and scaling in upland mixed farming systems.

More details available in [Bridging science and action: Leveraging decision-support tools for transitions to regenerative agriculture](#)

In a case study from the northern uplands of Lao PDR, multiple decision-support tools were applied in combination to generate locally grounded evidence for regenerative transition pathways in mixed crop–livestock systems. Tools including G-FEAST, I-CLEANED, TropicalForages.info, and D4R were used to diagnose seasonal feed gaps, identify suitable forage and tree species for silvopastoral systems, and model productivity and environmental trade-offs under alternative transition scenarios. The key result was not only a stronger technical understanding of system constraints, but a clearer demonstration that integrated DSTs can be used to operationalize regenerative farming pathways in upland smallholder contexts. By producing quantitative, context-specific evidence to guide sustainable intensification strategies, the case study showed how decision-support systems can move beyond research use and become practical instruments for advisory services, transition planning, and scaling of socio-technical innovation bundles in upland mixed farming systems.

More details available in [Productivity impacts and environmental trade-offs of livestock-based systems in the northern uplands of Lao PDR](#)



Photo 3. Participants contributing to co-design of decision support system in Lao PDR.

Key Result 9: Regional and National Regenerative Agriculture Machinery Service Provision Business Models – strategy for upland Lao PDR

Service-based scaling pathways for regenerative-compatible mechanization in upland Lao PDR were co-developed through the TARASA25 side-event, which brought together 21 participants representing coordination networks, service delivery actors, inclusive finance providers, government, private sector, and farmer organizations to move the discussion from “constraints” to actionable pathway design. Drawing on lessons from the region and from 25 prototypes of regenerative agriculture machinery for tillage and seeding, the process developed four machinery service provision business models as public and private access mechanisms for smallholders in fragmented upland systems: custom hiring centres, mobile private service providers, common-use/custom work schemes, and dealer-embedded services. The key result was not only a clearer strategy for mechanization, but a shift in thinking from ownership-led diffusion toward service-based provision as the more viable route for scaling in upland smallholder contexts.

The strategy also identified six core design features needed to make these models reliable and scalable across public and private actors: last-mile service points with booking and scheduling systems and local repair capacity to reduce downtime; after-sales service, maintenance, and spare parts treated as first-order pathway components; inclusive finance

instruments designed around service-enterprise cashflows, including working capital, leasing or loans, and transport and repair costs; and enabling environment functions such as standards, quality assurance, role clarity, and financing linkages to sustain service performance. Embedded within CSAM–ReCAMA and the upland Lao national system through NAFRI, this work signals that the scaling frontier for upland systems is shifting from the machine itself to the wider service system that enables access, performance, and continuity. In outcome terms, mechanization is therefore positioned not as a stand-alone technology, but as a service-based component of scalable socio-technical innovation bundles for regenerative upland farming systems.

More details available in [ASEAN-CGIAR Scaling Strategy - Regenerative Machinery CIMMYT.pdf](#)



Photo 4. Participants from regional institutions during the Tarasa25 side event.



Photo 5. Reframing the adaptability of machinery for upland Lao PDR frontier.

Outcome 2: Enabling environment fostered for scaling regenerative agrifood systems across mixed farming systems in Cambodia and Laos

Outcome area 2 aimed to strengthen the enabling environment and transformation accelerators in the agri-food system, to speed scaling of innovations described under Outcome 1. Key objectives were to: strengthen domestic markets for regeneratively produced food focusing on school feeding programs (Outcome 2.1); ensuring that scaling pathways are designed to be gender-transformative (Outcome 2.2); that there is an improved regulatory and monitoring system to support a transition to lower-agrochemical use and regenerative or agroecological farming practices (Outcome 2.3); that value-chain actors and policies are effective in being supportive and enabling of such transitions (Outcome 2.4) and that the food environment is one where consumers recognize and value food produced with fewer agrochemicals (Outcome 2.5).

Key Result 10: National planet-friendly school meal programs were linked more closely with regenerative producers and value-chain actors.

Work under the Planet-Friendly School Meals (PFSM) agenda strengthened a practical demand-side pathway for scaling regenerative production by linking school feeding programs more explicitly with local, regeneratively produced food. Across one regional workshop in Thailand and national forums in Cambodia, Lao PDR, and Indonesia, the work increased awareness of the PFSM framework, identified opportunities and gaps in linking school procurement with regenerative production systems, and generated recommendations for accessing climate finance to sustain and expand such programs. The outcome significance lies in positioning school meals not only as a nutrition intervention, but as an institutional market that can create demand for regenerative agriculture while also supporting local livelihoods and resilience.

National Workshops and Forums:

- 1 Forum in Cambodia (September 2025). 35 participants from CARD, MoEYs MAFF IIRR, Plan International, WVI, WFP, SUN CSA, Danish Care Foods, Village Savings Group, RUA, CESAIN, Alliance Bioversity CiAT, and WorldFish, <https://worldfishcenter.org/updates/asean-cgiar-workshops-connect-school-meals-sustainable-farming>
- 1 Forum in Lao PDR (December 2025). 40 participants from MAE, MOES, MoE, European Union, WFP, IWMI, ARMI, CRS, LTPHI, WVI, NuOL, Save the Children, SEAMEO, Alliance Bioversity CiAT and WorldFish, <https://worldfishcenter.org/blog/sustaining-school-meals-through-community-participation>
- 1 Forum in Indonesia (February 2026). 45+ participants from BAPPENAS, BRIN, WAIBI, SEAMEO-RECFON, Alliance Bioversity CIAT and other partner agencies, <https://tinyurl.com/yvrs5cp5>
- 1 Regional workshop in Bangkok, Thailand (March 2025). 25 participants from Indonesia (BRIN), Lao PDR (MoES, WVI,) Philippines (DepEd, IIRR, SEARCA), Vietnam (NIN), Thailand (WVI, INMU, Field Alliance), WFP, Alliance Bioversity CiAT, WorldFish, ILRI, and CIP, <https://alliancebioversityciat.org/stories/asean-workshop-advances-planet-friendly-school-meals-sustainable-future>
- 1 session on Regenerative and Climate-Resilient Agrifood Systems: Towards Solutions for Asia's Farming Communities at the Philanthropy Asia Summit (PAS) 2025 in Singapore (May 2025), <https://philanthropyasiaalliance.org/events/info/philanthropy-asia-summit-2025#-pas-2025--partners>
- 1 side event session (*Planet-friendly school meals: A science-to-investment platform for healthy diets and climate resilience*) and 1 pitch session (*Climate-resilient human capital through nutrition-smart food systems in the Pacific*) during the Investing in

tomorrow: Pitching the next big ideas for the food system transformation in the Pacific event) on the 18th and 19th March 2026, respectively, at the Asia and the Pacific Food Systems Forum 2026 at ADB headquarters.

- 1 side event organized during the Climate COP30 in Brazil, *Delivering for climate and biodiversity: Lessons from Brazil's National School Feeding Program*, co-organized by the Alliance of Bioversity International and CIAT; IFPRI; Rockefeller Foundation and others, <https://events.cgiar.org/deliveringforclimateandbiodive>, during which the policy brief, *The power of public food procurement to deliver for climate*, <https://hdl.handle.net/10568/177663> was showcased and which includes a case study from Indonesia contributed by IP3 partners.

Other outputs:

- Estrada-Carmona, N., van Houtert, M., Araujo de Lima, S., Fauchon, P., Hunter, D., Jones, S.K., Ondo, I., Pareja Cabrejos, P., Pastorino, S., Pironon, S., Shijagurumayum, M., Sibeso, M., Singh, S. and Remans, R. (2025) Mainstreaming agrobiodiversity in planet-friendly school meals for children: a scoping review, *The Lancet Planetary Health*, 9(11), p. 101374. <https://doi.org/10.1016/j.lanplh.2025.101374>
- Saiyasombat, W., Chathiran, W., Chimasangkanan, J., Bromage, S., Borelli, T., Hunter, D. and Srichamnong, W. (2025) Filling the gaps: advancing neglected and underutilised species and knowledge systems in Thailand for food security and environmental sustainability. *Journal of Sustainability*, <https://doi.org/10.55845/jos-2025-1263>
- Hunter, D., Nehring, R., Schneider, S., Gelli, A., Swensson, L., Torregroza, G., Mitchell, A., Milani, P., Santos, K., Noegroho, A., Purnama, K.A.W. and Sujarwo, W. 2025. The power of public food procurement to deliver for climate. CGIAR Issue Brief Series for Informing COP 30. Montpellier, France: CGIAR. <https://hdl.handle.net/10568/177663>
- Dung, N.T.; Naziri, D.; Thu, V.A. 2025. Mainstreaming Agrobiodiversity in Education: A Manual for Secondary School Teachers. International Potato Center. 148 p. DOI: 10.4160/cip.2025.12.038
- Singh, S., Jordan, I., Hunter, D., Milani, P., Muthoni, P. and Borelli, T. (2026) Promoting climate resilient agriculture and food security through school feeding. *Lancet Planetary Health* <https://www.sciencedirect.com/science/article/pii/S2542519625002931>

Key result 11: A gender and social inclusion strategy was developed to mainstream GESI in scaling pathways for regenerative agriculture and aquaculture

Upon reviewing the 2023 and 2024 project documents and progress reports, limited fieldwork was noted for GESI-related activities. The report recommended further mainstreaming GESI for more equitable, resilient and sustainable outcomes, as the Program is embarking on another phase. This report has the following objectives:

- To synthesize how GESI principles were addressed across the existing IPs of the ASEAN-CGIAR Innovate for Food and Nutrition Security Program.
- To identify and prioritize key areas to strengthen GESI integration in the Program.
- To propose a comprehensive set of strategic interventions and monitoring provisions as GESI Framework in all components of a project cycle.

It is evident that Phase 1 planned many GESI activities, including baseline gender audits, inclusive innovation profiling, and equity-focused monitoring, with examples like IP7's

farmer-led irrigation boosting women's water access in Cambodia/Laos. Interventions on regenerative agriculture (home gardens, aquaculture, CSA) showed increased women's control in household income, increased dietary diversity, self-confidence, and reduced time burdens, though challenges persist in land access, extension services, and workloads. Meanwhile, there were implementation gaps identified due to budget cuts, which sidelined many GESI activities, which led to inconsistency in program implementation and effective delivery towards equitable project outcomes.

The report recommends some strategies to improve implementation as the program embarks unto Phase 2. It proposes a framework merging Socio-Technical Innovation Bundling (STIB) for codesigning context-specific bundles (plant and soil health, nutrition-sensitive food system, inclusive value chain, and rice-fish and or other integrated systems, and cross-cutting module for gender disaggregated data collection and analysis) with Reach-Benefit-Empower-Transform (RBET) for tracking outcomes—ensuring quotas for women/youth/ethnic groups, gender-disaggregated data, and norm shifts. (Figure 4) The report also provides some preliminary bundles leveraged from Phase 1 implementation.

Recommendations include strategy to maintain funds equitably to continue GESI activities, building on RBET monitoring framework, and co-designing interventions with a diverse group of farmers and other stakeholders.

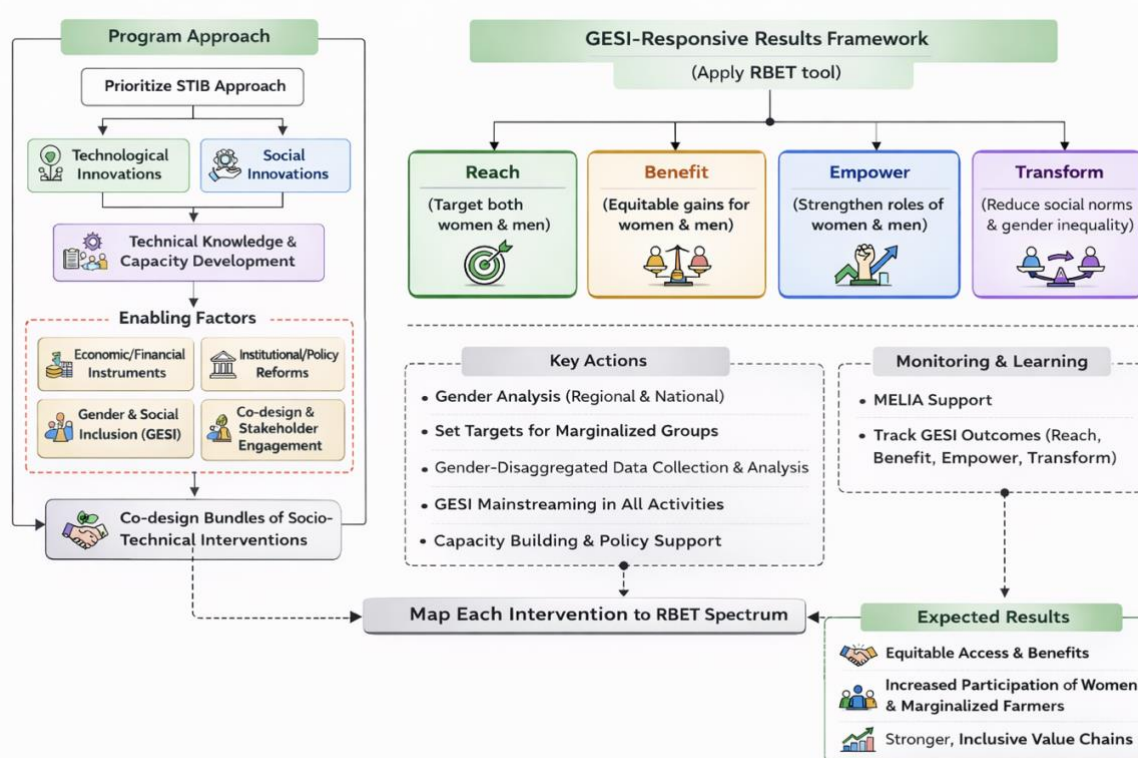


Figure 4. Framework for gender-responsive socio-technical innovation bundling (GR-STIB).

Key Result 12: Effective market intermediaries for scaling regenerative and agroecological farming practices were identified in Cambodia and Lao PDR

A clearer understanding was developed of how market intermediaries can support the scaling of regenerative and agroecological products in Cambodia and Lao PDR, particularly for smallholder farmers producing rice, vegetables and fruits, aquatic foods, poultry, and

related products. The analysis combined literature review, desk review, and stakeholder consultations to examine intermediaries that support smallholder producers, reach low-income consumers, promote agroecological and sustainable practices, and strengthen local and regional food markets. Rather than treating market access as a generic constraint, the work identified the specific actors and functions that can help connect regenerative producers to markets and support the development of viable value chains.

The review process moved from broad evidence to country-level validation. Literature and desk reviews were used to identify and profile intermediary organizations, including their main functions, products, and target markets, while stakeholder consultations helped validate and enrich these findings with practical insights from government agencies, research institutions, civil society, and the private sector. In total, 38 intermediary organizations were identified in Lao PDR and 58 in Cambodia as potential agents for developing value chains for regeneratively and agroecologically produced goods. These findings were discussed and strengthened through two participatory validation workshops, with 67 stakeholders, including 23 women, participating in Cambodia and 9 stakeholders, including 6 women, in Lao PDR. Together, these results provide stronger evidence base for understanding which market actors can serve as effective intermediaries in scaling regenerative and agroecological farming practices across mixed farming systems.



Photo 6. Participants in the workshop on 11 December 2025.

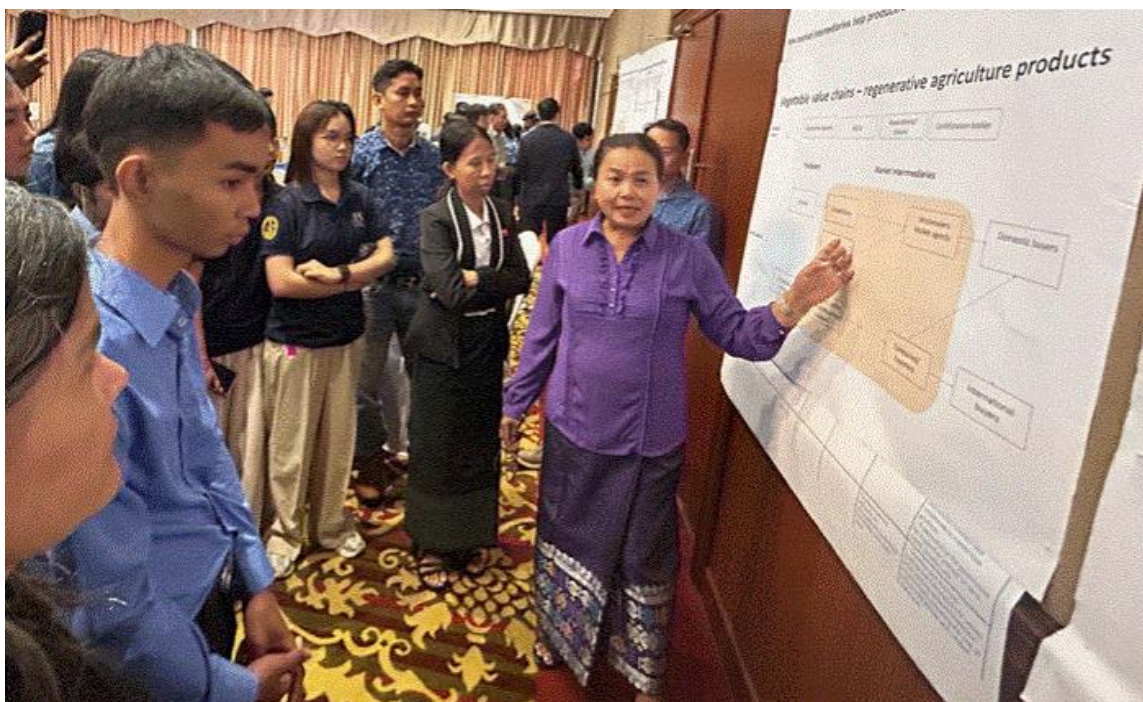


Photo 7. Discussion on market intermediaries at the workshop on 11 December 2025

Key Result 13: Regulatory and monitoring priorities were identified to support transition toward regenerative, agroecological, and nature-based agrifood systems

A clearer agenda was developed for the regulatory and monitoring systems needed to support transition toward lower-agrochemical and regenerative agrifood systems in ASEAN. Facilitating such transitions requires more harmonized action across regulatory agencies, monitoring systems, and compliance tools, including those used to assess adherence to regulations and voluntary standards. Monitoring agrochemical use across crop, livestock, and aquaculture systems, together with monitoring soil health as an integrative outcome variable, is critical both for accrediting differentiated products in emerging value chains and for assessing whether efforts to reduce agrochemical dependence are delivering meaningful system change.

In addition to contributing to a regional action plan on reducing agrochemical use in crop, livestock, and aquaculture systems, the program reviewed the availability of soil health data in ASEAN, the evidence linking agroecological practices with positive soil outcomes, and the methods available to monitor soil health at farm level. This review showed strong evidence from research and pilot studies that practices such as agroforestry, conservation agriculture, integrated pest management, integrated crop–livestock farming, home gardening, permaculture, organic farming, and the system of rice intensification can improve soil health across physical, chemical, and biological dimensions. At the same time, it identified a major enabling gap: there is currently no routine soil monitoring program or tool in use across the region that is sufficiently affordable, management-sensitive, precise, and easy to interpret for use in investment decisions, farm management, or product accreditation. The result is therefore not only stronger evidence on the importance of soil health, but also a clearer recognition that significant further development will be needed, including advances in technologies such as hyperspectral imagery and stronger ground-truthing systems, if ASEAN is to establish reliable measures of progress toward safer and more sustainable agrifood systems.

Key result 14: Strengthening regenerative agriculture-related trade and value chain initiatives in ASEAN with a focus on Cambodia and Laos.

Description: IFPRI and partners (Zhejiang University, China; Mekong Institute, Thailand) conducted two country visits and held two workshops to support the production of a report to assess the status of value chains and markets for regeneratively produced food in ASEAN. The analysis found that there is a broadly enabling sectoral and trade policy environment at regional (ASEAN) level (Figure 5), but national policy implementation is not as well developed.

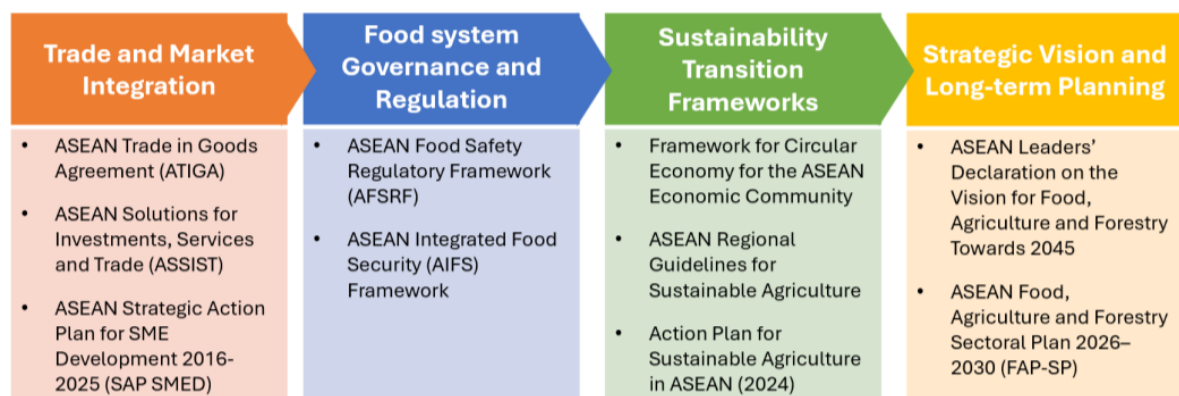


Figure 5. Overview of ASEAN policies supportive of a transition to regenerative agrifood systems.

To support the scaling of regenerative agriculture in ASEAN, the report highlights several priority actions: (1) Clarify a regional understanding of regenerative agriculture aligned with existing sustainable agriculture frameworks. (2) Integrate regenerative agriculture into national agricultural, climate, and development strategies. (3) Develop stronger market incentives and value-chain mechanisms through certification, traceability, and trade facilitation. (4) Expand access to finance through blended finance, green investment frameworks, and risk-sharing mechanisms. (5) Strengthen data systems, MRV frameworks, and sustainability standards to support credible markets and carbon finance. (6) Support smallholders through integrated services combining finance, extension, and market access. (7) Promote regional cooperation and knowledge exchange, including ASEAN–China collaboration on sustainable agriculture and green finance. Recommendations 3 to 7 are already being addressed through the current program, but their impact at the national and regional level will not yet be evident. These findings reinforce that investment in both innovation and transformation accelerators is required to scale regenerative agriculture.

Key Result 15: Policy coordination mechanisms and food environment interventions were advanced to help increase demand for regeneratively produced food in Cambodia.

Under Outcome 2.5 of the ASEAN-CGIAR IP1+ program, a series of interconnected research and engagement activities were conducted to generate evidence and co-develop strategies for increasing consumer demand for sustainable and regenerative agri-food products in Cambodia, specifically from Battambang Province.

A desk review examined policy-coordinating mechanisms and consumer behaviour change interventions relevant to sustainable and regenerative agri-food systems. This review draws on the broader literature as well as complementary IP8 outputs, including the Cambodia Food System Profile and the Nutrition Behaviour Change Strategy Review in Cambodia, to ground findings in the national context. A scoping review was also conducted on the added

values of sustainable and regenerative agri-food products from both supplier and consumer perspectives across Asian contexts, with a final corpus of 31 peer-reviewed papers included. Building on these foundations, a case study analysis was developed for Cambodia, with a focus on sustainable and regenerative agri-food products originating from Battambang Province, assessing main product information, key added values, and consumer incentives of those products. Findings from all three activities are consolidated in a technical report nearing completion, with a policy brief under preparation.

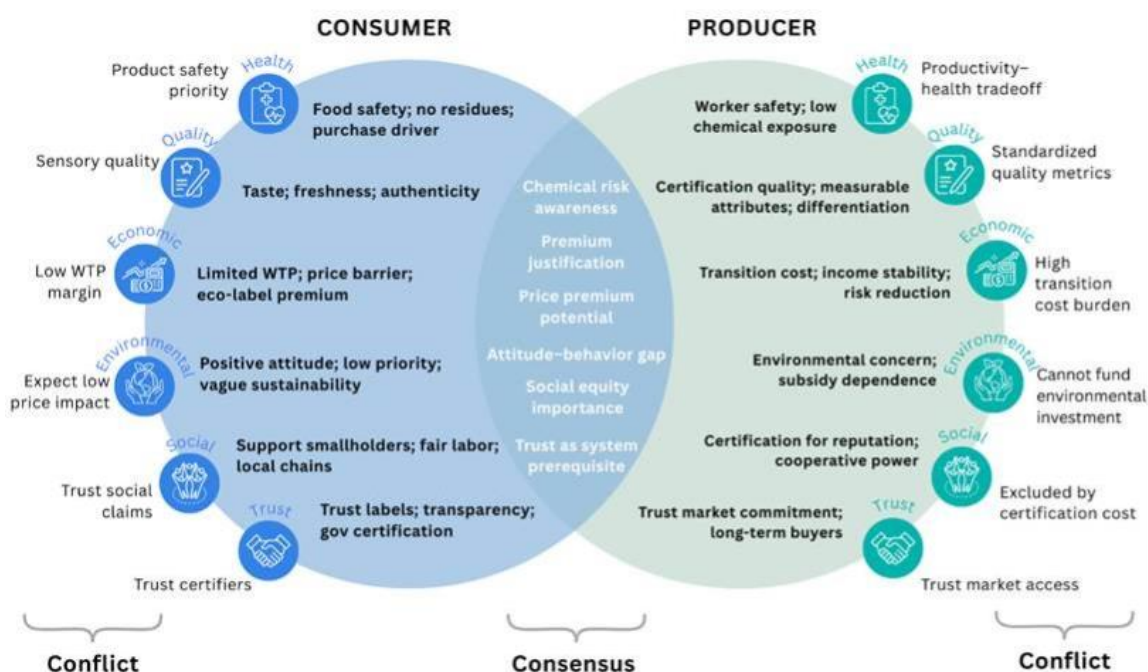


Figure 6. Added values of sustainable and regenerative agri-food products from consumers' and producers' perspectives with highlighted alignments and conflicts

Two multi-stakeholder workshops were held in Cambodia, in collaboration with IIRR and CARD, to introduce, discuss, and validate findings with a broad range of actors at national level with the linkage to Battambang province. The first workshop (31 October 2025; 67 participants, 23 women) introduced the IP1+ 2.4 and 2.5 workstreams and facilitated dialogue on the added values of sustainable and regenerative agri-food products.



Photo 8. Participants in the 1st workshop on 31 October 2025

The second workshop (11 December 2025; 81 participants, 30 women) disseminated and validated the desk and scoping review findings, with particular focus on key alignments and tensions around added values and consumer incentives and concluded with participants discussing and ranking priority actions to strengthen consumer incentives.

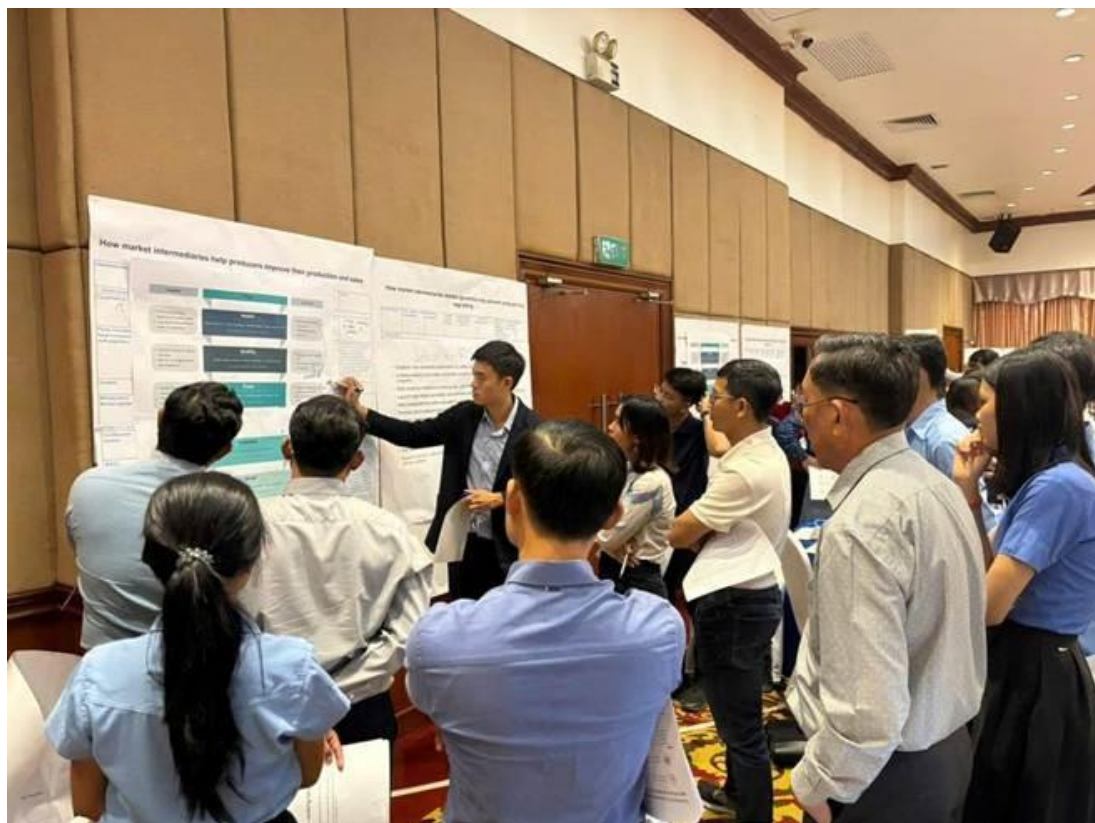


Photo 9. Discussion on Added values of sustainable and regenerative agri-food products at the 2nd workshop on 11 December 2025

The work was also presented at the International Support Group (ISG) Plenary Meeting 2025, co-hosted by Vietnam's Ministry of Agriculture and Environment (MAE), FAO, and the Asian Development Bank in Hanoi on 6 January 2026. The presentation positioned the sub-component 2.5 findings within the conference's overarching agenda on sustainable food system transformation, highlighting a value-based perspective as a strategic lever for scaling agroecological and regenerative products across the Asian region.



Photo 10. Presentation at ISG meeting on 6 January 2026 in Hanoi, Vietnam

News releases:

- Cambodia workshop, 11 December 2025:
<https://www.khmertimeskh.com/501782680/cambodia-advances-regenerative-agriculture-at-high-level-workshop/>
- ISG meeting:
<https://alliancebioiversityciat.org/stories/elevating-value-based-perspective-scale-asia-agroecological-products>

IP 1: Regenerative Agriculture & Aquaculture and Reduced Agro-Chemical Use

Convener: WorldFish || **Other Participating Centers:** Alliance, ILRI, IRRI, CIMMYT and IWMI

The IP seeks to support implementing RA practices, including circular economy principles, soil health and reduced use of harmful agrochemicals, in key agroecological systems in AMS through public-private sector collaboration, multi-stakeholder platforms and participatory research. This will ultimately benefit the beneficiaries outlined above, particularly when combined with development and implementation of facilitating policies and market systems (IP1+, reported below). Most of IP1's work was completed by March 2025 and reported in the 2024 annual report, so what is reported here is work that was not quite completed before the last annual report. Most of what was achieved in 2025 by the IP1 team is reported under IP1+.

Key Results and Milestones:

Outcome 1: Capacity established to support farmers and practitioners to enhance soil health and green agriculture in at least 3 cropping/land use systems

Key Result 1: Rice–fish innovation package adapted and optimized for farmer preferences and system sustainability (Takeo, Cambodia)

Over three years, IP1 co-developed and adapted a rice–fish innovation package in Takeo, Cambodia, combining regenerative practices with farmer preferences and local ecosystem

constraints. Early implementation (2023–2024) showed low profitability and challenges related to water availability, pests, and fish growth satisfaction. The package was iteratively refined across seasons through adjustments to fish species, rice seed rates, fish density, and feed management. In Year 3 (2025), a cage system was added to respond to farmer interest in intensifying fish production without disrupting the ecological balance of the integrated rice–fish system. Year 3 results showed higher rice and fish production and improved profitability in the integrated system, while also demonstrating that cage intensification delivered only break-even gains due to feed costs—providing practical evidence for balancing farmer preferences with economic and environmental sustainability.

Key performance figures:

- Wet season 2025 yields: **rice–fish rice 3679 kg/ha vs monocrop rice 2474 kg/ha**
- Wet season 2025 fish yield: **930 kg/ha (plus 349 kg/ha additional cage yield)**
- Net income (USD/ha): **rice–fish improved practices –36 (2024) → 1706 (2025)**; farmer rice–rice practice **531 (2024) → 34 (2025)**
- Cage system: **+36 USD/ha** additional net income (break-even signal given feed costs)

Table 2. Production in rice-fish integrated system vs. monocrop rice in Takeo, Cambodia 2023–25.

Season	Rice-fish co-culture (rice kg/ha)	Rice-fish co-culture (fish kg/ha)	Monocrop rice (kg/ha)
wet season 2023	2778	107	3876
dry season 2024	2251		3384
wet season 2024	3468	142	3028
wet season 2025	3679	930 (+349)*	2474

*Additional yield from cage: 349 kg/ha

Table 3. Cost and returns from rice-fish and monocrop rice in Takeo, Cambodia in 2024 and 2025

	Improved Practices Rice-Fish		Farmers' Practice - Rice-Rice	
	2024	2025	2024	2025
Rice Yield (kg/ha)	3468	3679	3028	2474
Harvested Fish (kg/ha)	142	930	0	0
Rice Selling Price (USD/kg)	0.33	0.24	0.33	0.23
Fish Selling Price (USD/kg)	3.00	2.5	0	0
Rice Production Cost (USD/ha)	490	441	453	523
Fish Production Cost (USD/ha)	1099	1051	0	0
Total Production Cost (USD/ha) - Rice&Fish	1589	1492	453	523
Gross income (USD/ha) - Rice	1127	874	984	557
Gross income (USD/ha) - Fish	426	2325	0	0
Total gross income (USD) - Rice&Fish	1553	3199	984	557
Net income (USD/ha)	-36	1706	531	34

*Additional net income from cage: 36 USD/ha

Key Result 2: Rice–Prawn Culture innovation (Kampong Thom, Cambodia)

A pilot of rice–prawn culture was implemented from December 2024 to December 2025, completing one full year with two production cycles representing the dry and wet seasons on a single farmer's plot in Kampong Thom province. The purpose of this demonstration was to pilot the rice–prawn–vegetable culture innovation with smallholder farmers and assess its feasibility and effectiveness. The innovation aims to improve soil health, reduce chemical inputs, enhance household nutrition, and increase household income. The demonstration site also served as a learning platform for practical training, experience sharing, and field exchange visits.

Integrated rice–prawn culture is one of the innovations included in several upcoming projects in the country related to regenerative agriculture, agroecology, and green climate initiatives. It will be embedded within Modern Agricultural Cooperatives and aligns with government strategies to improve soil health.

Key performance figures based on a 4,000 m² plot over one year, including results from the first cycle (dry season-2024) and the second cycle (wet season-2025):

- **Production Performance:**
 - Prawn yield doubled from 118 kg to 294 kg, with survival improving from 39% to 66.7%.
 - Rice yield has decreased slightly due to varietal and seasonal factors (998 kg from 650 kg), while vegetable income increased from USD 30 to USD 95.
- **Economic Performance:**
 - Total revenue rose from USD 2,079 to USD 4,668.
 - Net profit increased from USD 244 to USD 2,299.
 - Cost per kg of prawn decreased from USD 14 to 7.75 and rice from USD 0.16 to 0.14.
 - BCR improved from 1.13 to 1.97 and ROI from 13% to 97%, showing strong financial viability.
- **Technical and Environmental Benefits:**
 - Solar-powered pumps and efficient water management reduced labor and operational costs.
 - Integrated nutrient use and reduced chemical inputs improved environmental sustainability.
 - System design allowed simultaneous management of rice, prawns, and vegetables.
- 65 participants visiting and learning from the field demonstration.



Photo 11: Rice – Prawn – Vegetable farmers harvesting their prawns in Kampong Thom province, Cambodia.



Photo 12: Academic researchers from Shanghai Ocean University conducted an exchange visit to the rice–prawn demonstration farm in Kampong Thom.

IP 2: Climate Neutrality and Circular Agriculture

Convener: IRRI || **Other Participating Centers:** Alliance, ILRI, and WorldFish

IP 2 aims to reduce GHGs and the carbon footprint and enhance land sinks across ASEAN - agrifood systems through low-emissions landscape and waterscape management, greater use of nature-based solutions, and reduced food losses in agricultural value chains.

Key Results and Milestones:

Outcome 1: Accelerated Nationally Determined Contributions (NDC) implementation and monitoring for raising Agriculture, forestry, and land-use change (AFOLU) ambitions in future NDCs

Across Year 3, IP2 strengthened ASEAN's enabling environment for low-emission rice systems by building credible MRV capacity, testing innovation-to-scaling pathways with private-sector partners and advancing a bundled low-carbon mixed farming package in Cambodia.

Key Result 1: Regional capacity for GHG measurement and mitigation in rice systems was strengthened

IP2 strengthened the enabling environment for low-emission rice systems by building more credible regional capacity for greenhouse gas measurement, reporting, and verification. A two-part regional training program hosted at IRRI, Los Baños, helped address a major bottleneck to scaling climate mitigation in rice systems: the limited availability of accurate, comparable, and policy-relevant emissions data. The first course, delivered over five days in May 2025, focused on field-based GHG sampling, laboratory analysis through gas chromatography, and interpretation of results aligned with IPCC guidance. A second, more advanced four-day course in February 2026 strengthened analytical precision through training on gas chromatography calibration, quality assurance and quality control, troubleshooting, and integration of laboratory and field data for estimating methane, nitrous oxide, and carbon dioxide emissions.

Together, these two courses provided nine days of face-to-face training to 32 participants, including 6 women, drawn from universities, research and development agencies, the private sector, and NGOs. Participants came from a wide range of countries (Indonesia, Cambodia, the Philippines, Thailand, Bangladesh, Tanzania, Nigeria, Pakistan, Canada, Japan, and India) demonstrating both regional relevance and wider applicability. The key result was not only stronger individual technical skills, but a more credible foundation for ASEAN countries and partners to generate robust GHG datasets that can support NDC implementation and improve readiness for climate finance and low-emission rice system scaling.





Photo 13. GHG training at IRRI, May 2025.

Key Result 2: Demonstration and private-sector engagement on iron-coated seed technology (KONABIJIN™)

Through the Direct-Seeded Rice Consortium (DSRC) and a MAFF-supported project on carbon-neutral rice systems, IP2 convened a demonstration at IRRI (December 2025) to showcase Japan's iron-coated rice seed technology (KONABIJIN™) and engage partners (19 public- and private-sector representatives, including four major private-sector partners—JFE Steel, Metal One, Kubota Philippines, and Atlas Fertilizer) in scaling discussions around improved crop establishment and methane reduction potential in direct-seeded systems.



Photo 14. Iron-seed coating technology demonstration with private-sector and NARES at IRRI (December 2025).

Key Result 3: Low-carbon rice production within mixed farming systems (rice–fish)

IP2 supported continued bundling and testing of an integrated rice–fish technical package in Tramkak district, Takeo province, Cambodia (April–December 2025; fish harvest extending into 2026). The trial compared rice–fish improved practices (including seed-rate options integrated with marketable fish species—silver barb *Barbonymus gonionotus* and Indian carp *Labeo rohita*) against farmers' monocrop rice practices. A floating cage with red tilapia (*Oreochromis niloticus*) was added to respond to farmer preference for higher fish

density without undermining the environmental sustainability of the rice–fish field system. Results show significantly higher rice and fish performance and improved profitability in the rice–fish system.

Key performance highlights (from 2025 wet season results):

- Rice yield: 3679 kg/ha (rice–fish) vs 2474 kg/ha (monocrop)
- Fish yield: 930 kg/ha (plus additional 349 kg/ha from cage system)
- Net income: USD 1706/ha (rice–fish, 2025) vs USD 34/ha (farmer rice–rice practice, 2025)

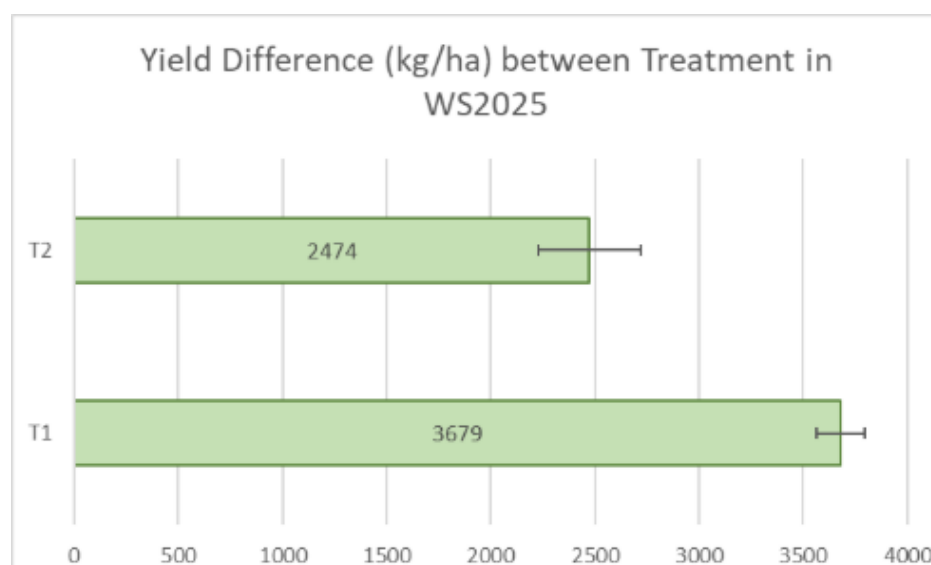
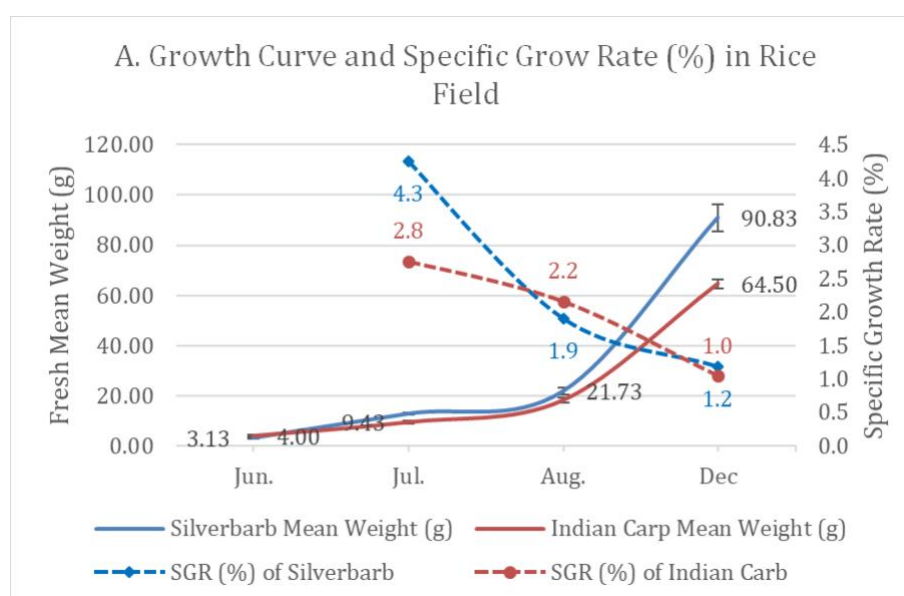


Figure 7: Rice yield performance (kg/ha) between rice-fish improved practice (T1) and farmer's mono-rice practices (T2) in wet season 2025.



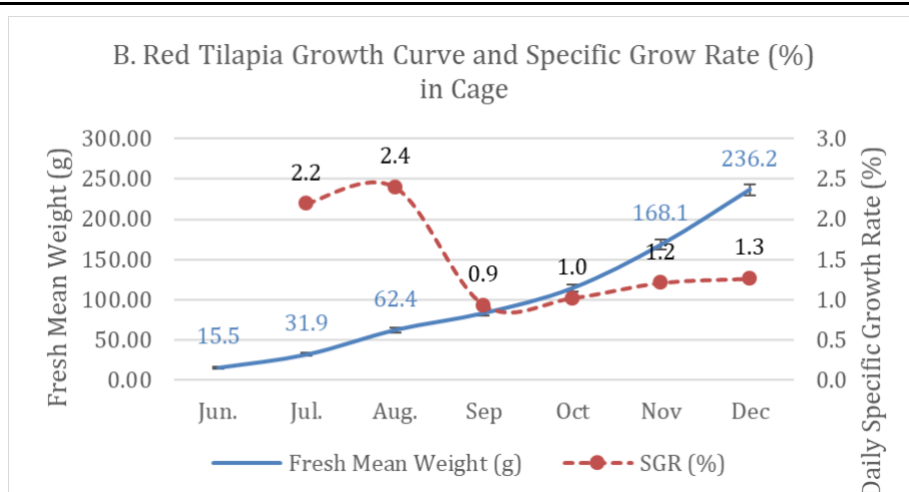


Figure 8: Growth performance and daily specific growth rate (%) of Silver barb and Indian carp in rice-fish system (A) with Red Tilapia in cage (B) in wet season 2025.

Scaling enabler (inputs readiness): SME profiling for rice–fish input supply

The Alliance of Bioversity International and CIAT conducted a profiling exercise of small and medium enterprises (SMEs) in Cambodia that can be positioned to provide the appropriate inputs (such as fingerlings and fish feed) to support scaling of the rice-fish production systems. The assessment was performed on a total of 12 SMEs, wherein 80% of the profiled SMEs were profiled as either Distributors or Manufacturers of inputs. The assessment revealed the need for improving the SME business processes through potential acceleration programs so that they can be prepared to consistently provide high quality inputs essential for scaling rice-fish production systems.

Outcome 2: Innovative digital solutions for enabling climate-neutral circular agriculture and aquaculture developed and adopted

IP2 contributed to visibility and uptake pathways for digital innovations by highlighting platforms integrating credit scoring, advisory, and traceability tools for rice farmers at the International Sustainable Rice Forum 2025 (November 2025, Indonesia). In Myanmar, WorldFish and partners continued disseminating guidance on Black Soldier Fly Larvae as alternative feed via the Htwe Toe mobile application.

Outcome 3: Evidence-based legislative framework for climate-neutral circular agricultural economy enabled in all AMS

IP2 positioned evidence on low-carbon rice and climate-smart systems in major science–policy and market platforms, strengthening the case for regionally coherent incentives, MRV approaches, and investment readiness.

Key Result 4: Contribution to regional policy and market dialogue on low-carbon rice

IP2 strengthened the visibility and policy relevance of low-carbon rice innovations by positioning evidence on alternate wetting and drying (AWD), direct-seeded rice, digital advisory tools, and low-carbon incentives within two major international forums in 2025. Through co-organizing a workshop in Taiwan in October 2025 and supporting the International Sustainable Rice Forum (ISRF) 2025 in Indonesia, the package helped bring science-based evidence into broader discussions on how climate-neutral rice systems can

be supported through policy, market incentives, and scaling partnerships. Each event provided two days of regional and global dialogue, creating space to connect technical evidence with emerging debates on transition pathways for rice systems in ASEAN and beyond.

The key result was not only stronger dissemination of technical findings, but a clearer contribution to the enabling environment for climate-neutral rice. By placing low-carbon rice practices within regional and international policy and market conversations, IP2 helped shift these innovations from stand-alone technical options toward a broader narrative of investable and policy-relevant pathways for NDC implementation and future AFOLU ambition.



Photo 15. Group photo in workshop on sustainable low-carbon rice: regional landscape of sustainable rice production and integrated low-carbon technologies and business innovations in Taiwan in Oct 2025.



Photo 16. Group photo in the International Sustainable Rice Forum (ISRF) 2025 in Indonesia.

Key Result 5: Contribution to global R&D on low-carbon rice

IRRI researchers presented a synthesis on climate change mitigation in rice fields at Malaysia (June 2025) and CANVAS, USA (Nov 2025). Drawing on 91 meta-analyses covering 54 agronomic practices, findings highlight strong mitigation potential from biochar, water-saving irrigation, and improved nitrogen management, while residue incorporation and organic amendments can increase methane—underscoring the need for context-specific mitigation strategies.



Photo 17. Dr. Kazuki Saito presented his paper on climate change mitigation in rice fields: a global synthesis of agronomic interventions in Malaysia (June 2025).

Key Result 6: Regional dialogue on climate-smart livestock systems

ILRI hosted a thematic session at SAADC 2025 (Can Tho, Vietnam; Oct 2025) introducing the CGIAR Livestock and Climate Solutions Hub and convening stakeholders (40 representatives from government, research, development, and private-sector institutions) to discuss integrated approaches to productivity, mitigation, public health, and financing mechanisms for sustainable livestock systems.

IP 3: Enhancing ASEAN Agrobiodiversity Use for Planet-Friendly School Meals

Convener: Alliance || **Other Participating Center:** WorldFish

IP3 aims to diversify sustainable production, improve diets and nutrition, boost incomes and livelihoods, and help develop more resilient landscapes through using school meals as platforms for creating demand for regenerative agriculture.

In 2025, the role of Planet-Friendly School Meals as a scaling accelerator for regenerative agriculture in Cambodia and Lao PDR was integrated into IP1+ reporting. IP3's contribution in this period was therefore primarily reflected in its broader policy, advocacy, and convening role in support of the PFSM agenda and related climate and environment finance opportunities.

IP 4: Enhancing Value Chains and Regional Trade

Convener: IFPRI || Other Participating Centers: ILRI

IP4 seeks to stimulate inclusive, efficient, safe, and sustainable agri-food trade and value chains, by providing evidence for and engaging in the best innovations and policies for: improving inclusive trade and market integration; generating evidence on improving value chain efficiency; improving sustainable and resilient agri-food transformation across AMS; and implementing pilot innovations and assessing their potential for scaling up.

Key Results and Milestones:

Outcome 1: Improve International Trade and Market Integration, particularly for under-trading countries
Key Result 1: Regional assessment strengthened the evidence base for policy and trade alignment for regenerative value chains IP4 completed a regional assessment of trade and value chain initiatives relevant to regenerative agriculture, with focused engagement in Cambodia and Lao PDR. The study moved the discussion beyond general support for regenerative agriculture by identifying the specific constraints that limit competitiveness of regeneratively produced food: policy coherence gaps, weak market incentives, supply-chain bottlenecks, and certification- and standards-related barriers. The result was a more actionable evidence base that clarifies where trade rules, sustainability frameworks, and market mechanisms need to improve if regenerative agriculture is to move beyond pilots and into structured scaling. The report's recommendations were aligned with the ASEAN Food, Agriculture and Forestry Strategic Plan 2026–2030, helping position IP4 as a bridge between sustainability goals, trade integration, and long-term competitiveness.
Outcome 2: Increased food market integration at both intra- and inter-ASEAN levels
Key Result 2: ASEAN–China dialogue elevated regenerative value chains within trade facilitation and green finance discussions Building on the regional evidence base, IP4 convened the ASEAN–China Workshop on Agri-food Trade, Value Chains & Green Finance in Vientiane on 6–7 November 2025. The workshop brought together 38 senior representatives and reinforced a central program insight: regenerative transitions will not scale through farm-level innovation alone. Harmonized standards, credible MRV systems, trade facilitation, coordinated cross-border value chains, and fit-for-purpose green and blended finance must evolve together. The key result was therefore not only a successful regional dialogue, but a stronger policy and market framing for regenerative agriculture within ASEAN's wider trade and food security agenda. This helped shift regenerative agriculture from a niche production topic toward a regional competitiveness and finance issue.
Outcome 3: Increased benefits of agri-food value chains to smallholders, women, and youth in AMS
Key Result 3: Country consultations improved alignment between regenerative production initiatives and trade- and investment-related institutions At country level, IP4 deepened engagement in Cambodia and Lao PDR through consultations with agricultural investment authorities, planning departments, research institutes, and development banks. These discussions strengthened alignment between regenerative production pilots and the institutional systems that will shape their future competitiveness, including trade policy, certification development, and finance access. The result was improved institutional readiness across agriculture–trade–finance actors and a more coherent understanding that value chain benefits for smallholders will depend on

coordinated action beyond the farm gate. In practical terms, IP4 helped create the policy and institutional relationships needed to connect regenerative production with future market and investment strategies.

Outcome 4: Enhanced food security, safety, sustainability and resilience of agri-food systems in AMS

Key Result 4: Regional capacity for food safety risk assessment in traditional value chains was strengthened through a One Health approach

Co-funded with IP5, IP4 supported a two-day regional training on food safety risk assessment for traditional value chains under a One Health perspective at Khon Kaen University, Thailand, on 23–24 September 2025. The training engaged about 40 participants from a range of countries and professional backgrounds, including food safety authorities, researchers, and veterinarians, and strengthened practical capacity in hazard identification, risk analysis, and application of One Health approaches to food safety challenges in traditional value chains. The significance of this result lies in broadening IP4's contribution beyond trade and value chain efficiency to include safer and more resilient food systems, especially where food safety capacity is an important condition for market development and consumer trust.

IP 5: Transboundary Pests and Diseases

Convener: ILRI, **Co-Convener:** IRRI || **Other Participating Centers:** Alliance, CIMMYT, CIP

Across regional to global scales, millions of agri-food value-chain actors will benefit from boosted agrifood productivity, trade, and livelihoods ($\geq 50\%$ women and $\geq 8\%$ from ethnic minority groups) arising from effectively controlling transboundary pests and diseases (TPD). IP5 will improve the prevention, control, and management of plant and animal TPD and food safety across AMS, using regional food systems and the One Health approach.

Implementation note (Year 3): Activities in the current reporting period were more selective due to funding constraints, with emphasis on consolidating prior gains and leveraging synergies with **IP1+** and other CGIAR/bilateral workstreams.

Outcome 1: Regional exchange of information, knowledge and technology improved among ASEAN countries

Key Result 1: Multi-sectoral food safety coordination was strengthened through the One Health Partnership platform in Vietnam

IP5 strengthened regional exchange and coordination through Vietnam's One Health Partnership for Zoonoses, including support to the Food Safety Technical Working Group (FSTWG) meeting held on 5 December 2025 in Hanoi. The meeting brought together government agencies, research institutes, universities, enterprises, associations, and sub-national departments, and helped shape food safety priorities for the 2026–2030 period. The key result was not only continued operation of a technical working group, but stronger institutional coordination around risk-based approaches, early warning and data systems, public–private engagement, and risk communication. This also reinforced the model value of the Vietnam platform for wider ASEAN application.



Photo 18. FSTWG Session (December 2025).

Outcome 2: Harmonized roadmap of monitoring systems in the region

Key Result 2: Cross-workstream strategy alignment was maintained across crop health and livestock/food safety systems

With limited resources in the reporting period, IP5 prioritized consolidation of evidence and scaling pathways already underway, while strengthening linkages with IP1+ and related CGIAR and bilateral initiatives. The result was better alignment across nature-positive pest management, food safety risk assessment, One Health platforms, and AMU/AMR work, helping preserve coherence across the package despite a narrower activity portfolio. This was important because it kept both crop-health and livestock/food-safety strands connected to the broader program transition toward scaling pathways and enabling environments.

Outcome 3: Risk assessment mapping and communication capacity strengthened and used more widely

Key Result 3: Strengthened regional capacity on food safety risk assessment for traditional value chains

IP5 (co-funded with IP4) delivered a regional training on Food Safety Risk Assessment for Traditional Value Chains under a One Health perspective (23–24 September 2025, Khon Kaen University, Thailand). The training combined theory and practical group exercises on hazard vs risk, Codex-based frameworks, and applied case studies (e.g., Salmonella in pork; LAWA model), strengthening participants' ability to conduct and interpret risk assessments and apply One Health solutions in national contexts.

Key Result 4: Advanced regional and global exchange on risk assessment institutionalization

IP5 contributed to the International Conference on Chemical and Microbiological Risk Assessment for Food Safety (Hanoi, 18-19 December 2025), co-organized by ILRI and NIFC (Ministry of Health, Vietnam). The conference brought together 150+ participants (~30% women) and showcased institutional innovations such as the Vietnam Food Safety Risk Assessment Center (VFSA) (established 2024), supporting peer learning on risk assessment governance, human resource development, and regulatory alignment.



Photo 19. Nguyen Viet Hung, ILRI Regional Director, highlighted the substantial economic and public health burden of foodborne diseases, particularly in developing countries (December 2025).

Outcome 4: One Health (OH) capacity and operations increased between plant/animal and human health sectors through established platforms, networks

Key Result 5: Expanded One Health “field site” learning model in Lao PDR through scaling linkages

Building on the One Health model established under IP5 (Nabong, Lao PDR, 2024), a new One Health village site was established in January 2026 in Hat Khor Village, Pak-Ou District, Luang Prabang, linked to Souphanouvong University under NUoL-FAG leadership. Activities included regular meetings and One Health case studies for students and field officers, and continued operations in Nabong including community campaigns (e.g., rabies prevention through dog vaccination).

(This expansion is noted as funded via IP1+, demonstrating scaling of the IP5 One Health model)



Photo 20. Dog rabies vaccination at OH field site, Ban Hat Vieng Kham, Xaythany District, Vientiane Capital. *Photo credits: National University of Laos*

Outcome 5: Increased private sector engagement for developing eco-friendly technologies

Key Result 6: Clarified private sector roles and bottlenecks in biological control value chains (Cambodia)

A Cambodia scoping study on Biological Control Agents (BCAs) mapped how pest management solutions move from research to field use and highlighted where private-sector actors (local producers/importers, distributors, input suppliers) are critical to product availability, quality assurance, demonstrations, and scaling (alongside government monitoring/regulation and farmer feedback loops).

Table 4. Roles of stakeholders in pest and disease management

Actors	Who	Role
Research	Universities and government research institutes: e.g. Royal University of Agriculture (RUA), Institute Technology of Cambodia (ITC), Cambodia Agricultural Research and Development Institute (CARDI)	– Conduct studies on pest and disease incidence and management. – Develop sustainable management strategies and biocontrol methods. – Test the efficacy of pesticides, fertilizers, and microbial solutions.
Monitoring and regulation	Government agencies: e.g. General Directorate of Agriculture (GDA), Ministry of Agriculture, Forestry and Fisheries (MAFF)	– Monitor pest outbreaks and disease prevalence in rice fields. – Set regulations for pesticide use and distribution. – Provide early warnings to farmers about pest and disease risks.
Production	Private sector (local/national producers, importers)	– Manufacturing and distributing pesticides, biofertilizers, biological control agents, and other pest management products. – Ensure the availability of products meeting government standards.
Supply	Distributors and Input suppliers	– Deliver pest control products and fertilizers to local markets. – Provide training or demonstrations for product usage.
Users	Farmers and cooperative farming groups	– Apply pest and disease management solutions in rice fields. – Follow guidelines and best practices for sustainable management. – Share feedback on product effectiveness and challenges faced in the fields.
Feedback loop	– Farmers and cooperatives report results and challenges to distributors or government bodies. – Research institutions and regulatory agencies refine strategies based on field data. – The cycle continues to improve rice health and productivity.	

Outcome 6: Scalable solutions developed to improve early detection, and reduce pests & disease risks

Key Result 7: Strengthened technical foundations for BCA efficacy testing (protocol development)

IP5 in collaboration with other projects advanced standardized protocols for BCA screening and efficacy testing to address inconsistent field performance driven by methodological gaps. Work includes combined morphological + molecular identification, and efficacy assessments for *Trichogramma japonicum* (stem borer parasitoid) and *Trichoderma asperellum* (sheath blight control) across controlled and farmer-field conditions.

Key Result 8: Rice-based diversification package for pest suppression, climate adaptation, and profitability (Cambodia)

Field evidence from Cambodia shows that rice diversification using mung bean on bunds (wet season) and watermelon in the dry season can reduce pest pressure while improving climate and economic outcomes. Reported results include up to 28% reduction in pest damage, up to 43% reduction in GHG emissions, and up to 3.3 times higher net returns compared with pesticide-reliant monocropping contexts. Training materials (Khmer and English) were developed and used to train 69 farmers and extension officers on design principles and practical implementation of rice-based diversified systems and integration of biological control agents (BCAs).



Photo 21. Farmer participatory field study in Prey Veng with rice–mungbean–watermelon systems.



Photo 22. Training of Trainer (ToT) on rice-based diversification in Kampong Thom, 20-21 November 2025

Scaling enabler (earlier foundation): An IPSR workshop (August 2024) packaged rice-based diversification as an innovation and explored how digital tools could support scaling; stakeholders identified key bottlenecks and enabling solutions (awareness/demos, mechanization, value chain improvements, policy frameworks, engaging women).



Photo 23. Innovation packaging and scaling readiness of rice-based diversification workshop

News release:

<https://www.khmertimeskh.com/501756406/irri-hosts-meeting-to-scale-diversified-rice-based-systems-video/>

Key Result 9: Expanded AMU evidence base using AMUSE tool (Cambodia) to inform scalable interventions

The AMUSE tool (CGIAR AMR Hub) was applied in Cambodia via a probabilistic survey across four provinces to better understand AMU drivers and inform intervention design; results point to poor biosecurity and low AMR awareness, and follow-up feedback workshops were conducted.

Key numbers: The NAHPRI survey dataset includes 249 farms across Kampong Speu (68), Kampong Cham (62), Kampong Chhnang (61), Takeo (58).

Outcome 7: More harmonized quarantine and phytosanitary regulations with focus on technical components, policies and trade of eco-friendly pesticides/technologies

Key Result 10: Evidence base and recommendations to strengthen BCA regulatory pathways and harmonization (Cambodia)

The Cambodia BCA scoping study found that while policy and regulatory frameworks exist, they are fragmented and often focused on pesticides/fertilizers, with limited BCA-specific provisions. It highlights that the ASEAN Guidelines on the Regulation, Use, and Trade of BCAs provide a regional benchmark, but integration into national regulatory systems remains limited, pointing to the need for harmonization, streamlined registration, and strengthened enabling conditions for local production and safe trade.

Summary and recommendations:

To advance the adoption and integration of biological control agents (BCAs) in Cambodia's rice sector, the following recommendations are proposed:

1. Enhance Research and Development (R&D):
 - Establish dedicated research programs to investigate the effectiveness of BCAs on rice pests and diseases under Cambodian agro-climatic conditions.
 - Collaborate with regional and international institutions to share expertise and resources for BCA research.
 - Develop a comprehensive database on the efficacy, safety, and application methods of BCAs.
2. Strengthen Policy and Regulatory Frameworks:
 - Update and harmonize national policies with regional frameworks such as the ASEAN Guidelines on BCAs.
 - Simplify the registration process for BCAs to encourage local production and attract international investments.
3. Promote Local Production and Trade:
 - Provide incentives, such as tax benefits or subsidies, to encourage private sector investment in local BCA production.
 - Develop training programs for entrepreneurs and agricultural cooperatives to establish small-scale production units.
 - Strengthen supply chain logistics to ensure the availability of quality BCAs in rural areas.
4. Increase Farmer Awareness and Adoption:
 - Conduct targeted awareness campaigns on the benefits and proper use of BCAs to promote adoption.
 - Organize training sessions for farmers on sustainable pest management practices that include BCAs.
 - Develop demonstration farms to showcase the efficacy of BCAs in rice cultivation.



5. Secure Funding and Build Capacity:

- Allocate national budgets specifically for research, outreach, and capacity building in biological control.
- Seek funding from international organizations and development partners to support long-term programs.
- Train technical personnel in pest identification, monitoring, and BCA applications to address human resource constraints.

By addressing these areas, Cambodia can build a robust ecosystem for biological control in the rice sector, leading to sustainable agricultural practices, reduced dependency on chemical pesticides, and enhanced food security.

IP 6: Private sector investment and sustainable financing

Convener: Alliance || **Other Participating Center:** IFPRI

IP6 aims to pool diverse sources of public and private capital to scale region-wide implementation of climate-smart agricultural (CSA) practices.

Outcome 1: CGIAR generated science and data supported selection (prioritization) of credible investments targeting the agriculture and food sectors

Key Result 1: Improved targeting of CSA finance opportunities using ImpactSF Analyzer for seasonal weather risk insights

IP6 worked with two financial institutions (a cooperative bank and a public development bank) to strengthen assessment of seasonal weather risks and to translate those risks into targeted CSA loan product design. ImpactSF Analyzer was used to prioritize crops and locations based on risk signals—drought risk affecting maize yields over upcoming seasons, and untimely/excess rainfall risks affecting rice systems—providing an evidence base for selecting bankable CSA investment opportunities.

Key Result 2: Co-designed bundled CSA loan products aligned to risk insights and farmer demand

Building on the risk assessment, IP6 and partners co-designed bundled CSA loans:

- **Maize CSA loan:** bundled with drought-specific parametric insurance to reduce reliance on collateral and improve access to finance.
- **Rice-to-vegetable transition financing:** risk insights and farmer interviews indicated demand for financing to diversify into vegetable production under net houses, and to access solar-powered irrigation kits; suppliers already in the bank's portfolio were leveraged for pricing and structure.

The figure below illustrates how the bundled loan structure transforms the maize value chain from a fragmented and higher-risk system into a coordinated and risk-managed financing model. In traditional settings, limited access to quality inputs often leads to inconsistent yields and uncertainty for both aggregators and the cooperative bank as the lending institution. The structured model uses the ImpactSF Analyzer to identify weather/climate risks, assess production vulnerabilities, and inform the design of insurance mechanisms ensuring that risk management measures are grounded in the design of the bundled CSA loan. Insurance provides a mechanism to transfer weather-related risks, helping stabilize repayment expectations under adverse conditions.

Proceeds of the bundled CSA loan are restricted to quality seeds and appropriate climate-smart inputs, ensuring that capital deployment directly supports improved productivity, resilience, and sustainable production outcomes. This targeted use of capital improves crop performance, strengthens farmer revenues, and enhances resilience to climate variability. As production outcomes become more reliable, repayment capacity improves, reducing financial risk for the cooperative bank. The result is a financing model that lowers risk for the cooperative bank, facilitates structured repayment flows via the aggregator, and has an embedded insurance protection in case of weather risks. At the same time, farmer revenues increase, and the value chain becomes resilient and predictable.

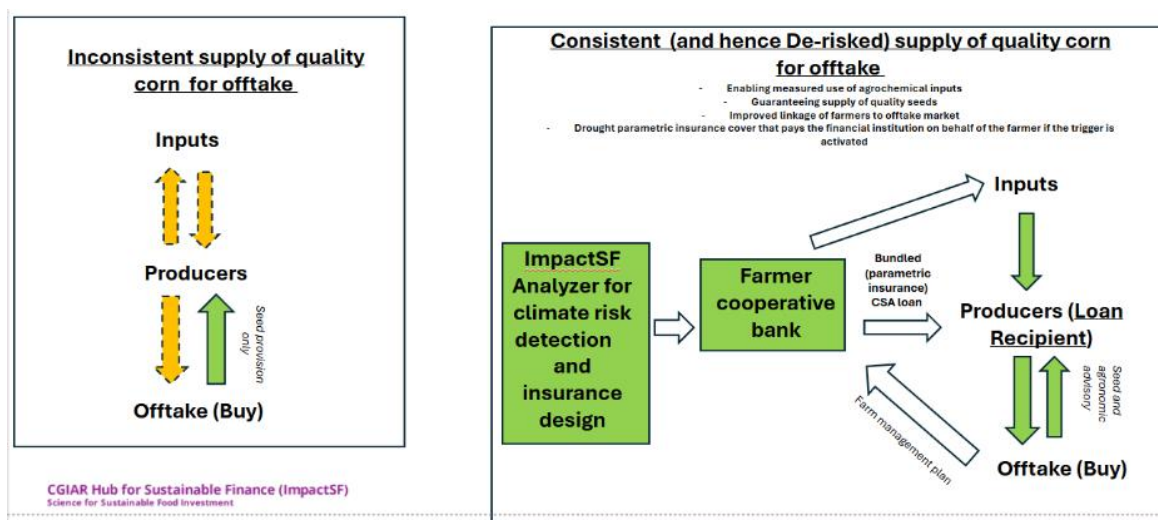
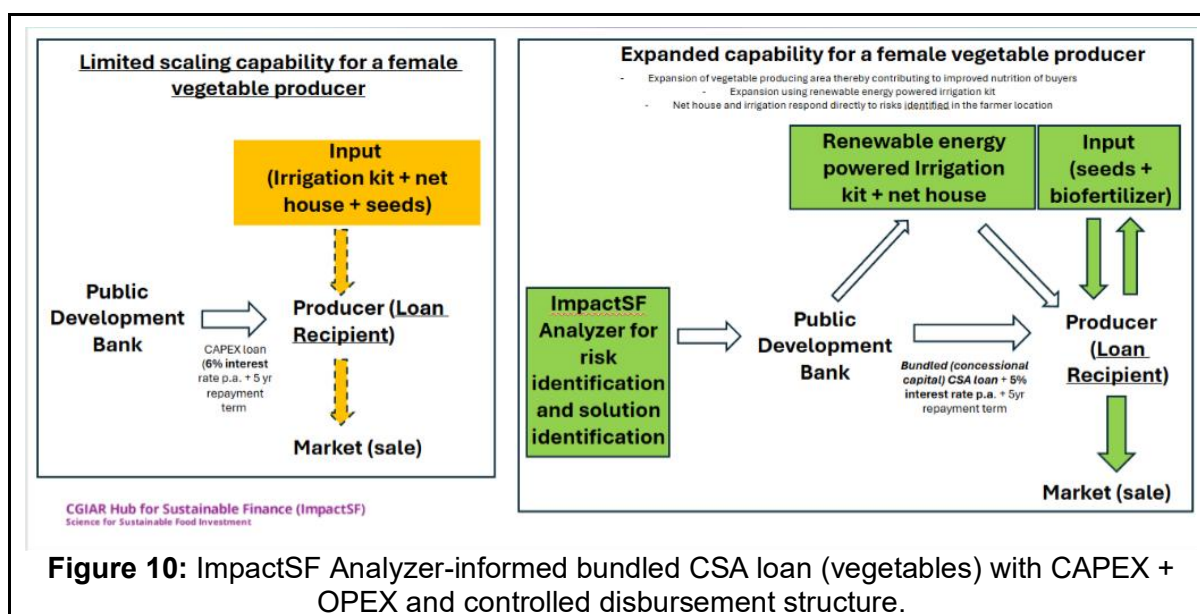


Figure 9: ImpactSF Analyzer-informed bundled CSA loan (maize) with parametric insurance design.

The bundled CSA loan for vegetable production provides an opportunity to the vegetable producer to expand the area of production, generate increased incomes, while also guaranteeing relevant structural de-risking (related to misuse of loan proceeds) measures to the bank. For instance, a significant proportion of the CAPEX costs in the loan are paid directly to the suppliers (who already are part of the lending portfolio of the bank). In addition to regulating the use of loan proceeds, the structure also enables the bank to capture, monitor, and report on environmental and social impacts resulting from the use of the loan. In this case, the bank will be able to report on impacts specifically related to increase in production of nutritious food (vegetables) by enabling increase in area and volumes through good agriculture practices, specifically using solar powered irrigation. Along with climate adaptation benefits, solar powered irrigation kit will also contribute to the climate mitigation impacts, and the current loan structure will enable the bank to report on the same with improved confidence. Additionally, as the loan directly addresses the need of the farmer in response to the identified weather risk (i.e., excessive rainfall), the structure of the loan will enable the bank to report on climate adaptation and resilience impacts. The improved ability to track and report on impacts is the primary reason behind the bank's decision to ascribe a preferential lending rate (5% p.a. instead of 6% p.a.) to this bundled CSA loan product.



Outcome 2: Investors more effectively assess agri-food sector related investments across risk, return and impact dimensions

Key Result 3: Clear institutional roles and risk-layering architecture for bundled CSA loans

IP6 defined a coordinated financing structure aligning incentives and distributing risk across stakeholders (senior lenders, insurance, concessional capital, and producers). The structure clarifies who is responsible for pricing, disbursement, repayment oversight, risk transfer, and subordinated risk buffering.

Table 5: “Strategic roles of stakeholders involved in the bundled CSA loan product.

Cooperative Bank and a Public Development Bank	Commercial Lending Partner (Senior Capital Provider)	Establish loan pricing parameters; manage disbursement and credit administration; oversee repayment processes; monitor portfolio-level performance.	Senior capital position; last to absorb losses after insurance and concessional capital layers.
Insurance Service Provider (only for the bundled CSA loan for Maize)	Insurance Partner (Risk Transfer Layer)	Provide Weather Protect Insurance (WPI) protecting against drought events; stabilize farmer repayment capacity; reduce systemic climate risk exposure.	First financial protection layer within the capital stack.
CGIAR Hub for Sustainable Finance (ImpactSF)	Structuring Partner and Concessional Capital Provider	Design financial architecture; integrate climate-smart production logic; establish governance and analytical frameworks; provide concessional capital as a subordinated risk buffer.	Subordinated risk layer absorbs losses after insurance protection is exhausted.
Farmers Aggregator (in the case of bundled CSA)	Borrowers and Production Participants	Implement climate-smart production practices; contribute in-kind operational inputs including labour and production	Operational exposure through in-kind participation

loan for Maize) Input Suppliers (in the case of bundled CSA loan for vegetable production)		management; generate repayment through harvest revenues.	(not a financial loss-absorbing tranche).
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Key Result 4: Transparent cost structures for CSA loan sizing (maize and vegetables)

The bundled CSA loan for maize (Table 3) is structured on the costs of production of seeds. These costs are aligned to the inputs described in the farm plan. Key inputs such as fertilizer, labour, and other operational expenses are combined to determine the financing required for the season, ensuring that farmers receive sufficient capital to implement recommended practices. It is important to note that the seeds are provided in-kind by the aggregator, and hence were not included in the costing of the loan.

Table 6: Maize loan cost structure (PHP/ha).

Cost Category	Estimated Cost (PHP per hectare)	Description
Labour and field operations	34,850.00	Land preparation, planting, crop management, spraying, harvesting, and handling activities
Seeds and soil conditioning inputs	2,300.00	Quality seed treatment and soil conditioning products
Fertilizers and nutrients	29,940.00	Basal and top-dressing fertilizer applications aligned with agronomic recommendations
Crop protection (herbicides, fungicides, insecticides)	12,577.50	Integrated pest and disease management inputs
Foliar nutrition and growth support	4,710.00	Yield-enhancing foliar applications
Total Farm Inputs	49,527.50	Complete climate-smart input package
Total Production Cost	84,377.50	Labour plus inputs required for full production cycle

In the case of the bundled CSA loan for vegetable production, the cost of the vegetable production amounts to USD 10,190. A large share of the cost is primarily allocated for CAPEX financing (Net Houses and Solar powered irrigation kit). USD 7,500 (73.6%) is dedicated to the installation of a net house, and a drip irrigation system. An additional USD 2,500 (24.5%) is allocated to the installation of a solar pump system, which enhances water use efficiency and ensures reliable irrigation during the dry season. The remaining USD 190 (1.9%) covers essential inputs, including seeds, fertilizer, and biopesticide for environmentally sustainable pest management.

Key Result 5: Financial viability + portfolio logic strengthens investor confidence

Financial viability analysis of both the loans was conducted based on the costs in the loan, expected yields, and market prices. As the loan is based on the production cycle, repayment of the loan is also aligned to the harvest and sales, thereby reflecting the seasonal nature of agriculture income, and increasing the chance of acceptance by farmers. Revenue

projections (i.e., Debt Service Coverage Ratio) from both the loans indicate that the farmer will be able to cover production costs while retaining positive net income, reinforcing the financial sustainability of the structure.

Beyond a single farmer, further analysis illustrates the results of a single bundled CSA loan scale when multiple farmers participate within a structured portfolio. This broader perspective highlights how diversification reduces risk for the bank, as exposure is distributed across many borrowers rather than dependent on individual outcomes. By combining individual farmer results, the model shows how bundled CSA loans can move from small pilots to commercially viable programs.

Key Result 6: Sequential risk absorption (“waterfall”) for extreme weather events

For maize, insurance provides the first protection layer, followed by ImpactSF concessional first-loss and second-loss layers, with residual exposure to senior debt minimized, reducing potential losses for the cooperative bank.

Table 7: Weather risk waterfall (maize bundled CSA loan).

Waterfall Step	Percentage Allocation	Notes
Insurance Payout	50%	Capped by coverage
ImpactSF 1 st Loss	23%	Concessional First-Loss
ImpactSF 2 nd Loss	23%	Concessional Second-Loss
Residual to Senior Debt	4%	Leakage to Cooperative Bank
	100%	

In the case of the bundled loan for vegetables, as a significant proportion of the investment is made into CAPEX financing, the risk for weather/climate impacts is minimal, but still plausible. In the extreme case of weather impacts, the loan will be covered from the financial protection cover set-aside by the bank. By combining relevant financial de-risking mechanisms, the loan maintains repayment stability even during challenging seasons.

IP 7: Farmer-Led Irrigation for Climate-Resilient Agri-Food Systems

Convener: IWMI || **Other Participating Center:** CIMMYT, IRRI

IP7 will support sustainable expansion and intensification of smallholder farming systems through the establishment of multi-purpose irrigation systems that reduce climate risks and provide additional income opportunities, especially for women, youth, the landless, and ethnic minorities by equitably benefiting from farmer-led irrigation (FLI) development.

Key Results and Milestones:

Outcome 1: Major context-specific barriers to the adoption of FLI identified to enable the catalyzing of FLI to scale

Key Result 1: Evidence on technical and governance bottlenecks for communal solar irrigation systems (Cambodia and Lao PDR)

IP7 assessed communal solar irrigation systems to understand why “installed systems” do not always translate into sustained performance and adoption. Findings emphasize that technical viability depends on correct sizing and reliable water supply, but long-term sustainability hinges on governance and institutional arrangements—clear water allocation rules, transparent fee structures, defined maintenance responsibilities, and realistic demand

projections. Where these are weak, system performance declines even when the infrastructure is technically sound.

A complementary technical briefing note from a community-based solar water pumping system in southern Laos highlights how inadequate planning and system design, combined with limited capacity among water users, undermines performance and creates tensions within water user groups. The note recommends stronger planning tools (e.g., sizing tools), better groundwater assessment before installation, and structured capacity development to reduce over-reliance on a single system operator.

Key barriers consolidated:

- Demand–supply mismatch (overestimation of irrigable area vs water availability)
- Weak governance (rules, cost recovery, maintenance planning)
- Groundwater uncertainty and technical sizing gaps (leading to under-capacity systems)
- Limited access to finance for farmers; weak after-sales/service networks for providers
- Low awareness and coordination across irrigation–groundwater–finance stakeholders

More details available in:

1. [Key insights from a community-based solar water pumping system in southern Laos \(English\)](#)
2. [Key insights from a community-based solar water pumping system in southern Laos \(Lao\)](#)
3. [Private Sector-initiated Solar Irrigation Scheme for Rice Cultivation: Case Study from Banteay Commune, Kampong Cham Province, Cambodia](#)
4. [Key Lessons from an Assessment of a Community-Based Solar Water Pumping System in Bati, Southeastern Cambodia](#)

Outcome 2: Geographic scale and distribution of opportunities for FLI established

Key Result 2: Regional FLI mapping and spatial suitability framework for priority setting

IP7 developed and applied a spatial suitability framework to identify priority areas for farmer-led irrigation expansion. The framework integrates land characteristics (e.g., slope/soils), water availability (rainfall, proximity to rivers/groundwater potential), and physical accessibility to water sources. Suitability was assessed at 1 km resolution and aggregated to subnational levels to support planning and investment decisions.

Results indicate substantial opportunity to bridge irrigation gaps. In Cambodia, about 25% of cropland shows moderate-to-high suitability, concentrated in the Mekong floodplain and Tonle Sap basin. In Lao PDR, roughly 59% of cropland (primarily along river corridors) shows moderate-to-high suitability, while upland areas are more constrained by slope and groundwater access limitations.

Key numbers:

- Suitability mapped at 1 km resolution
- Cambodia: ~25% cropland moderate-to-high suitability
- Lao PDR: ~59% cropland moderate-to-high suitability

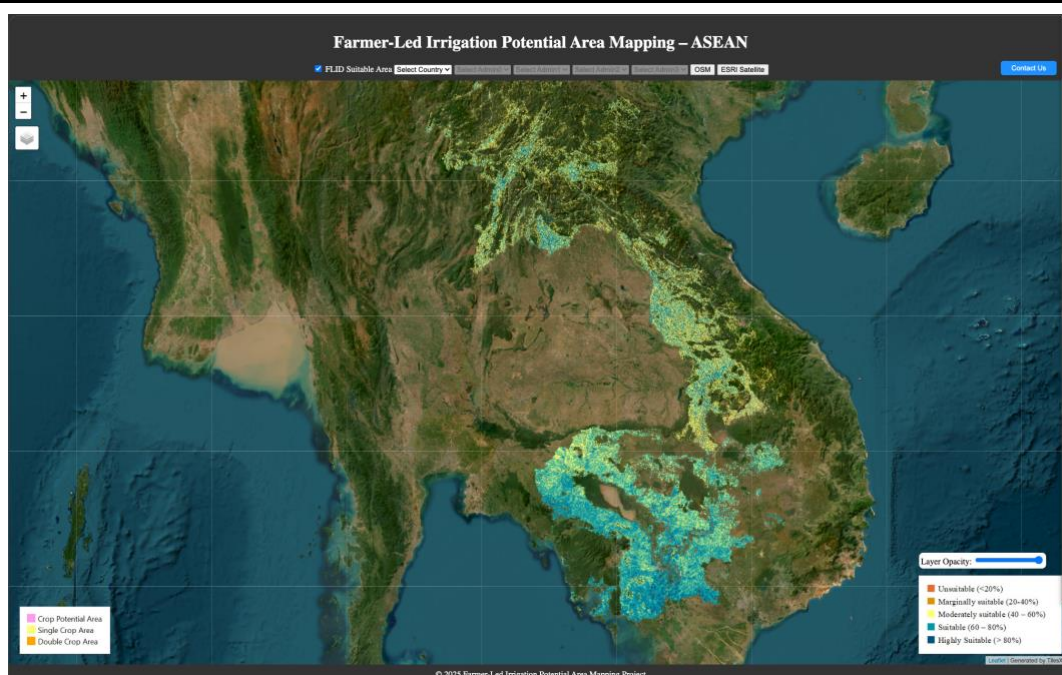


Figure 11. Screenshot of the homepage of the online FLI Mapping Tool (<https://darshanacw.github.io/FLID/Index.html>)

Outcome 3: Evidence of initial changes in policies and practices leading to enhanced FLI adoption

Key Result 3: Structured stakeholder outreach translating evidence into priority actions (Cambodia and Lao PDR)

IP7 translated mapping outputs, case study learning, and market/inclusion analysis into structured discussions with government, development partners, and practitioners.

- **Cambodia:** A stakeholder consultation in Phnom Penh reviewed cost-benefit comparisons of solar, diesel, and rainfed systems (Takeo Province), highlighting the viability of solar irrigation for vegetable production and identifying bottlenecks on finance, groundwater access, maintenance services, and institutional coordination.
- **Lao PDR:** A national scalability workshop assessed solar irrigation across agroecological zones and identified three region-specific pathways: (i) longer-term public-private-community partnerships (Attapeu), (ii) infrastructure upgrading (Vientiane Capital), and (iii) phased expansion in the Mekong floodplain with safeguards against groundwater depletion.
- These findings were further discussed at a Sub-sector Working Group on Irrigation Stakeholder Forum in Vientiane Capital, with 80+ participants from government, development partners, academia, civil society, and private sector. The forum addressed groundwater mapping, service provider standards, irrigation finance mechanisms, and integration of groundwater-based solar irrigation into planning frameworks.

Outcome 4: Inclusion evidence and gender-responsive program design for FLI expansion

Key Result 4: Inclusion evidence and gender-responsive program design for FLI expansion

IP7 integrated inclusion considerations through parallel farmer surveys and gender-responsive planning. Surveys in Cambodia and Lao PDR compared FLI to rainfed production and collected data to inform inclusive program design. In Lao PDR, gender equality planning and livelihood-oriented baseline assessments are being developed to

identify pathways for women and marginalized farmers to participate more fully in FLI—particularly in access to finance, training, and decision-making roles.

The Lao solar irrigation case study further illustrates inclusion-relevant learning: a community-based solar pumping system supported domestic water supplies and vegetable production with a structured water user group, and the vegetable production group was composed entirely of women farmers from an ethnic minority community—reinforcing the importance of designing FLI models that are inclusive and do not concentrate technical control in a single operator.



Photo 24: Solar irrigation farmer testimonial in Cambodia on reduced dependence on costly diesel/electricity while maintaining vegetable productivity and planting cycles.

IP 8: Food Systems Transformation for More Nutritious and Healthy Diets

Convener: Alliance || **Other Participating Center:** ILRI

Over the past 12 months, IP8 advanced stakeholder engagement and capacity development through consultative workshops and knowledge products across target countries. Work focused on participatory food system profiling, policy and implementation reviews (including nutrition behavior change strategies and food safety risk communication), and dissemination of emerging evidence to inform national and regional food systems transformation processes.

Key Results and Milestones:

Outcome 1: Increased understanding and capacity of stakeholders to take part in issues around nutrition-sensitive food systems and sustainable healthy diets

Key Result 1: Co-development of the Philippine Food System Country Profile through participatory indicator selection and validation

In the Philippines, DOST–FNRI convened two national stakeholder consultation workshops (19 Aug and 19 Sept 2025) to co-develop the Philippine Food System Country Profile. Through a multi-stage participatory process, stakeholders reviewed and screened a large

pool of indicators to build a validated set capturing food system drivers, supply chains, food environments, consumer behavior, and outcomes. This strengthened national capacity to use food system evidence for dialogue and intervention design.

Key numbers:

- 2 national consultation workshops (Aug 19; Sept 19, 2025)
- 80+ stakeholders engaged (government, research, academe, civil society, development agencies, private sector)
- 260+ candidate indicators assessed leading to around 50 indicators validated and finalized



Photo 25. National stakeholder consultation workshops to co-develop the Philippine Food System Country Profile

Key Result 2: Dissemination and dialogue on Cambodia food system profile and nutrition behavior change strategy review

In Cambodia, IP8 convened a dissemination workshop in Phnom Penh (31 Oct 2025), in collaboration with IIRR and CARD, to present findings from the nutrition behavior change strategy review and preliminary results from Cambodia's Food System Profile—both key IP8 outputs informing the demand-side evidence base. Stakeholder discussions helped clarify roles, gaps, and opportunities across actors and contexts—including urban–rural dynamics, school curricula, and tailored dietary guidance—and strengthened shared understanding of how behaviour change strategies fit within a broader food systems approach, laying the groundwork for connecting regenerative production with more informed and conscious consumer demand. This activity was implemented with funding support from IP1+.



Photo 26. The dissemination workshop in Phnom Penh (31 October 2025), in collaboration with IIRR and CARD

Key Result 3: Strengthened multi-sectoral food safety coordination platform supporting 2026–2030 priorities (Vietnam)

In Vietnam, IP8 supported the multi-sectoral Food Safety Working Group (FSTWG) platform under the One Health Partnership mechanism, including the 5th FSTWG meeting (Dec 2025, Hanoi). The meeting supported orientation, task-setting, and priority recommendations for the 2026–2030 period, strengthening the evidence-to-policy pathway for food safety and risk communication as part of broader food systems transformation.

Key Result 4: Regional methodology development for comparative food system learning (Transect Food System Profile approach)

IP8 developed an innovative regional transect food system profile methodology and disseminated it at TARASA25, demonstrating the potential for cross-border learning and comparative analysis to inform regional food systems transformation. This strengthens regional capacity to interpret food system patterns across locations and identify leverage points for change.

Key numbers:

- 1 regional methodology showcased (TARASA25 dissemination: <https://tarasa25.org/>)



Photo 27. Disseminating transect food system profile methodology at TARASA25

Outcome 2: Innovations/policies co-designed to increase availability, affordability, and accessibility of safe and healthy food

Key Result 5: Country food system profiles completion to support policy dialogue and intervention co-design (Vietnam, Cambodia, Philippines)

Three country-level food system profiles (Vietnam, Cambodia, Philippines) are completed and will provide evidence-based frameworks to support policy dialogue, program design, and co-development of interventions with national partners. Policy and implementation reviews across countries provide an additional basis for identifying feasible leverage points and sequencing actions.

Cross-program collaboration (enabler): Work benefited from collaboration with CGIAR initiatives (BDN, S4I/AMD, One Health), strengthening alignment and increasing the usability of outputs for national and regional food systems processes. Overall, IP8's work has been pivotal in raising awareness and promoting action towards more sustainable and nutrition-sensitive food systems, contributing to national commitments for UNFSS activities in the ASEAN region.

PARTNERSHIPS

This chart illustrates the countries of implementation and highlights the key regional partners collaborating across different intervention packages.

Impact	KH	ID	LA	MY	MM	PH	TH	VN	Regional bodies / other stakeholders engaged
Scaling pathways for regenerative agriculture									MAFF Cambodia (GDA; PDAFF; PDoE; CAOs); Department of Irrigation (Lao PDR); NAFRI (Lao PDR); Royal University of Agriculture (RUA); private-sector solar irrigation suppliers/service providers (as engaged through scaling workshops); agricultural cooperatives / producer groups; PCRL; WCS
Regenerative Agriculture/ Aquaculture and reduced Agro-Chemical Use									SEAN-CRN; SEAOHUN; MAFF Cambodia (GDA; Fisheries Administration; PDAFF; CAOs); PCRL (Promoting Climate Resilient Landscapes in the Tonle Sap); Wildlife Conservation Society (WCS); Modern Agricultural Cooperatives (mAC) program
Climate Neutrality & Circular Agriculture									ASEAN-CRN; MAFF Japan; DSRC; IRRI; CIRAD; IRD; JFE Steel; Metal One; Kubota Philippines; Atlas Fertilizer; PhilRice; SRP; FFTC; World Bank Group; Preferred by Nature; Rikolto; Htwe Toe; Village Link; Spectrum SDK; WCS
Enhancing ASEAN Agrobiodiversity use and Landscape Biodiversity									SEAMEO-SEARCA; SEAMEO-RECFON; Institute of Nutrition-Mahidol University (INMU); World Vision International (WVI); International Institute for Rural Reconstruction (IIRR); and The Field Alliance (TFA); World Food Program (WFP), FAO, Catholic Relief Services, Save the Children, SUN CSA, Rikolto, World Resources Institute, ADB, Rockefeller Foundation, School Meals Coalition, Research Consortium for School Health and Nutrition (RCSHN)
Enhancing Value Chains & Regional Trade									IFPRI; APRACA; ADB; FAO RAP; GIZ; IFAD (proposal); Mekong Institute; CDRI; NAFRI; ICASEPS; ISPAE; Kasetsart University; Zhejiang University
Transboundary Pests & Diseases									ILRI; IRRI; CIMMYT; CIP; Alliance; GDA; CARDI; ITC; RUA; NAHPRI; BPI; One Health platforms; SEAOHUN; VPHCAP; NIFC (Vietnam)
Private Sector Investment & Sustainable Financing									ImpactSF / CGIAR Hub for Sustainable Finance; cooperative bank; public development bank; aggregator; insurance provider; APRACA; ADB
Farmer-led Irrigation									IWMI; CIMMYT; NAFRI; RUA; Department of Irrigation (Lao PDR); ADB; irrigation sub-sector stakeholders
Food Systems Transformation for Healthy Diets									CARD; IIRR; ISPAE; ICD-MAE; One Health Partnership (Vietnam); DOST-FNRI; TARASA25; CGIAR BDN/SHIFT; AMD; One Health

IP 1+	IP1+ focused mainly on Cambodia and Laos and built from local and district-level partnerships to link with national-level policy actors to create cross-scale agri-food innovation coalitions (platforms, cooperatives, communities of practice). As IP1+ was building on IP1 and incorporating the existing networks and partners of all the other IPs, many partners from other IPs also contributed. Here we highlight three innovation coalitions: one around lowland rice-based systems, one around upland mixed-farming systems in Laos, and one around small and medium poultry enterprises. DAD/FiA, FiAC and PDAFF promote rice-prawn systems as a means to improve household income, food security and nutrition and strengthen a safe food system for upcoming projects development. They also coordinate with relevant national and international stakeholders to exchange experiences on lowland rice system practices, observe the implementation of government policies on soil health improvement, and directly monitor farmers' activities.
IP 1	IP1 worked in 8 ASEAN countries, with a focus on rice-based systems, poultry and upland mixed crop-livestock farms.
IP 2	IP2 worked with a mix of regional networks, government counterparts, research partners, and private-sector actors to strengthen MRV capacity and accelerate scaling pathways for low-emission rice systems. Key partnerships included MAFF Japan and IRRI-hosted training collaboration to strengthen standardized GHG measurement and reporting capacity, alongside engagement through the Direct-Seeded Rice Consortium (DSRC) to connect science with scaling actors. Private sector collaboration with JFE Steel and Metal One supported demonstration and learning around iron-coated seed technology, complemented by scaling-oriented linkages with Kubota Philippines and Atlas Fertilizer and national partners such as PhilRice. IP2 also maintained enabling partnerships that support uptake and standards alignment (e.g., SRP, FFTC, and the World Bank Group) and worked with government counterparts in Cambodia (MAFF line agencies and provincial offices) to anchor implementation in national systems. Digital dissemination partnerships in Myanmar (including Htwe Toe and associated local partners) supported information delivery to end users, while collaborations with organizations such as Rikolto and Preferred by Nature supported market-facing and scaling-relevant engagement.
IP 3	IP3's regional and national partnerships were broad in scope and built steadily from 2023 to 2025. The diversity of the regional partnerships is outlined in the matrix above, which also extended globally by bringing the work of IP3 to the attention of the School Meals Coalition. For 2025, IP3 focused of Laos, Cambodia and Indonesia. In Cambodia the key strategic national partners were the Ministry of Agriculture, Forestry and Fisheries, Ce-SAIN Royal Agricultural University and the WorldFish country office. In Laos, it was the Department of Agriculture (MAE) and the Department of Education and Department of International Cooperation (MoES) and World Vision International. Given the advocacy nature of IP3 and the focus on supporting countries to explore schools as a pathway to create demand for regenerative agriculture and exploring opportunities around potential climate and environmental finance e.g. GEF, effort was made to identify key national partners in a position to influence national decisions around GEF funding allocations. IP3 continues to support Indonesia, Cambodia and Laos on this path.
IP 4	IP4's 2025 progress was underpinned by a diverse partnership ecosystem spanning policy agencies, research institutions, regional finance and trade platforms, and development partners—reflecting the package's emphasis on linking regenerative agriculture with trade integration and green finance. At country level, IP4 engaged closely with relevant ministries and national institutions in Cambodia and Lao PDR as priority entry points, supported by research and policy partners such as NAFRI (Lao PDR) and CDRI (Cambodia), and complemented by linkages with policy institutes in Indonesia (ICASEPS) and Vietnam (ISPAE). Regionally, IP4 strengthened dialogue through partners such as APRACA and collaboration with universities including Zhejiang University, while engagement with FAO RAP, ADB, and GIZ helped connect IP4 evidence products (notably the regional assessment and the ASEAN–China workshop) to broader ASEAN food security, trade, and strategic planning processes. These partnerships enabled IP4 to move from stand-alone analysis toward coordinated regional and national pathways for scaling regenerative value chains.

IP 5	IP5's partnerships build on earlier years and connect crop health, food safety, and One Health systems across ASEAN through national agencies, universities, and multi-sector platforms. In crop health, stakeholder engagement expanded in Cambodia through collaboration with the General Directorate of Agriculture (GDA), CARDI, ITC, and RUA, supporting scoping work, evidence generation, training, and scaling readiness processes related to biological control and safer pest management. In the Philippines, IP5 engaged the Bureau of Plant Industry (BPI) and relevant private organizations to strengthen linkages for plant health activities. For livestock and One Health collaboration, IP5 strengthened national engagement through the addition of NAHPRI in Cambodia, supporting evidence and coordination on animal health and AMU-related workstreams. Across food safety and One Health platforms, IP5 worked through multi-sector coordination mechanisms (notably in Vietnam and Lao PDR under evolving institutional arrangements) and built synergies with IP1+ and other CGIAR initiatives to sustain networks, capacity development, and scaling pathways despite funding constraints.
IP 6	IP6 partnerships were structured around co-designing and operationalizing bundled CSA loan products that reduce lending risk while improving farmer access to finance, bringing together local financial institutions, value chain actors, and CGIAR technical support. In the maize lending context, collaboration linked a cooperative bank, a seed aggregator (providing seeds in-kind and anchoring repayment through off-take arrangements), participating farmers, ImpactSF/CGIAR science and data (ImpactSF Analyzer), and a local insurance provider to structure parametric risk protection and strengthen repayment confidence. In the vegetable lending context, IP6 worked with a public development bank, farmer groups/cooperatives, and suppliers (net house and solar irrigation providers) to enable controlled disbursement and reduce misuse of loan proceeds; where insurance was not viable, a bank-managed financial protection mechanism replaced the insurance layer. These partnerships are central to IP6's approach of demonstrating how CGIAR data and risk analytics can convert perceived agricultural risk into viable lending opportunities.
IP 7	IP7 partnerships combine national research and implementation partners with next-user government agencies and sector platforms to translate evidence into planning and investment pathways for farmer-led irrigation. Core partners include the National Agriculture and Forestry Research Institute (NAFRI) in Lao PDR and the Royal University of Agriculture (RUA) in Cambodia, supporting mapping, assessments, and knowledge products. As evidence and tools matured, IP7 strengthened engagement with the Department of Irrigation (DOI) in Lao PDR to connect suitability mapping and solar irrigation learning with policy and programming needs. IP7 also engaged with ADB and irrigation sector coordination mechanisms (including sub-sector working processes) to ensure evidence on technical and governance requirements for sustainable solar irrigation is reflected in stakeholder dialogue and investment planning.
IP 8	IP8 partnerships enabled participatory food systems assessment, national ownership, and sustained evidence of use by working through core government and research institutions in each country. In Vietnam, IP8 collaborated with ISPAE and ICD-MAE to align food system profiling and associated reviews with national planning and monitoring needs under the National Action Plan for Food Systems Transformation; IP8 also worked with the One Health Partnership mechanism (with ILRI and CIAT) to support coordination relevant to food safety platforms. In Cambodia, IP8 partnered with CARD and IIRR, strengthening multisector engagement and ensuring that food systems profiling and nutrition behavior change strategy review outputs are embedded in national dialogue and follow-up action. In the Philippines, IP8 partnered with DOST-FNRI—including through the PALIGID program framework—to convene multi-stakeholder consultations and co-develop the Philippine Food System Country Profile. Collectively, these partnerships strengthen multisectoral coordination and position food system evidence products for continued use beyond the reporting period.

CGIAR, ASEAN & BILATERAL PORTFOLIO LINKAGES

In 2025, the IFNRP program deepened linkages with CGIAR portfolios, ASEAN mechanisms, and bilateral projects to maintain momentum under tighter resources and accelerate uptake of priority innovations. By aligning technical work, capacity strengthening, and policy dialogues with partner investments and regional agendas, these collaborations increased coherence across initiatives and strengthened scalable pathways for impact in ASEAN agri-food systems.

CGIAR Initiatives, Science Programs and Accelerator

Name of Initiative	IP Linked	Linkage to the Program
Climate Action Science Program	1, 1+, 2	IP2 contributes evidence and capacity aligned with CGIAR climate mitigation priorities in rice systems, particularly through GHG measurement training and promotion of low-emission practices (e.g., AWD and direct-seeded rice).
Sustainable Farming Program	1, 1+, 2, 5	IP2 and IP5 align with Sustainable Farming priorities by strengthening low-emission/nature-positive production pathways; IP5 contributes through biological control evidence (scoping) and protocol development supporting safer pest management options.
Scaling for Impact (S4I)	1, 1+, 2, 5	Innovations and evidence generated under IP2/IP5 (e.g., rice–fish bundling; diversification; biological control scaling readiness) provide inputs for scaling pathways, while S4I provides the broader mechanism for taking validated packages toward wider uptake. S4I has provided many of the conceptual and practical tools used to guide identification and strengthening of scaling pathways in IP1+, including scaling readiness analysis.
One Health	1+, 5, 8	IP5 and IP8 align with One Health platforms through food safety risk assessment, multi-sector coordination processes (e.g., technical working group mechanisms), and strengthening risk communication and governance linkages. IP1+ aligns with One Health platforms through strategies to produce and distribute safer food and address climate-disease-production-health nexus issues through diversified production systems.
Sustainable Animal and Aquatic Foods (SAAF)	1, 1+, 5, 8	IP5's food safety and One Health-related capacity strengthening and IP8's food systems work connects with SAAF priorities on safe animal-source foods and improved food safety governance through regional exchange and learning. IP1's emphasis on reducing anti-microbial resistance and improving food safety connects with SAAF priorities on safe animal-source foods and improved food safety governance through regional exchange and learning.
Agroecology Initiative	1,1+, 7	IP1, IP1+, and IP7 shares geographic focus and learning (e.g., Lao PDR focal areas) and builds on baseline analyses and partner networks, enabling complementary evaluation of barriers/opportunities and pathways for scaling rice-aquatic foods-vegetables systems, and farmer-led irrigation (FLI).

Name of Initiative	IP Linked	Linkage to the Program
Multifunctional Landscapes	1,1+, 2, 3, 7	IP1, IP1+, and IP7 contributes evidence and tools supporting integrated resource management (water, land, and farming systems), strengthening landscape-level understanding of where and how diverse integrated systems can be promoted and where more intensive systems may be preferable, as well as irrigation expansion can be sustainable. IP3 has contributed to the ongoing work of Multifunctional Landscapes in a number of ways, including highlighting the importance of school meals as a driver to create demand for regenerative agriculture from healthy landscapes. In 2025, IP3 was part of the Multifunctional Landscapes writing team that published the milestone publication, <i>Mainstreaming agrobiodiversity for planet-friendly meals for children: A Scoping Review</i> , in the Lancet Planetary Health Journal. IP3 was also part of the team that recently secured funding from the IDRC on a scoping study to assess the market readiness of countries for regenerative school meals.
Better Diets and Nutrition (BDN)	1,1+, 3,8	IP1 benefits from collaboration (feedback, technical support, alignment) to strengthen the argument for healthier and more sustainably produced food and ways of making it accessible to more people. It also supports the arguments for greater production (and often, therefore) dietary diversity. IP8 benefits from BDN/SHiFT collaboration (feedback, technical support, alignment) to strengthen food systems profiling and leverage points for sustainable healthy diets. The work of IP3 contributes to BDN by highlighting the importance of schools as platforms for regenerative agriculture and healthy, diverse foods.
Gender Equality and Inclusion Program Accelerator (GEI) And CGIAR Gender Platform	1+, 7	IP7 and IP1+ have drawn on frameworks and analytical tools developed in the CGIAR Gender Platform and the GEI accelerator, including for the development and suggested application of a combined Reach-Benefit-Empower-Transform (RBET) and Socio-Technical Innovation Bundles (STIBs) approach (RBET-STIBs). The platform's past programs and current GEI work are also supporting continued collection of gender disaggregated data and a shift to intersectional analysis of inclusion and impact of technology development, ultimately aiming to help bring about 'just sustainability transitions' in agrifood systems.

ASEAN and Bilateral Initiatives

Bilateral Initiative	Funder	IP Linked	Linkage to the Program
AQUADAPT program – climate adaptive nature-based aquaculture in Asia-Pacific	IDRC, Canada	1, 1+	Models for designing climate-adaptive, nature-positive solutions in aquaculture; GESI inclusion approaches
Youth Entrepreneurship in the Blue Economy	Standard Chartered Foundation, Singapore	1+	Regional support to young entrepreneurs in 4 ASEAN countries to gain work experience in the blue economy.

Bilateral Initiative	Funder	IP Linked	Linkage to the Program
MAFF Japan – AGRI Project (Accelerating GHG-reducing Innovations)	MAFF, Japan	2	Directly enabled IP2's regional GHG measurement training (co-financing and co-implementation), strengthening MRV capacity and alignment with international standards for policy-relevant mitigation in rice systems.
Development of Rice Cropping Systems Toward Carbon Neutrality and Food Security in ASEAN Countries	MAFF, Japan	2	Supports field-relevant evaluation and demonstration platforms for low-emission practices and technologies (including iron-coated seed demonstration), strengthening IP2 scaling readiness and private-sector engagement.
ASEAN and China: Comparative Study on the Development of Regional Agri-food Value Chains in the Process of Economic Transition	NSFC + CGIAR/IFPRI	4	Provides complementary analytical foundation for IP4's evidence base on trade/value chain dynamics, strengthening regional dialogue and policy recommendations relevant to ASEAN-China engagement.
Green Financing for Food System Transformation in China and ASEAN	Zhejiang University + Ford Foundation	4	Strengthens IP4 linkages to green/blended finance dialogue and financing instruments that can support regenerative value chains, complementing IP4's ASEAN-China workshop and follow-up consultations.
ASSET – Agroecology and Safe Food System Transitions	AFD, EU, FFEM	5, 8	Provides complementary platforms and stakeholder engagement relevant to food systems transition indicators, including food safety and socio-economic dimensions; supports mutual learning and alignment of profiling and transformation pathways.
Climate-Smart Pest Management (CSPM)	Philippine DA-BAR	5	Co-funds and complements IP5 work on biological control screening/efficacy and eco-friendly pest management, strengthening the evidence-to-application continuum and scaling readiness.
Sub-sector Working Group on Irrigation (Lao PDR) – Secretariat/ engagement role	—	7	IP7 evidence and messages were delivered through sector coordination mechanisms, supporting alignment with irrigation planning and stakeholder dialogue in Lao PDR.
Technical support for groundwater management (Lao PDR)	Australia Water Partnership	7	Links to IP7 by strengthening government capacity and plans for sustainable groundwater management, which underpins sustainable expansion of groundwater-based solar irrigation and FLI.
Project for Promoting Climate Resilient Irrigation (PPRI) (Lao PDR)	—	7	IP7 findings and tools are being applied in specific implementation contexts, supporting practical uptake of climate-resilient irrigation approaches and field learning.



ADAPTIVE MANAGEMENT

Key challenges	Management response (mitigation / recommendation)	Supporting rationale
Funding constraints required prioritization and reduced scope across several activities	Concentrated delivery on high-leverage outputs (evidence products, capacity strengthening, and targeted convening platforms), and increased reliance on partner platforms and co-financing where feasible. <u>Recommendation:</u> Actively seek co-financing / alignment with bilateral initiatives for Phase 2.	Prioritization protected delivery quality and ensured that limited resources produced usable outputs and decision-ready evidence, while phased sequencing preserves the pathway for later implementation when resources allow.
Scaling depends on incentives and market logic, but adoption remains constrained where near-term returns are unclear (e.g., low-emission practices, diversification/ biocontrol)	Strengthen the “value proposition” for users by bundling climate/environment benefits with productivity and profitability drivers and pairing technical packages with enabling conditions (MRV readiness, service models, demonstrations, and market linkages).	Farmers and value-chain actors prioritize immediate viability; combining mitigation/sustainability gains with clearer economic benefits reduces perceived risk and strengthens uptake potential.
Partnership structures were sometimes activity-based, limiting continuity and multi-country scaling	<u>Recommendation:</u> shift toward consortium - style, multi-country partnerships and longer-horizon collaboration anchored in scaling platforms (e.g., consortia, working groups, regional convenings), building on Year 3 collaborations already in place.	Longer-term partnership structures reduce fragmentation, support shared investment and learning, and sustain scaling pathways beyond single events or pilots.
Difficulty identifying a bankable pipeline of farmers aligned with the risk/impact appetite of local financial institutions (delaying maize loan rollout).	<u>Recommendation:</u> develop a “farmer bankability readiness” approach (analogous to incubation/acceleration) to support due diligence, strengthen compliance with farm plans, and structure borrowers for finance uptake.	The primary bottleneck was not loan design but pipeline readiness; farmers require tailored preparation and screening criteria to unlock lending at scale.
Limited availability/ viability of scalable de-risking instruments (e.g., parametric insurance) constrained finance innovation	<u>Recommendation:</u> Strengthen collaboration with insurance/ reinsurance providers and use scientific data to improve risk capture and pricing; where insurance is not feasible, apply alternative protection mechanisms while building the evidence base for future insurance uptake.	Scalable risk-transfer instruments materially increase lender confidence and farmer access; science-based pricing and design improves feasibility and affordability.
Data constraints affected analytical tools and targeting (e.g., groundwater data and ground-truth validation for mapping)	Applied methodological workarounds (proxy datasets, staged validation) while progressively improving data coverage through national partner engagement and iterative tool refinement.	Workarounds allow tools to remain useful and credible now, while longer-term accuracy depends on improved data systems and validation coverage.
Institutional engagement varied across countries, requiring adaptive targeting of effort	Refocused engagement toward countries and agencies with stronger enabling conditions and partner readiness and used sector coordination mechanisms to keep evidence visible in planning and investment discussions.	Concentrating effort where demand and institutional readiness are higher increases the probability of uptake and reduces the risk of spreading resources too thinly.

KEY RESULTS STORIES

Across the Intervention Packages, key results in Year 3 demonstrate how the program is translating CGIAR science into practical pathways for scaling (by strengthening technical and institutional capacity, generating decision-ready evidence, and convening partners across research, policy, finance, and delivery systems). The short stories below highlight concrete results that are representative of broader progress, capturing the context, the innovation or approach applied, and the resulting changes enabled for partners and end users across ASEAN.

IP 1+: Scaling Pathways for regenerative agriculture innovations

Title	Scaling Pathways and Transformative Accelerators to Support Bankable Innovation Bundles to transform ASEAN Agri-food Systems
Context	The CGIAR Innovate for Food Program has researched and piloted over 30 innovations, and other agrifood research and development actors have developed many more in the ASEAN region. Few, if any, have yet scaled to levels where they can be described as transformative. By focusing on scaling reading socio-technical innovation 'bundles' (STIBs) and by identifying key transformation accelerators in the agri-food system, we aimed to make an investment case of 'best bets' for production systems that could support system-level transformation to make the region's food systems healthier, fairer and more sustainable, while also being sufficiently productive and profitable to supply the region's food, grow exports and create and support good jobs.
Partners	All ASEAN-CGIAR program partners have contributed to identifying and capacitating scaling pathways, including all the CGIAR centers involved, but the approach has benefited from a focus on Cambodia and Laos, so partner organizations in those countries have been particularly critical. They range from rice-fish farmers to leaders of the national Planet-Friendly School Meals program and from the Agricultural Development Bank of Cambodia to the Laoatian Ministry of Agriculture
Research/innovation	Strengthening pathways for an agrifood transformation based on regenerative, agroecological and nature-based systems. A combination of scaling readiness analysis of agroecological systems technologies and institutional models, building innovation-coalitions, identifying and strengthening transformation accelerators (value chains and markets, finance for farmers and other value-chain actors, enabling policies, regulatory and incentive mechanisms, MRV/assurance mechanisms) and applying gender transformative approaches (informed by Reach-Benefit-Empower-Transform analysis). In combination, these represent an innovative systems-analysis approach to identifying and developing investment cases for scaling-ready context-specific and socio-technical innovation bundles that, if scaled, would bring about a just sustainability transition.
Results	Combining six regenerative production-system innovations with analysis and capacity development of eight key transformation accelerators results in eight STIBs that have advanced beyond the R&D stage and are either beginning to scale, ready to scale or could scale if key actions are taken to address bottlenecks in the institutional environment. (see Figure 12, below). These are bankable innovations that, if scaled, could each be transformative of the agro-ecosystem or component of the food system they are part of.
Geographic scope	Focus on Cambodia and Laos, but the approach is applicable for the whole ASEAN region

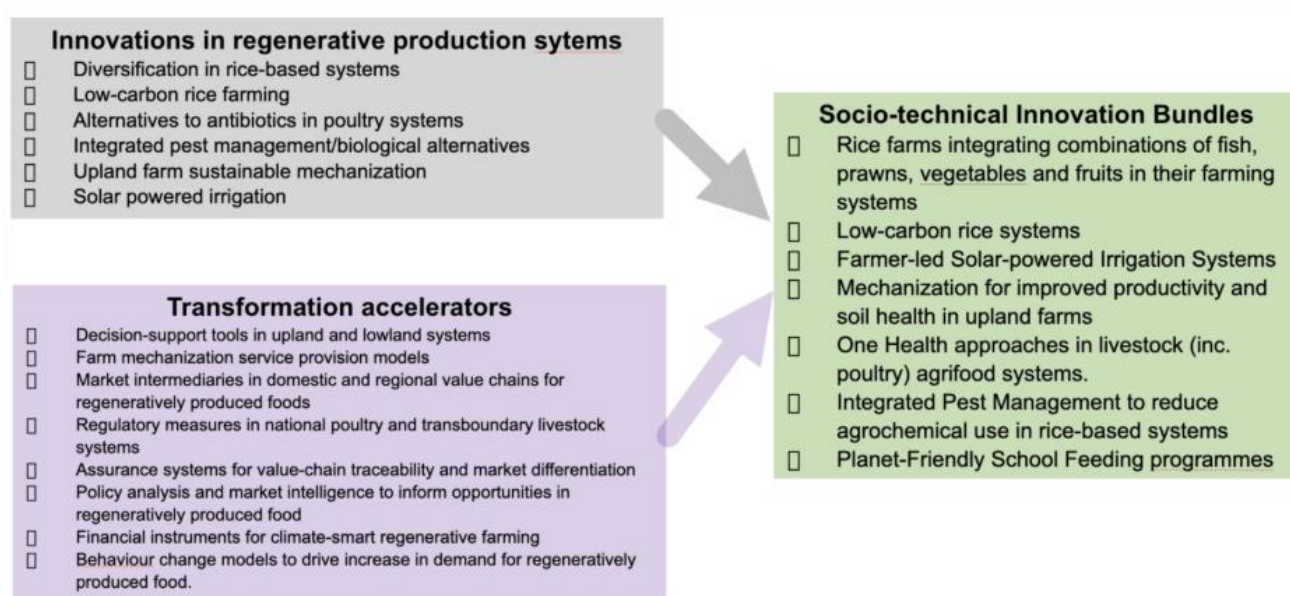
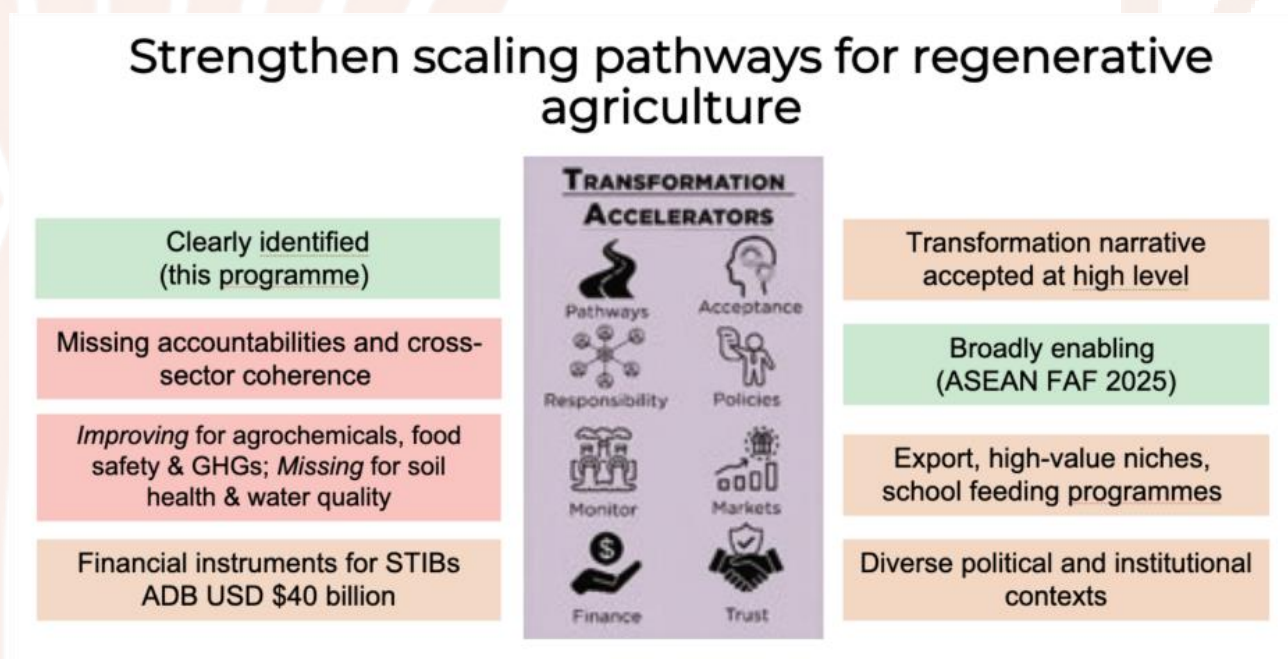


Figure 12. Viable regenerative agriculture innovations to improve food system outcomes, and important accelerators to combine with them in context-specific socio-technical innovation bundles



IP1+: Pathways for scaling regenerative production in Cambodia

Title	The dissemination of the integrated Rice–Giant Freshwater Prawn culture through field exchange visits and workshops in Kampong Thom, Cambodia.
Context	Soil health has been affected by long-term rice monoculture intensification and the excessive use of agrochemical inputs. This is a common practice among farmers, and changing alternative methods is not easy. It has increased household economic risks due to the high cost of chemical inputs and has also had adverse impacts on the environment.
Partners	Department of Aquaculture Development (Fisheries Administration, Ministry of Agriculture, Forestry and Fisheries – MAFF) and the Provincial Department of Agriculture, Forestry and Fisheries.
Research/innovation	Integrated rice–prawn farming demonstration diversifies rice production with aquaculture, helping to broaden and improve household incomes. It also encourages a shift in farmers' mindsets toward adopting integrated and diversified cropping systems.

Results	Dissemination of the field trial results was conducted through workshops with 65 participants, and through field exchange visits involving more than 15 representatives from Shanghai Ocean University, national and sub-national Fisheries Administration offices, the Council of Ministers, and development partners currently designing upcoming proposals. After the field exchange visit, the Council of Ministers promoted rice – prawn culture as one village one product.
Beneficiaries	Government policymakers, agricultural universities, development partners and NGOs, rice farmers, prawn farmers, vegetable farmers, aggregators, researchers, and input suppliers.
Geographic scope	Cambodia, aligning with similar innovations implemented across the ASEAN region, including Malaysia

IP1+: Pathways for scaling regenerative production in upland mixed farms in Laos

Title	Co-designed Decision Support System (DSS) for scaling regenerative agri-food systems transitions in ASEAN (Lao PDR, Cambodia)
Context	Upland systems in Lao PDR and Cambodia face dynamic environmental pressures and limited access to tailored advisory services, limiting the resilience and regenerative capacity of mixed farming systems. While multiple decision-support tools (DSTs) exist, their uptake remains low due to weak integration into extension systems, limited localization, and insufficient user-centered design. Bridging the gap between science-based tools and practical farmer decision-making is critical to enable transitions toward regenerative agri-food systems.
Partners	Multi-stakeholder platform including research institutions, universities, extension services, government agencies, NGOs, private sector actors, and farmer organizations in Lao PDR and Cambodia.
Research/ innovation	A co-designed DSS integrating: (i) farmer advisory platform enabling contextual adaptation, validation, and application of DSTs; and (ii) a Regional Systems Science Community of Practice (CopSyS) to build capacity and support scaling. The DSS operationalizes multiple tools (G-FEAST, I-CLEANED, TropicalForages.info, D4R, FarmDESIGN, MyFarmTrees) to assess production systems, identify suitable forage/tree options, and model productivity-environment trade-offs. Scenario-based workstreams guide policy pathways, farm-level transition strategies, and advisory system design for regenerative systems.
Results	DSS package co-designed and validated through a regional multi-stakeholder process (20 participants, 8 institutions) Defined pathway to strengthen institutional capacity through a Regional CopSyS to support sustained DSS uptake and scaling Case study in northern uplands of Lao PDR demonstrating application of integrated DSTs to diagnose feed gaps, optimize forage systems, and design silvopastoral and diversified production pathways.
Beneficiaries	Smallholder farmers; extension agents; policymakers; research and development partners; private sector actors
Geographic scope	Upland Laos, Cambodia; applicable to other upland mixed-farming systems in ASEAN

IP1+: Scaling regenerative Agrifood Systems

Title	Reducing Antimicrobial use in SME chicken farms in Laos and Cambodia
Context	Antimicrobial resistance (AMR) is a growing public health and livestock production risk but data on farmers' antimicrobials use (AMU) is limited and farmers lack information on alternative methods of disease control
Partners	Lao PDR: National University of Laos (NUoL FAG), Cambodia: National Animal Health and Production Institute (NAHPRI)
Research/innovation	FarmUse tool to assess antimicrobial use and its drivers in small- and medium-scale poultry farms in Laos and Cambodia; OneHealth sentinel sites in Laos to introduce improved practices to reduce AMU and improve flock health.
Results	Co-designed intervention package for chicken farms: better biosecurity, vaccination, and more responsible antimicrobial use Farmers, veterinary service and local research capacity enhanced; evidence base for policy formulation established
Beneficiaries	Lao PDR: Estimated beneficiaries AMU intervention: Poultry farmers (21, direct and about 100 indirect) and community members (>1000, linked to OH villages). Estimated beneficiaries OH operations through OH villages: Estimated beneficiaries: Students/lecturers (100), community members (>1000) in OH villages (2) Cambodia: Estimated beneficiaries AMU assessment: Poultry farmers (250 direct), vet officers in four provinces (>10), members of AMR Technical working group (15) and academia (from 3 universities).
Geographic scope	Laos and Cambodia, but tools and technologies are scalable throughout the ASEAN region

IP1: Gender-equitable Rice-Prawn systems in Kampong Thom, Cambodia

Title	Gender balance, through the active participation of both women and men, has contributed significantly to the successful integration of rice–prawn culture in Kampong Thom, Cambodia.
Context	Small-scale farmers face many challenges related to both human and financial resources. These include small landholdings, limited capital, labour shortages, and weak household decision-making regarding challenges and opportunities. They also struggle with the adoption of new technologies, improving productivity, strengthening farm leadership and management, and defining the roles and responsibilities of household members.
Partners	Department of Aquaculture Development (Fisheries Administration, Ministry of Agriculture, Forestry and Fisheries – MAFF) and the Provincial Department of Agriculture, Forestry and Fisheries.
Research/innovation	The gender-participatory approach applied in the rice–prawn culture has contributed to improved household income. In this approach, the decision for who leads the farm is made jointly by the husband and wife. Leadership is often assigned to the woman based on her capability, leadership skills, and the empowerment she receives from the family. This enables her to effectively coordinate and distribute tasks among household members on the farm.

Results	A woman leading the rice–prawn culture initiative has become a role model for other farmers. She provides technical training on rice–prawn culture, coordinates with input suppliers, and manages the sale of both rice and prawns. She also presents her farming practices to visitors and shares her experiences at various events, including workshops, meetings, and field visits. Based on the success of this model, there are now four rice–prawn farmers—also led by women—in the same district.
Beneficiaries	Government policymakers, agricultural universities, development partners and NGOs, rice farmers, prawn farmers, vegetable farmers, aggregators, researchers, agriculture producers' groups and agriculture cooperatives.
Geographic scope	Cambodia

IP2: Climate Neutrality and Circular Agriculture

Title	ASEAN rice MRV strengthened through two IRRI–MAFF trainings, enabling credible emissions reporting and climate-finance readiness for low-emission rice practices
Context	Rice systems are a major methane source in Southeast Asia. While mitigation practices such as AWD and direct-seeded rice can reduce emissions, large-scale adoption and policy/finance integration are constrained by limited regional capacity to generate reliable, comparable GHG evidence.
Partners	IRRI; MAFF Japan (AGRI Project); participating universities, research agencies, and private-sector institutions.
Research/ innovation	Two linked, hands-on regional trainings hosted at IRRI: a 5-day course on field-based GHG sampling and standards-based data interpretation (May 2025), followed by a 4-day advanced gas chromatography course focused on calibration, QA/QC, troubleshooting, and integrating lab and field datasets (Feb 2026).
Results	Across 9 face-to-face training days, 32 participants (including 6 women) strengthened practical capacity to generate standardized, policy-relevant rice GHG datasets. This reduces a key MRV bottleneck and improves readiness for credible NDC reporting and results-based climate finance for low-emission rice systems.
Beneficiaries	National researchers/labs and extension-linked institutions; policymakers and development partners responsible for emissions reporting and mitigation program design; rice farmers benefiting indirectly through better-targeted, validated low-emission practices.
Geographic scope	Regional participants from multiple rice-producing countries; trainings delivered in the Philippines (IRRI)

IP3: Enhancing ASEAN Agrobiodiversity use and Landscape Biodiversity

Title	School meals delivering for climate and biodiversity at COP30 in Brazil
Context	The session focused on the power of food procurement to simultaneously advance food security, rural development, and climate adaptation and mitigation. Bringing together scientists from CGIAR, academics, local and national policymakers, and civil society leaders, it reviewed emerging evidence on the economic and environmental impacts of school meals and explored how planet-friendly approaches can strengthen local food systems while supporting nature-positive and climate-resilient development.
Partners	School Meals Coalition, Alliance Bioversity CiAT, IFPRI, WFP, BRIN, LSHTM
Research/innovation	The forum, attended by key stakeholders at COP30 in Brazil and organized by the Alliance and its partners, highlighted the critical role of food procurement in delivering planet-friendly school meals for children. The side event underscored how strategic procurement can drive sustainable food systems, support local farmers, and contribute to climate action while improving child nutrition.
Results	Disseminated advocacy briefs on school meals as Climate-Smart Investments: Scaling National Impact. Co-creation of concept note tapping climate financing among key stakeholders in Lao PDR and Indonesia.
Beneficiaries	Donors, Philanthropic Organizations/ Foundations, Policymakers, development partners, researchers, NGOs, and academia.
Geographic scope	Global and Regional (ASEAN)

IP4: Enhancing Value Chains and Regional Trade

Title	Trade and green-finance bottlenecks to scaling regenerative agriculture identified in ASEAN, enabling actionable pathways for Cambodia and Lao PDR
Context	Regenerative agriculture pilots are emerging in ASEAN, but scaling remains constrained by fragmented policy implementation, weak market incentives, and limited harmonization of standards and certification needed for trade and investment.
Partners	IFPRI; stakeholders consulted in Cambodia and Lao PDR; regional and finance dialogue platforms engaged through IP4 convenings (e.g., ASEAN–China workshop).
Research/innovation	A structured regional assessment reviewed regenerative agriculture–related trade and value chain initiatives, sustainability frameworks, and market mechanisms, with focused engagement in Cambodia and Lao PDR to identify gaps and opportunities for scaling.
Results	Produced a decision-support evidence base that clarifies where trade rules, certification/standards, and market incentives break down and outlines priority scaling pathways and policy recommendations at national and regional levels—strengthening conditions for moving from pilots toward structured scaling of regenerative value chains.
Beneficiaries	ASEAN Secretariat and technical divisions; national policymakers and research institutions; development partners and finance actors supporting trade, competitiveness, and sustainability transitions.
Geographic scope	ASEAN-wide relevance, with focused analysis and engagement in Cambodia and Lao PDR

IP 5: Transboundary Pests and Diseases

Title	One Health field platforms expanded to strengthen antimicrobial use awareness and farm management in Lao PDR, with AMU evidence extended to Cambodia using the AMUSE tool
Context	Prudent antimicrobial use (AMU) in livestock is essential to reduce antimicrobial resistance (AMR) risks to human health, yet evidence on AMU drivers and practical community-level mechanisms to improve practices remains limited in many contexts.
Partners	NUoL (Lao PDR); NAHPRI (Cambodia); CGIAR AMR Hub / AMUSE tool collaborators; One Health village platforms.
Research/innovation	Application of AMUSE to assess AMU drivers in Cambodia and implementation of AMU-focused model farm interventions linked to One Health village sites in Lao PDR, paired with community engagement and “learning-by-doing” approaches.
Results	Generated actionable evidence on AMU drivers and strengthened farmer awareness and farm management practices through One Health-linked model farm approaches, supporting more targeted interventions and multi-sector readiness for AMU/AMR risk reduction.
Beneficiaries	Poultry farmers and communities; university students and field officers; public health and veterinary authorities.
Geographic scope	Lao PDR (Vientiane and Luang Prabang); Cambodia (Takeo, Kampong Cham, Kampong Speu, Kampong Chhnang)

Title	Rice diversification with mung bean and watermelon reduced pest damage and emissions while increasing profitability in Cambodia
Context	Rice systems face increasing pest pressure and climate stress, while heavy pesticide reliance undermines environmental outcomes and increases production risks. Farmer-accepted, biodiversity-based alternatives are needed for resilient intensification.
Partners	CARDI; GDA; local partners supporting field implementation and farmer engagement.
Research/innovation	Field-tested rice-based diversification package (mung bean bund crop in wet season; watermelon in dry season) coupled with training materials to support farmer and extension uptake of diversified rice-based systems.
Results	Evidence indicates up to 28% reduction in thrips damage, up to 43% GHG reduction, and profitability increases of up to 3.3 times, supporting a scalable, climate-adaptive alternative to pesticide-reliant monocropping.
Beneficiaries	Farmers and agricultural cooperatives; extension intermediaries; national institutions supporting diversification and sustainable production practices.
Geographic scope	Cambodia

IP 6: Private sector investment and sustainable financing

Title	Bundled CSA loans co-designed with local banks convert climate risk into bankable lending opportunities for smallholders
Context	Smallholders often face limited access to formal finance for climate-smart agriculture due to high perceived production risk, collateral requirements, and high transaction costs for lenders.
Partners	CGIAR Hub for Sustainable Finance (ImpactSF); participating cooperative bank and public development bank; value chain partners (aggregator/suppliers); insurance provider or bank-managed financial protection mechanisms (where insurance is not feasible).
Research/innovation	Use of ImpactSF Analyzer to identify seasonal weather risks and co-design structurally de-risked bundled CSA loans, including restricted use of proceeds, repayment logic aligned to production cycles/value chain flows, and layered risk protection through parametric insurance or protection cover.
Results	Enabled partner banks to translate climate risk insights into targeted loan products that improve farmer access to finance while strengthening repayment confidence and enabling impact reporting—demonstrating a pathway for scaling CSA through routine lending rather than donor dependence.
Beneficiaries	Smallholder farmers; participating financial institutions; value chain actors benefiting from more reliable production and supply.
Geographic scope	ASEAN (piloted through partner bank in the Philippines)

IP 7: Farmer-Led Irrigation for Climate-Resilient Agri-Food Systems

Title	Evidence and stakeholder engagement strengthened pathways for profitable, scalable solar irrigation in Cambodia and Lao PDR
Context	Solar irrigation can reduce operating costs and stabilize production in water-scarce, rainfed systems, but scaling requires stronger service ecosystems, financing pathways, and governance models beyond equipment installation.
Partners	IWMI; IRRI; RUA (Cambodia); NAFRI and irrigation authorities (Lao PDR); engagement through sector coordination mechanisms and development partners where relevant.
Research/innovation	Surveys and rapid assessments of communal solar irrigation systems combined with market and inclusion analysis and structured stakeholder outreach to identify bottlenecks and enabling solutions for scaling.
Results	Produced actionable guidance emphasizing integrated system design—proper sizing, reliable water resources, transparent governance and cost recovery, and alignment with profitable farming systems—supporting stronger planning and investment decisions for scaling solar irrigation.
Beneficiaries	Smallholder farmers; irrigation agencies; service providers; development partners supporting climate-resilient irrigation.
Geographic scope	Cambodia and Lao PDR

IP 7: Farmer-Led Irrigation for Climate-Resilient Agri-Food Systems

Title	1-km suitability mapping tool identifies high-potential zones for farmer-led irrigation, improving targeting of irrigation investments in Cambodia and Lao PDR
Context	Irrigation expansion often lacks localized evidence on where investments are viable. Rainfed dominance and infrastructure gaps limit productivity, while groundwater and accessibility constraints vary widely across landscapes.
Partners	IWMI; CIMMYT; IRRI; RUA (Cambodia); NAFRI (Lao PDR); national irrigation stakeholders.
Research/innovation	Remote sensing–based web tool using an integrated multi-criteria framework (land, water availability, accessibility) to map FLI suitability at 1 km resolution for subnational targeting and planning.
Results	Identified substantial opportunity for targeted expansion—~25% of cropland in Cambodia and ~59% in Lao PDR with moderate-to-high suitability—enabling more precise planning and reducing the risk of investing in unviable areas.
Beneficiaries	National and subnational irrigation agencies; development organizations; researchers; farmers in prioritized high-potential zones.
Geographic scope	Cambodia and Lao PDR

IP 8: Food Systems Transformation for More Nutritious and Healthy Diets

Title	Participatory food system country profiles strengthen national capacity to monitor and accelerate nutrition-sensitive food systems transformation in Vietnam, Cambodia, and the Philippines
Context	Countries face the triple burden of malnutrition alongside climate vulnerability and fragmented food system data. National UNFSS commitments require evidence-based frameworks to monitor progress and identify leverage points for action.
Partners	ISPAE and ICD–MAE (Vietnam); CARD and IIRR (Cambodia); DOST-FNRI (Philippines).
Research/innovation	Participatory, multi-stage methodology to develop food system country profiles tailored to national contexts while enabling cross-country comparability, complemented by a regional transect profiling approach for cross-border learning.
Results	Produced evidence-based knowledge products that strengthen multisectoral engagement and provide practical frameworks for planning, monitoring, and policy dialogue. In the Philippines, the Food System Country Profile was adopted as a co-developed knowledge product under the PALIGID program, supporting sustained use beyond the project timeline.
Beneficiaries	Government agencies and policymakers; national research institutes; civil society and development partners engaged in food systems transformation.
Geographic scope	National (Vietnam, Cambodia, Philippines) with regional learning relevance across ASEAN



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