Sustainable Farming in Tropical Asian Landscapes

Final project summary: Indonesia

International Fund for Agricultural Development
GRIPS ID 2000002832

Implementer: International Centre for Research in Agroforestry (ICRAF)

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Goal: Emergence of smallholders who are both entrepreneurs and environmental stewards benefiting from well-functioning agricultural service providers and enabling environments for sustainable tropical tree-based commodity value chains at national and regional levels.

Objectives

1) Environmental and social management systems and/or standards leveraged and properly framed to meet sustainability and strategic positioning in the global market.
2) Increased participation of smallholders in value chains based on sustainably sourced commodities in the targeted landscapes.
3) Scaling-up of sustainable commodity value chains at landscape level through strengthening enabling environments by inclusive involvement of local governments and stakeholders.
4) Integrated and effective knowledge and project management.

Countries: Indonesia, Philippines

Duration: 1 July 2020–30 September 2025

Introduction

The *Sustainable Farming in Tropical Asian Landscapes* (SFITAL) programme, coordinated by the International Centre for Research in Agroforestry (ICRAF) and funded by the International Fund for Agricultural Development (IFAD), was designed to address the persistent challenges facing smallholder tree-crop farming systems in Southeast Asia. With a focus on Indonesia and the Philippines, SFITAL built a foundation for climate-resilient, inclusive and sustainable agroforestry landscapes through empowering farmers, strengthening local institutions and catalysing innovation across commodity value chains.

Smallholders are the backbone of tree-crop production in tropical Asia, particularly in commodities such as cocoa and palm oil. Yet they often operate with limited access to quality planting material, technical guidance, secure markets or policy support. At the same time, these farmers face worsening pressures from land degradation, climate change, price volatility and regulatory uncertainty. SFITAL recognised that incremental farm-level improvements were insufficient to transform these systems. Instead, the programme sought to shift entire landscapes through a holistic, systems-based approach that aligns farm practices with policy frameworks, market incentives and ecological integrity.

Over the course of five years (2020–2025), SFITAL piloted its approach in selected districts of Indonesia's South Sulawesi and North Sumatra, two provinces that exemplify the opportunities and tensions surrounding cocoa and oil-palm development, respectively. In Luwu Utara in South Sulawesi, cocoa agroforestry has deep cultural and economic roots but suffers from low productivity and weak generational renewal. In Labuhanbatu Utara in North Sumatra, smallholder oil-palm cultivation is extensive but remains largely informal and environmentally vulnerable. These contrasting contexts provided fertile ground for testing scalable models of sustainable commodity production that are grounded in local realities yet aligned with national and global goals.

A core innovation of the programme was the development of **jurisdictional strategies** for sustainable tree-crop governance. By facilitating the co-creation of regional action plans for sustainable palm oil (the Indonesian acronym is RAD-KSB) and sustainable cocoa roadmaps, SFITAL supported local governments to integrate spatial planning, environmental management and farmer support mechanisms into official development agendas.

At the same time, the programme invested in **farmer capacity building**, reaching over 3000 producers— 30% of whom were women and nearly 20% youth — with training in Good Agricultural Practices (GAP), agroforestry design, business skills and alternative income generation through beekeeping and palm-sugar production.

SFITAL also introduced **digital tools** for participatory monitoring and learning, including e-learning platforms and district-wide monitoring and evaluation (monev) dashboards. These tools enhance transparency, track progress and foster continuous improvement at both community and policy levels.

This final brief presents an overview of SFITAL's key contributions to sustainable cocoa and palm-oil landscapes in Indonesia. It synthesises lessons from implementation, highlights success stories from farmers and local governments and outlines the pathways through which these models can be scaled and institutionalised. As countries across Southeast Asia seek to reconcile economic development with environmental sustainability and social equity, SFITAL offers a practical, field-tested framework for inclusive landscape transformation.

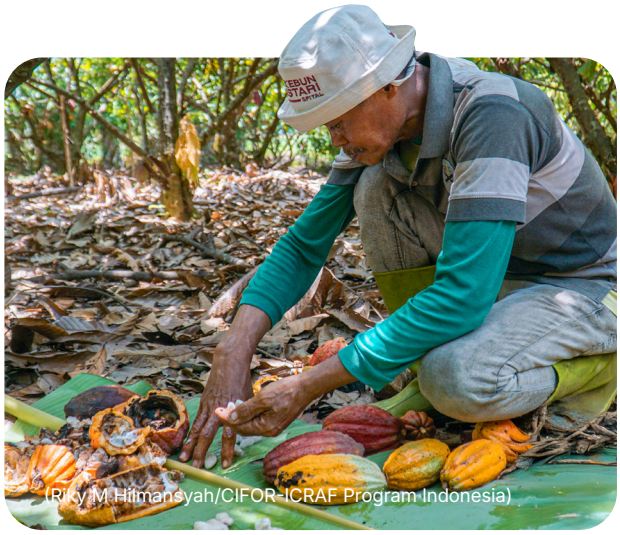
Problem statement: Sustainability standards, smallholders and landscape-scale transformation

Global demand for certified sustainable agricultural commodities is rising rapidly, reflecting growing concerns about deforestation, labour conditions and supply-chain transparency. Voluntary certification schemes such as Rainforest Alliance, Fairtrade and RSPO have evolved to include broader goals like biodiversity conservation, improved smallholder livelihoods and enhanced transparency. Alongside these, many companies are developing internal sustainability frameworks, investing in traceability and governance systems to meet ESG commitments and safeguard brand reputation.

However, smallholders — who produce a significant share of these commodities — face systemic barriers to engaging with sustainability standards. These include high compliance costs, complex documentation, reliance on foreign auditors and long transition periods that may involve yield drops or market uncertainty. Supply chains are often fragmented, leaving smallholders isolated and unable to access certification benefits. Without strong cooperatives or inclusive business models, many remain excluded from sustainable value chains, deepening rural inequality.

Even when certification is achieved, returns are often insufficient to ensure a living wage or secure long-term participation. Traceability systems, typically designed for large operations, overlook the realities of resource-constrained farmers. The burden of compliance falls heavily on those least equipped to bear it.

Evidence on the impacts of standards is mixed, with results varying by commodity and context. Success depends on strong facilitation, local adaptation and supportive institutions. While standards may improve certain outcomes, they are rarely transformative on their own. What's needed is a shift from isolated farm interventions to broader landscape-scale approaches embedded in local governance.



(Riky M Hilmansyah/CIFOR-ICRAF Program Indonesia)

SFITAL responded by emphasising multi-level governance, linking smallholders, cooperatives, local governments and provincial agencies. Jurisdictional strategies aligned sustainability standards with spatial planning and policy processes. Participatory action plans — like RAD-KSB and the Sustainable Cocoa Roadmap — helped translate global goals into locally grounded frameworks. Digital tools, inclusive platforms and village incentives reinforced adoption and scaled impact.

Ultimately, sustainable agriculture requires coordinated public–private investment and regulatory alignment. SFITAL's approach demonstrated how smallholders can be central actors in this transformation, not just as adopters of standards but as stewards of their landscapes, co-investors in sustainability and agents of change in their districts and beyond.

Main solutions

1. Jurisdictional landscape planning

Jurisdictional landscape planning is increasingly recognised as a vital approach for achieving sustainability outcomes in agricultural commodity-producing regions. It provides a framework for aligning land use, environmental management and commodity production objectives across entire districts or provinces, thereby transcending the limitations of isolated project sites or farm-level interventions.

The SFITAL programme adopted this approach as a central pillar of its strategy, supporting subnational governments in Indonesia to design and implement landscape-scale solutions that respond to both local needs and global sustainability demands.

In North Sumatra and South Sulawesi, SFITAL facilitated the development and formal endorsement of **Regional Action Plans for Sustainable Palm Oil (RAD-KSB)** and **Sustainable Cocoa Roadmaps** through structured, multi-stakeholder processes. These jurisdictional plans were not imposed from above but were built from the ground up — involving farmers, civil society, local authorities, private-sector actors and customary leaders — to ensure that they reflected local priorities, institutional capacities and landscape dynamics. This participatory model promoted shared ownership and accountability among all actors, thereby increasing the likelihood of effective implementation and long-term sustainability.

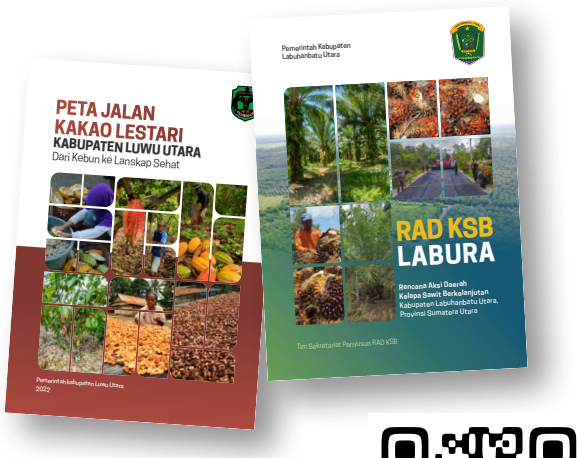
The planning process was underpinned by a strong evidence base. SFITAL and its partners generated and synthesised data on land use, productivity, carbon stocks, biodiversity and socio-economic conditions across the target districts. Spatial analysis played a key role in identifying opportunity areas for sustainable intensification, conservation, restoration and alternative livelihoods.

For instance, in Labuhanbatu Utara, North Sumatra, spatial planning tools were used to overlay oil-palm concessions, smallholder plots, peatland boundaries and forest cover to identify zones where sustainable oil-palm expansion would have minimal environmental risk and high social impact.

Similarly, in Luwu Utara, South Sulawesi, agroclimatic and topographic data were used to zone cocoa-growing areas based on suitability, erosion risk and potential for agroforestry enhancement.

One of the distinguishing features of SFITAL's jurisdictional planning model was its integration of **thematic scenario building**; a method that allows stakeholders to visualise the trade-offs and synergies of different land-use pathways over time.

These scenarios are not purely technical; they are co-developed through facilitated dialogues and validation workshops wherein stakeholders weigh the economic, ecological and social consequences of alternative futures. The result is a set of locally endorsed strategies that can guide spatial planning, investment decisions and cross-sector coordination within each district.



Scan for more information

The resulting action plans and roadmaps were formally adopted by local governments through **district-level regulations (Peraturan Bupati)**, thereby giving them legal force and integrating them into existing development planning frameworks.

For example, the **RAD-KSB in** Labuhanbatu Utara includes five core components: 1) improved data systems and traceability; 2) enhanced farmer capacity and access to the replanting programme (PSR); 3) better environmental safeguards; 4) inclusive governance; and 5) market access, including **Indonesian Sustainable Palm Oil** (ISPO) certification. These elements are now embedded in the district's strategic plans and are being used to guide decision-making on land allocation, licensing and public extension support.

In Luwu Utara, the **Cocoa Roadmap 2022–2024** provided a similar strategic foundation for sustainable cocoa development. It outlined targets and actions for land-use planning, productivity enhancement, value-chain diversification and environmental stewardship. The roadmap was aligned with the Sustainable Development Goals and international certification systems — including Rainforest Alliance and Fair Trade — to ensure coherence with global market expectations. A key feature of the roadmap was its integration with the district's **ecological fiscal transfer (EFT) scheme**, whereby village budgets are partially allocated based on environmental performance indicators, including agroforestry adoption and watershed protection.

Beyond the regulatory documents themselves, the jurisdictional planning approach fostered **new forms of cross-sector collaboration**. In both districts, SFITAL supported the formation of multi-stakeholder platforms — including working groups with representatives from agriculture, forestry, plantation, environment, planning and finance offices — to coordinate implementation and monitoring. These platforms also serve as forums for dialogue with farmers and supply chain actors, helping to align public policy with private investment and community action.

By embedding sustainability priorities into local governance systems and spatial planning instruments, SFITAL's jurisdictional landscape planning work provides a replicable model for transforming tree-crop sectors. It demonstrates how structured, participatory and data-driven planning processes can deliver real policy traction; not just at the national level but also in the districts and villages where change must ultimately take root.

The lessons learned from North Sumatra and South Sulawesi offer valuable insights for other subnational governments across Southeast Asia seeking to operationalise sustainability at scale.

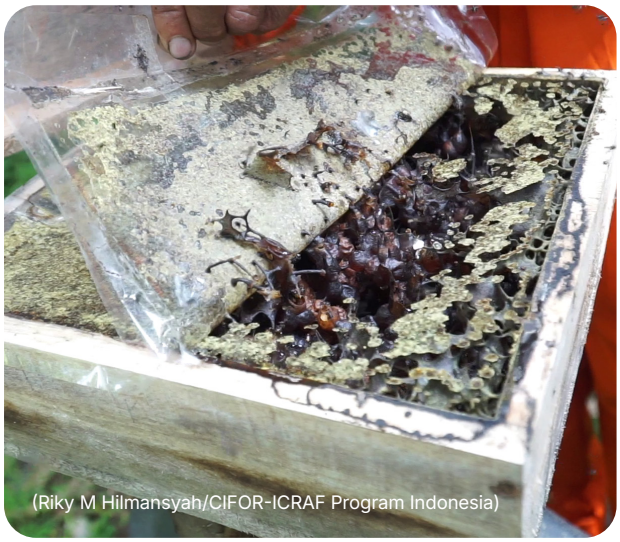
2. Agroforestry-based farmer training and demonstration plots

At the heart of the SFITAL programme's field-level interventions lies a strong emphasis on **farmer capacity building**, grounded in agroforestry principles and designed to catalyse widespread adoption of sustainable practices.

Recognising that smallholders are both custodians of the land and the primary agents of change, SFITAL invested heavily in empowering over **3000 farmers** — including women and youth — across the pilot sites in Labuhanbatu Utara and Luwu Utara with the knowledge, tools and confidence needed to transition toward climate-resilient agroforestry systems.

The cornerstone of this approach was the establishment of **agroforestry learning plots**. These plots — typically 0.25 to 0.5 hectares — served as live demonstration sites within farmers' own communities. They were designed collaboratively with farmers, extension officers and local authorities to reflect the biophysical and socio-economic realities of each landscape. By integrating cocoa or oil palm with fruit trees, timber species and annual crops, these demonstration plots showed how multi-strata systems could generate income, improve soil health, enhance biodiversity and build resilience to climate variability, especially during replanting or transition periods.

In Luwu Utara, learning plots focused on cocoa-based agroforestry systems. These included the incorporation of shade trees — such as durian, langsat, rambutan and gliricidia — alongside innovations in drainage, tree spacing and pest control. The plots provided tangible examples of how cocoa agroforestry can restore



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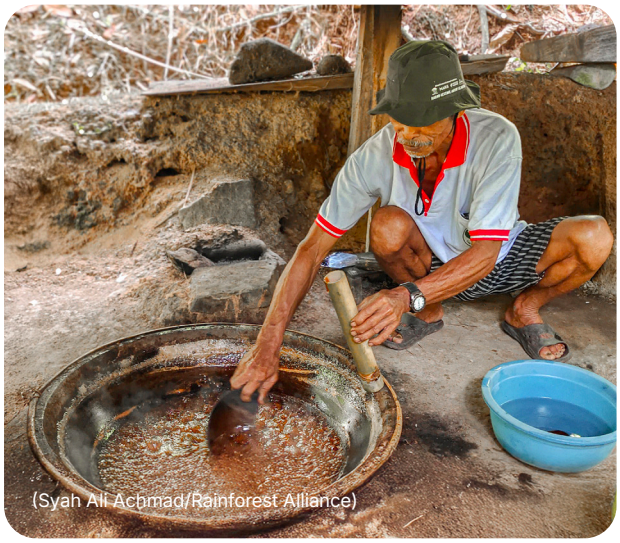


(Syah Ali Achmad/Rainforest Alliance)

Key principles

- **Good Agricultural Practices (GAP)** for cocoa and oil palm
- **Agroforestry system design**, including tree selection, spacing, canopy management and mixed-cropping strategies
- **Climate-smart practices**, such as mulching, composting and water management
- **Farm record-keeping** and simple business planning
- **Gender-sensitive approaches** to land use and decision-making
- **Youth engagement** through livelihood diversification and digital tools

Over **2100 cocoa farmers in Luwu Utara** and **900 oil-palm farmers in Labuhanbatu Utara** participated in these activities.

Special effort was made to ensure that at least **30 percent of participants were women** and **15–20 percent were youth**, recognising their critical roles in farm labour, decision-making and the future of rural livelihoods.

degraded lands, reduce input costs and create new revenue streams, particularly when linked to complementary activities like **beekeeping** (*Trigona* spp) and **production of palm sugar** (*Arenga pinnata* (syn. *Arenga saccharifera*)).

In Labuhanbatu Utara, learning plots were used to explore sustainable oil-palm replanting strategies, incorporating edge-planting of fruit trees and short-cycle crops — such as vegetables or tubers — to buffer income during the early years of oil-palm growth. This was particularly important given the financial risks faced by farmers during the post-clearing phase.

Beyond demonstration, SFITAL implemented a structured and inclusive **training programme** covering a wide range of topics. All training activities were co-delivered by local extension officers, trained 'farmer-champions' and technical experts from ICRAF and implementing partners. The content was tailored to the specific needs of each region but shared a common framework based on key principles.

In addition to hands-on field sessions, SFITAL developed a **national e-learning platform** — www.e-learning.agroforestri.id (Agroforestry School: From Sustainable Plots to Healthy Landscape)— offering interactive modules, discussion forums and downloadable resources.

To ensure the sustainability of capacity-building efforts, SFITAL also supported the formation of **agroforestry-based farmer business groups** (Kelompok Usaha Bersama or KUB). These included groups like **KUB Trigona Mantap**, focused on honey production, and **KUB Aren Malimbu**, focused on palm sugar. These groups not only provide platforms for peer-to-peer learning and value-chain integration but also increase farmers' bargaining power and eligibility for microfinance and public support schemes.

One of the major outcomes of this intervention was a marked shift in farmers' attitudes and practices. Many who were initially sceptical about mixed-cropping or organic inputs began to adopt composting, reduce herbicide use and diversify their income sources. The demonstration plots served not just as technical references but as **community learning hubs**: sites of experimentation, exchange and empowerment.

Moreover, the visibility and credibility of these learning plots encouraged local governments to integrate agroforestry into official extension programming and spatial planning processes. In some cases, learning plots were adopted by local agricultural schools or included in the district's development performance indicators. The hands-on, context-specific nature of the training also helped to de-mystify sustainability standards, such as ISPO and Rainforest Alliance, making them more accessible and actionable for smallholders.

In conclusion, SFITAL's investment in agroforestry-based farmer training and demonstration has proven to be a powerful lever for landscape transformation. It shows that when smallholders are supported with the right knowledge, tools and institutional backing, they are not only willing but eager to adopt sustainable practices. These efforts lay the foundation for more resilient rural economies and more inclusive value chains, turning learning into lasting change.

3. Digital jurisdictional monev and e-learning platforms

Digital innovation has become an essential enabler of inclusive, scalable and transparent rural development.

Recognising this, the SFITAL programme invested in two complementary streams of digital infrastructure — **monitoring and evaluation (monev) systems** and **e-learning platforms** — to enhance the reach, efficiency and sustainability of its interventions.

These tools were designed to serve a diverse set of users — from local policymakers and district officials to farmers, youth and extension workers — and to foster data-informed decision-making across the entire programme landscape.

The **digital monev systems** developed under SFITAL provide real-time, spatially enabled dashboards that visualise programme implementation progress at the district level. These tools are particularly valuable in the context of **jurisdictional sustainability planning**, where multiple actors are involved and decisions must be coordinated across sectors, administrative levels and land-use zones. In both Labuhanbatu Utara and Luwu Utara, monev platforms were co-designed with local governments to align with existing development frameworks and to support the tracking of key performance indicators related to agroforestry adoption, farmer training, environmental stewardship and sustainable commodity production.

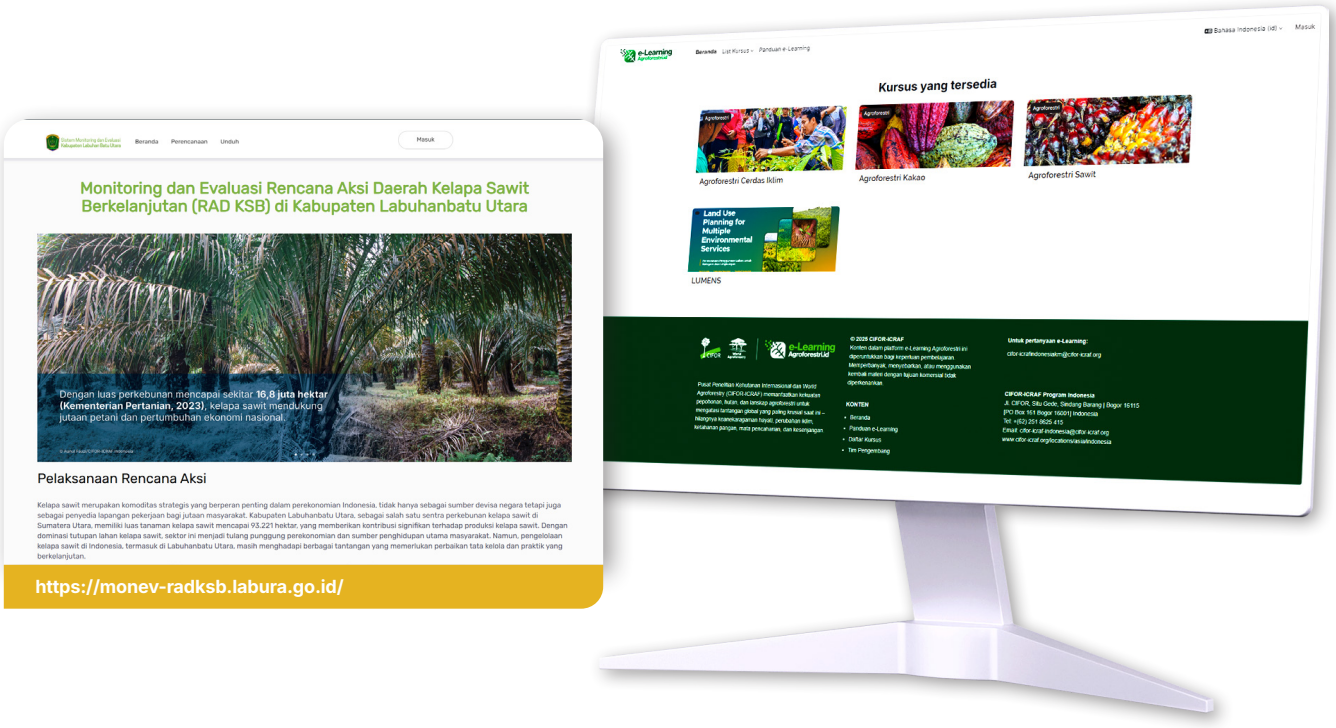
Each monev dashboard integrates multiple data layers — such as training participation rates, replanting achievements, learning plot establishment, certification progress and land-use zoning — into a user-friendly interface accessible by government officers and programme partners.

The dashboards are updated regularly and allow users to monitor activity implementation across districts and villages, identify bottlenecks and make evidence-based adjustments in a timely manner. By offering this level of transparency and detail, the monev platforms also increase accountability and facilitate better coordination among stakeholders.

A unique aspect of the SFITAL monev approach is its **alignment with jurisdictional sustainability frameworks**, including the Sustainable Cocoa Roadmap and the RAD-KSB. For example, in Luwu Utara, monev indicators are structured around the five pillars of the cocoa roadmap: 1) land allocation; 2) farmer livelihoods; 3) productivity and diversification; 4) supply chain inclusion; and 5) environmental incentives.

These indicators also feed into the district's **EFT scheme**, which rewards villages for maintaining forest cover, adopting agroforestry and protecting critical watersheds.

In this way, the monev platform goes beyond simple monitoring: it becomes an operational tool for allocating resources and scaling impact at the landscape level.



Parallel to the monev systems, SFITAL developed and launched the **national e-learning platform** — www.e-learning.agroforestri.id — designed to extend agroforestry education beyond field-based training sessions. This platform caters to a wide range of users, including smallholders, agricultural extension agents, vocational high school students and young entrepreneurs. It is mobile-friendly, free to access and provides content in Indonesian to ensure wide usability.

For farmers and youth who may not have regular internet access, SFITAL worked with local schools and extension offices to offer facilitated sessions using the platform content offline or in group settings.

This digital learning infrastructure has enabled a **blended learning model** that complements SFITAL's field-based activities.

The platform consists of four core learning modules.

1. **Agroforestry system design** — introduces spatial layout, crop-and-tree combinations and ecological principles
2. **Crop-specific GAP** — covers cocoa and oil-palm management, pest control and pruning techniques
3. **Agroforestry as a business** — includes topics such as farm record-keeping, income diversification and value-chain entry points
4. **Post-harvest processing and quality standards** — helps farmers meet market requirements and increase returns

Each module is structured into bite-sized lessons, with multimedia content, quizzes and downloadable material to reinforce learning.

The platform includes a **certification feature** that allows learners to receive digital recognition upon completing a module.

For instance, farmers who attended agroforestry training sessions could later revisit the concepts at home via mobile phone or receive follow-up guidance via WhatsApp groups moderated by trained facilitators. Extension workers have also used the platform to refresh technical knowledge and prepare for field visits, thus strengthening the overall capacity of local agricultural systems.

Importantly, the e-learning platform has become more than a training tool: it serves as a **community of practice**. Discussion forums, success stories and peer-to-peer feedback mechanisms allow users to learn from one another, exchange innovations and celebrate progress. This interactive element builds a sense of ownership and continuity that is often missing in traditional training approaches.

Together, the digital monev and e-learning platforms represent SFITAL's commitment to **building digital public goods** for sustainable agriculture.

They ensure that knowledge is not lost at the end of a project cycle, that progress can be measured transparently and that farmers, especially youth, have continuous access to tools that can support long-term behavioural change.

These systems are scalable, replicable and — with local ownership — capable of catalysing broader transformation across commodity landscapes in Indonesia and beyond.

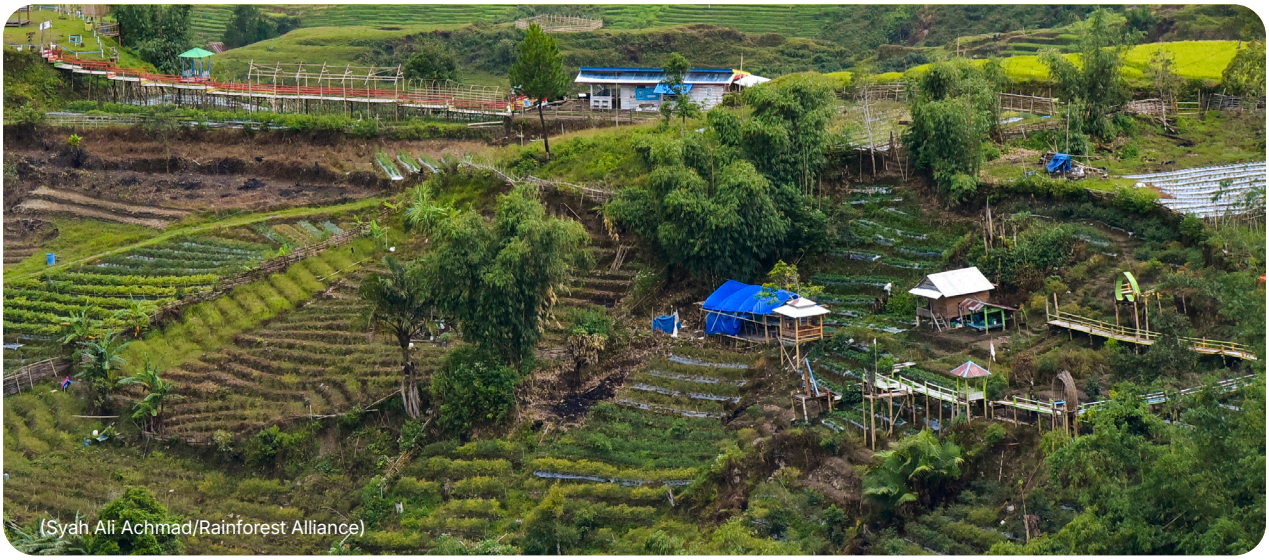
4. Village incentive mechanisms

One of the most innovative elements of the SFITAL programme was its support for **village incentive mechanisms** that link environmental stewardship to fiscal policy and public investment.

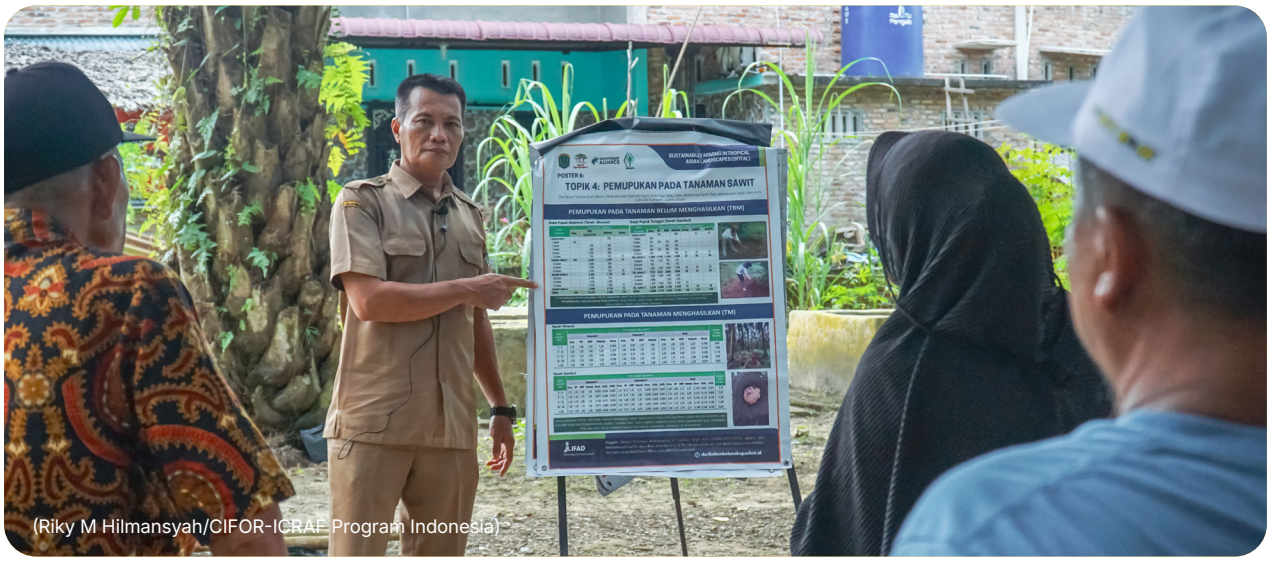
These mechanisms, particularly **EFTs**, offer a promising pathway for rewarding communities that adopt sustainable land management practices — including agroforestry — while protecting forests, water resources and biodiversity. By aligning local financial incentives with landscape restoration goals, these schemes help address one of the most persistent challenges in rural development: how to turn environmental responsibility into tangible economic opportunity at the grassroots level.

In Luwu Utara, SFITAL collaborated closely with the district government to strengthen and scale up its **TAKE (Transfer Anggaran Kabupaten berbasis Ekologi / Ecology-based District Budget Transfer)** initiative, which is a pioneering EFT model that was introduced in 2019.

Under this scheme, a portion of the district's fiscal transfers to villages is allocated based on environmental performance indicators. These include the adoption of agroforestry practices, maintenance of forest cover, protection of riparian zones and implementation of village regulations (Perdes) that promote sustainable



(Syah Ali Achmad/Rainforest Alliance)



(Riky M Hilmansyah/CIFOR-ICRAF Program Indonesia)

land use. The scheme rewards proactive villages with increased budgetary allocations that can be used to support further development priorities, including infrastructure, education and health services.

SFITAL supported the TAKE system by integrating agroforestry-specific criteria into the performance assessment framework. This included indicators such as the following.

- Number of farmers adopting cocoa or palm-based agroforestry
- Area under diversified, shade-integrated planting
- Reduction in herbicide use and increased organic inputs
- Existence of community nurseries and demonstration plots
- Institutional development of agroforestry-focused farmer groups

By quantifying and recognising these efforts, the programme enabled agroforestry to be more systematically valued — not just as a farming technique but also as a form of **public environmental service**. This helped shift the narrative around village development from one focused solely on productivity and income to one that balances economic, ecological and social outcomes.

To operationalise these incentive flows, SFITAL facilitated capacity-building for village officials, ensuring they understood how to integrate environmental goals into **Village Medium-Term Development Plans (RPJMDes)** and **Annual Work Plans (RKPDes)**.

SFITAL also worked with the district's *Badan Perencanaan Pembangunan, Penelitian dan Pengembangan Daerah Provinsi* (Regional Development, Research and Planning Agency / Bappelitbangda) and Environmental Office to standardise data collection and reporting mechanisms for performance verification. As a result, the TAKE system became not just a financial tool but also a **cross-sectoral planning instrument** that united agriculture, forestry, finance and governance actors around a shared landscape vision.

One of the most impactful outcomes of this collaboration was the **mainstreaming of agroforestry into village-level governance**. Dozens of villages began to draft local regulations (Perdes) that supported tree planting, limited the expansion of monoculture systems and encouraged the protection of buffer zones along rivers and hillsides. Some villages initiated their own incentive programmes — such as seedling distribution, land rehabilitation days and youth-led conservation projects — inspired by their eligibility for higher TAKE allocations.

The positive spillover effects of the incentive mechanism were also observed in **farmer participation**. With the prospect of community-level benefits, farmer groups were more motivated to engage in training, establish demonstration plots and coordinate agroforestry efforts across multiple households. In turn, this created stronger social cohesion and a clearer link between individual behaviour and collective gain; a critical condition for sustainability.

In Labuhanbatu Utara, while a formal EFT system like TAKE was not in place, SFITAL helped initiate policy dialogues on the potential for linking fiscal transfers to sustainability outcomes. The programme supported preliminary feasibility assessments, drawing on the Luwu Utara experience to inform discussions with the district government and laying the groundwork for future adaptation of similar mechanisms in oil-palm landscapes.

Village incentive schemes such as EFTs hold tremendous potential to scale agroforestry and ecosystem restoration in a way that is locally grounded, politically supported and financially viable.

However, their effectiveness depends on several enabling conditions, including reliable data systems, clear performance indicators, strong governance and adequate budgetary flexibility.

SFITAL's approach demonstrated that, with the right support, these conditions can be met even in remote or under-resourced areas.

By integrating ecological incentives into the fabric of village planning and budgeting, SFITAL contributed to a more equitable and enduring model of sustainability.

SFITAL repositioned smallholder communities not as passive beneficiaries of development but as active stewards of their landscapes who were capable of delivering measurable environmental outcomes and deserving of direct public investment.

In doing so, the programme provided a blueprint for how climate finance, restoration funding and rural development budgets can converge at the village level to drive systemic transformation from the ground up.


(Riky M Hilmansyah/CIFOR-ICRAF Program Indonesia)

5. Multi-stakeholder engagement

Addressing the complexity of sustainable commodity production in tropical landscapes requires more than technical solutions at the farm level; it demands genuine collaboration among all actors who influence land-use decisions, market access and policy frameworks.

SFITAL recognised this from the outset and prioritised **multi-stakeholder engagement** as a core strategy for building shared ownership, fostering trust and co-developing practical sustainability solutions that reflect diverse perspectives and priorities.

In both Luwu Utara and Labuhanbatu Utara, SFITAL facilitated the formation and strengthening of **district-level working groups** composed of local government agencies, farmer cooperatives, civil society organisations (CSOs), universities, customary leaders and private-sector actors.

These multi-stakeholder platforms served as forums for dialogue, coordination and joint action, helping to align jurisdictional sustainability goals with the realities and constraints faced by communities and businesses operating on the ground.

Each platform was formally embedded within existing district development mechanisms. In Luwu Utara, for example, the cocoa working group was linked to the district's agriculture and planning departments and supported by the head of the district's office. It played a pivotal role in the formulation of the **Sustainable Cocoa Roadmap**, the endorsement of agroforestry targets and the integration of cocoa sustainability into district policy.

In Labuhanbatu Utara, the **RAD-KSB** platform was convened by the local Agricultural Office, with active participation from farmer associations, cooperatives preparing for ISPO certification and the private sector, including palm-oil mills and traders.

One of the most important features of these working groups was their **inclusive representation**. SFITAL worked to ensure that farmers' voices — including women and youth — were meaningfully included in planning and decision-making processes. Farmer cooperatives were not just consulted but treated as co-developers of sustainability solutions, contributing insights on land tenure, production challenges and market constraints. In several cases, leading farmers became focal points within the working groups, facilitating two-way communication between communities and policymakers.

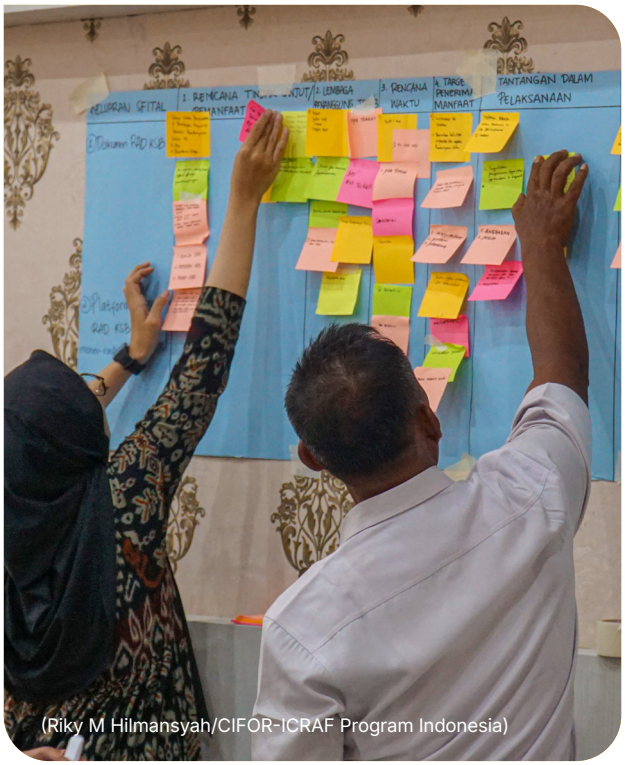
The working groups also provided a platform for the **private sector** to engage constructively in landscape governance. Instead of treating sustainability as an external compliance requirement, businesses were invited to share their priorities, challenges and contributions to jurisdictional sustainability. For example, palm-oil companies in Labuhanbatu Utara discussed traceability targets, opportunities for smallholder inclusion in sourcing arrangements and the potential role of mills in providing training or certification support. In cocoa-growing areas, buyers and processors expressed interest in linking with farmer groups that had adopted agroforestry and quality improvement practices.

Importantly, the platforms were not limited to information exchange; they catalysed **tangible actions**. In both districts, they helped identify and map farmer groups ready to participate in agroforestry training or certification programmes.

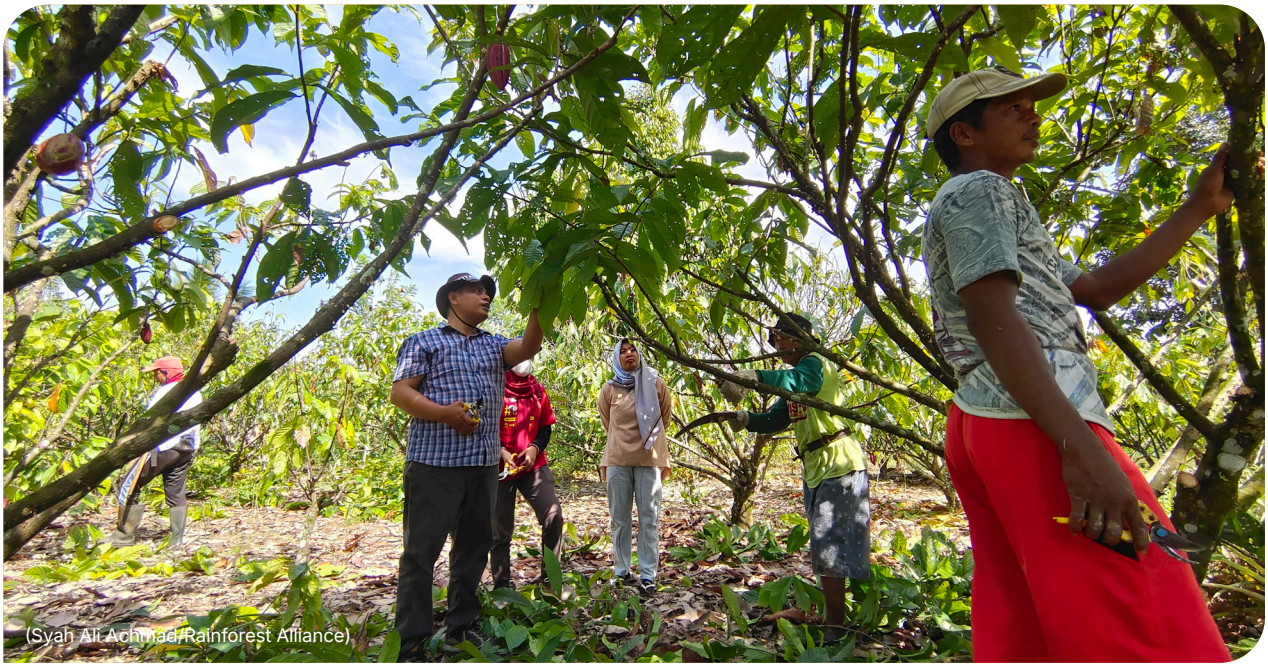
They also coordinated efforts to develop village regulations (Perdes) that support sustainable land management, helped align budget allocations with sustainability priorities, and supported the roll-out of monitoring systems and traceability tools. In some cases, these platforms helped avert duplication by aligning donor and NGO initiatives under a shared framework.

SFITAL supported these working groups with **technical facilitation, capacity-building and convening power**. The programme provided secretariat functions, developed facilitation guidelines and trained local facilitators in inclusive dialogue methods. Special effort was made to build consensus on sustainability definitions, clarify roles and expectations, and manage potential conflicts, for example, between conservation goals and livelihood needs or between large-scale industry and smallholders' interests. This iterative, trust-based approach ensured that the working groups remained functional, action-oriented and aligned with district goals.

As the programme matured, many of these multi-stakeholder platforms gained legitimacy and autonomy, with district governments recognising their value and allocating resources to sustain their operations. Some were integrated into



(Riky M Hilmansyah/CIFOR-ICRAF Program Indonesia)



(Syah Ali Achmad/Rainforest Alliance)

official working units under district planning boards while others continued informally as trusted community institutions.

The SFITAL experience shows that effective multi-stakeholder engagement is not just a box-ticking exercise; it is a cornerstone of sustainable landscape governance. By creating spaces where stakeholders can meet as equals, share knowledge and co-create solutions, the programme helped to bridge institutional silos, surface local innovations and build durable partnerships. These platforms now serve as the institutional scaffolding for future sustainability initiatives, enabling jurisdictional commitments to be translated into coordinated, inclusive and practical action.

6. Value-chain innovations

While agroforestry training and spatial planning lay the groundwork for sustainable landscapes, long-term transformation ultimately depends on how value chains reward — or fail to reward — sustainable practices. Recognising this, the SFITAL programme placed strong emphasis on **value-chain innovation** as a key strategy to improve farmers' incomes, increase resilience and promote inclusive green growth.

By supporting farmer groups in downstream processing, facilitating access to certification and encouraging circular economy approaches, SFITAL helped build the business case for sustainability from the ground up. One of the most successful innovations was the support provided to **honey and palm-sugar producer groups** in Luwu Utara. These groups emerged as community-led enterprises that built on traditional knowledge but were enhanced through SFITAL's technical training, business development support and market linkages.

The Business Group Trigona Mantap farmer group focused on stingless bee honey (madu kelulut) production as an agroforestry-compatible livelihood. Honey production requires maintaining floral diversity and avoiding pesticide use, thereby creating strong synergies with cocoa agroforestry systems. SFITAL facilitated training on beehive construction, colony management and hygienic harvesting and supported the group in developing attractive packaging, branding and basic quality control measures. Similarly, Business Group Aren Malimbu was supported in scaling up its production of palm sugar (gula aren), tapping into a long-standing but under-valued practice in upland villages. SFITAL helped producers improve boiling techniques to increase yield and shelf life and introduced low-cost evaporation technologies.

These interventions not only boosted income but also demonstrated how agroforestry systems can diversify revenue and reduce risk during replanting cycles or price downturns in main commodities like cocoa or palm oil. Through targeted business mentoring and exposure to market partners both groups gained access to niche markets in urban centres and explored certification options under local organic and fair trade schemes.

In Labuhanbatu Utara, where oil palm dominates the landscape, another noteworthy innovation piloted in the programme was the **trial production of organic fertiliser** derived from **palm-oil mill waste**, including empty fruit bunches, palm-oil mill effluent and sludge. These by-products are often treated as waste and can cause pollution if improperly managed. However, they also contain valuable nutrients and organic matter that, if processed correctly, can improve soil fertility and reduce the need for synthetic inputs.

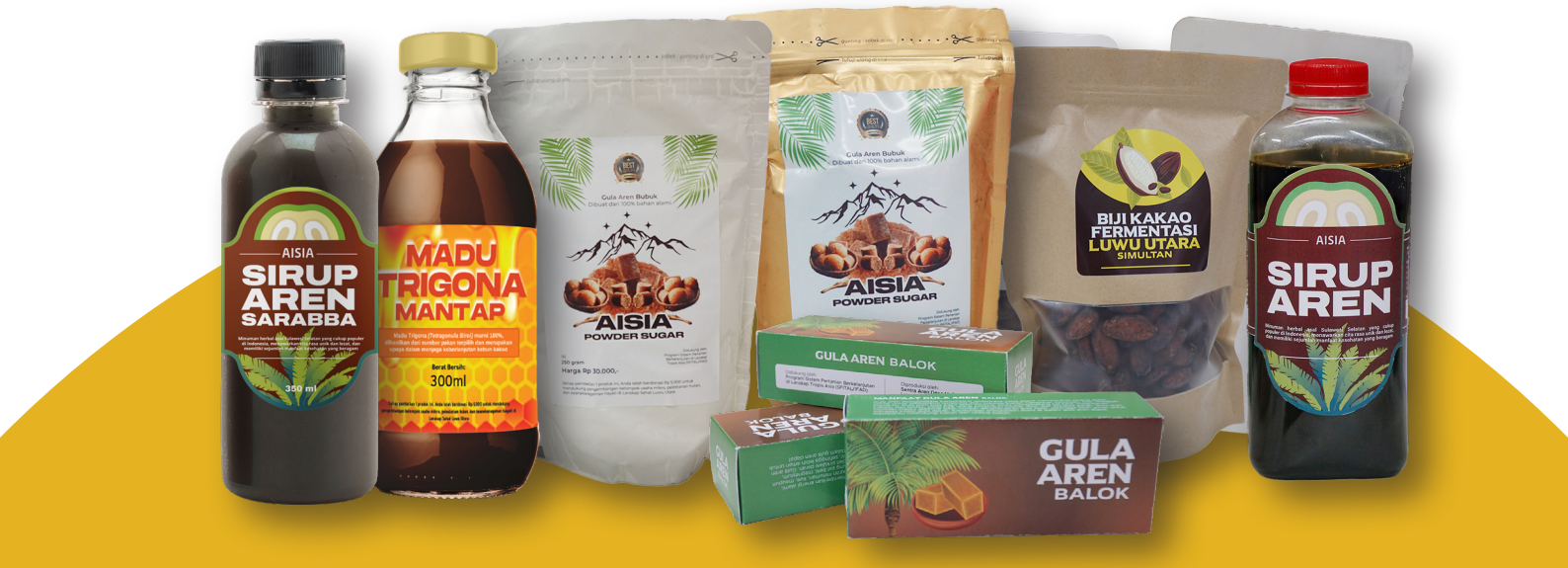
SFITAL collaborated with selected mills and farmer groups to co-design composting trials, test application rates on smallholder oil-palm plots and document yield and soil health outcomes. Initial results were promising, showing reduced dependence on chemical fertilisers and improved cost-efficiency for smallholders.

The integration of **circular economy practices** such as these not only enhances sustainability but also creates new business opportunities for rural enterprises, particularly in input supply and agroecological services. Further, the use of local organic fertilisers aligns with national goals to reduce reliance on imported inputs and to increase climate resilience in agriculture.

Across all these interventions, SFITAL promoted a **market systems development approach**, focusing not only on production but also on post-harvest handling, branding, certification and buyer engagement. The programme emphasised that smallholders should not be seen merely as suppliers of raw materials but as **entrepreneurs and innovators** within the value chain. This shift in perspective opened new doors for public–private partnerships, with buyers and processors showing increased willingness to support farmer capacity, co-invest in infrastructure and comply with jurisdictional sustainability targets.

Importantly, the value-chain innovations were closely tied to the other components of the SFITAL strategy, particularly agroforestry training, spatial planning and multi-stakeholder platforms. Farmer groups that engaged in value-added production also contributed data to monev dashboards, participated in working group discussions and became models for scaling through village incentive schemes like TAKE. This integration ensured that economic incentives and sustainability governance reinforced one another, creating a more durable pathway for rural transformation.

In sum, SFITAL's value-chain innovations helped make sustainability profitable, practical and inclusive: essential ingredients for lasting change across tropical farming landscapes.



Farmers' testimonies

Smallholder voices lie at the heart of the SFITAL programme. Their stories capture the transformation not just of farming systems but of mindsets, livelihoods and community dynamics.

The testimonies below illustrate how agroforestry, supported by inclusive training and incentive systems, has enabled farmers — especially women — to rethink their land, diversify income sources and take pride in stewarding more sustainable landscapes.

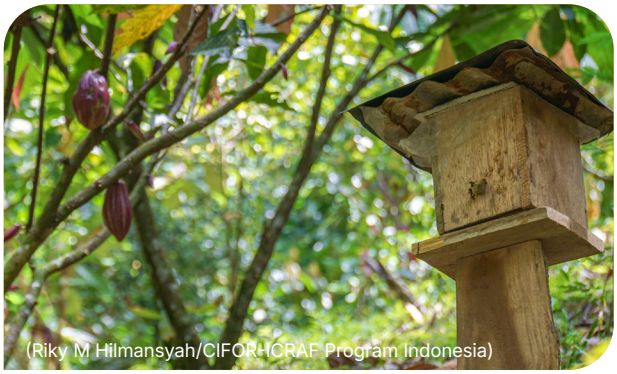
Female farmer – Luwu Utara

> I never thought cocoa could be managed together with timber and fruit trees but now I see our field is more resilient and productive. With beekeeping, we also have daily income.

This simple yet powerful statement reflects the profound change that agroforestry training has brought to women farmers in Luwu Utara. For years, many farmers in this district focused on monoculture cocoa, struggling with declining yields, pest pressure and soil degradation. Through SFITAL's participatory training they learned not only technical skills — such as pruning, composting and shade regulation — but also the value of ecological diversity and multifunctional landscapes.

For this female farmer, the shift began with the establishment of a small **learning plot** on her family's land, where cocoa was intercropped with durian, gliricidia and langsat, guided by an agroforestry design tailored to her terrain. At first, the idea of integrating timber and fruit trees into a cocoa system seemed risky, especially with limited labour and little experience beyond cocoa. But as the canopy matured and pests declined, she began to see improvements in both **yield stability** and **shade resilience**, particularly during prolonged dry periods.

(Riky M Hilmansyah/CIFOR-ICRAF Program Indonesia)


(Riky M Hilmansyah/CIFOR-ICRAF Program Indonesia)

The turning point came when she joined a **beekeeping group**, supported through SFITAL's business diversification training. By placing stingless bee hives (*Trigona* spp) among her flowering cocoa and fruit trees she not only boosted pollination but unlocked a **new source of daily income** through the sale of honey. The honey — branded and bottled through the KUB Trigona Mantap cooperative — now sells in local markets and offers quick returns compared to the seasonal nature of cocoa harvests.

More than just financial improvement, she describes a sense of **empowerment and pride** in being seen as a leader in her village.

"Now I help other women learn what I've learned. We walk the plots together and talk about how to grow strong trees and strong families."

Her story is one among many but it captures the spirit of SFITAL: building sustainable futures by equipping farmers — especially women — with the tools to transform their land and livelihoods.

Male farmer – Labuhanbatu Utara

> Before the training, I didn't understand what ISPO was. Now I've replanted my farm and joined a group preparing for certification. It's not easy but the support helped us take the first step.

For many independent oil-palm smallholders in Labuhanbatu Utara, the concept of **sustainability certification** was once distant and abstract. The ISPO system, while mandated at the national level, was rarely explained in terms that farmers could relate to their daily work. This farmer's story shows how targeted training and group-based support can begin to bridge that gap.

Before SFITAL's intervention, his oil-palm plot had reached the end of its productive life. The prospect of replanting was daunting — both financially and technically — and he had limited knowledge of the documentation, good practices or environmental safeguards required for ISPO certification. Many neighbouring farmers shared the same confusion, unsure how to start or where to find support.

Through SFITAL's district-level training and coordination with local plantation offices, he joined a newly formed **farmer cooperative** aimed at achieving ISPO readiness. The cooperative provided more than administrative support; it offered a space for peer learning, mentoring and collective problem-solving. Together, members mapped their plots, reviewed land-tenure documentation and learned how to keep farm records. They received technical guidance on **replanting strategies**, including


(Riky M Hilmansyah/CIFOR-ICRAF Program Indonesia)


(Riky M Hilmansyah/CIFOR-ICRAF Program Indonesia)

soil conservation, intercropping during the early years and improved spacing to support long-term productivity and compliance.

Although the road to certification is still ongoing, this farmer highlights the value of the **"first step"**. For him, this means seeing his land not only as a source of income but as part of a broader, jurisdictional effort to make palm oil more sustainable, transparent and inclusive.

"It's still a challenge," he says, "but now we know the path; and we're not walking it alone."

His experience shows that with the right facilitation, smallholders can become active participants in global sustainability frameworks; not as passive adopters of standards but as informed contributors shaping the future of their commodity.

Closing summary of achievements

- ☑ SFITAL successfully mainstreamed agroforestry into district policy and farmer practice in two key tree-crop sectors: cocoa and palm oil.
- ☑ Across Indonesia, it supported the formulation of subnational strategies, trained thousands of farmers (30% women, 15–20% youth) and launched digital tools to monitor and scale results. Farmer-led learning plots and business groups now serve as models for replication.
- ☑ The programme demonstrates how locally led, science-based and partnership-driven approaches can deliver lasting transformation in tropical commodity landscapes.

SFITAL in numbers

A snapshot of achievements from 2020–2024 in Luwu Utara in South Sulawesi and Labuhanbatu Utara in North Sumatra.

2 priority commodities

Cocoa and oil palm targeted for transformation through agroforestry, sustainability certification and inclusive governance.

2 jurisdictional action plans endorsed

One **Sustainable Cocoa Roadmap** (Luwu Utara) and one **RAD-KSB Sustainable Palm Oil Plan** (Labuhanbatu Utara), legally adopted at district level.

2900+ farmers trained

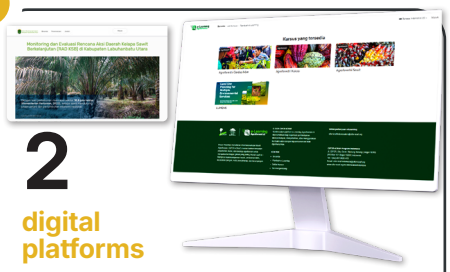
In good agricultural practices, agroforestry design, replanting, ISPO pre-certification, business planning and organic fertiliser use.

30% female and 15–20% youth participation

Reflecting strong gender and generational inclusion in capacity-building efforts.

120+ agroforestry demonstration plots established

Serving as living classrooms for peer-to-peer learning, species diversification and landscape restoration.



2 digital platforms

- **E-learning** platform for farmers and students
- **Monev (monitoring & evaluation) dashboard** for tracking implementation progress

2 local product value chains enhanced

Stingless bee honey and palm-sugar enterprises supported with branding, processing and market linkages.

10+ local regulations (Perdes)

influenced or supported on agroforestry adoption, environmental protection and village incentive eligibility.

1 ecological fiscal transfer scheme

strengthened The TAKE model in Luwu Utara, linking village budgets to environmental indicators and agroforestry efforts.

6 multi-stakeholder platforms

convened or supported Engaging local government, farmer cooperatives, civil society organisations and the private sector.

5 farmer cooperatives supported

Including groups preparing for **ISPO certification**, managing palm sugar or honey enterprises and piloting organic fertiliser use.

Thousands of hectares mapped and zoned

For sustainable replanting, forest buffer protection and diversified agroforestry development.

National spillover effects

- Cocoa roadmap and agroforestry models presented to national ministries
- E-learning platform promoted by vocational schools and provincial training centres
- SFITAL approaches influencing spatial planning dialogue in other palm-oil jurisdictions

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