

Lessons from CompensACTION

Leveraging blended finance for ecosystem services in a changing financial landscape

Hugo Hooijer, Senni Alho, Bruce M. Campbell

Executive Summary

As public funding for ecosystem services in food systems declines, governments and development partners face a pressing challenge: how to sustain and scale environmental incentive programs for farmers while ensuring equity, credibility, and measurable outcomes. Blended finance—the strategic combination of public or philanthropic resources with private capital—offers a promising solution. When well designed, it can mobilize additional investment, reduce risk for private actors, and create longer-term financing structures that reward farmers for the ecosystem services on which food systems depend, while also strengthening farmers' integration into sustainable value chains.

Blended finance brings several key benefits. It allows scarce public funds to be used more strategically by absorbing early-stage or higher risks, thereby unlocking larger volumes of commercial finance. Instruments such as guarantees, concessional loans, and first-loss capital can make investments in sustainable agriculture, agroforestry, soil restoration, and biodiversity conservation more attractive to private lenders and impact investors. These investments are most effective when paired with support for market access and value chain development, helping farmers connect to buyers, meet sustainability standards, and secure more stable and higher-value markets for sustainably produced goods. Blended structures can also



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extend the lifespan of programs: once initial public funding declines, established financial intermediaries, value chain partnerships, and market-linked revenue streams can help sustain activities.

By linking finance to measurable environmental and social outcomes, blended financing models strengthen direct funding toward practices that deliver both livelihood and ecosystem benefits. These approaches not only deliver environmental benefits but can also result in improved farm productivity, reduced climate-related risks, and strengthened access to higher-value markets—creating a clear economic case for investment in sustainable food systems.

Despite this potential, scaling blended finance for ecosystem services faces significant barriers. A central challenge is the mismatch between public-good objectives and private return expectations. Many ecosystem service investments generate long-term environmental benefits but modest or delayed financial returns. This makes it difficult to attract private capital unless public actors provide sufficient de-risking—through guarantees, concessional terms, or performance-based incentives—and help build viable business cases through stronger value chains and reliable market demand.

High transaction costs are another constraint. Supporting dispersed smallholders requires aggregation, technical assistance, monitoring systems, and financial intermediation, all of which are costly. If these functions are treated as short-term project expenses rather than core system investments, financing models often falter. Land tenure insecurity and legal uncertainty further increase perceived investment risk, especially for long-term land-based practices such as agroforestry and restoration. Policy and institutional fragmentation also discourages private engagement, as investors depend on stable and coherent regulatory environments.

Robust yet affordable monitoring, reporting, and verification (MRV) systems are a further prerequisite for scale. Credible data on environmental outcomes are essential not only for public accountability but also for unlocking results-based finance and strengthening confidence among private investors and buyers. However, overly complex MRV approaches can drive up costs and exclude smaller producers. Investing in cost-effective digital tools, community-based monitoring, and nationally aligned MRV frameworks can help balance credibility with affordability. Particular attention is needed to avoid unintended social impacts, including increased labour burdens for women, through early gender analysis and participatory approaches.

Finally, carbon markets are often viewed as a potential long-term revenue stream within blended finance structures, but they are not a short-term solution. Carbon finance depends on strong MRV systems, clear land and carbon rights, and stable regulatory frameworks. In many contexts, these conditions are still emerging, meaning carbon revenues are better seen as a future capitalization source that can complement—rather than replace—public and value chain finance in the early stages of ecosystem service programs.

Overall, **blended finance has strong potential** to move ecosystem service incentives beyond short-term, grant-dependent models toward more durable financing systems that link environmental performance with viable market opportunities. **Realizing this potential requires sustained public investment in de-risking, aggregation, value chain development, institutional capacity, and practical monitoring systems, alongside clear and stable policy frameworks.** When these conditions are in place, blended finance can better align public and private incentives to support farmers, strengthen rural livelihoods, and deliver lasting environmental outcomes.

Key policy actions to scale blended finance and ensure fair, durable ecosystem service incentives

Scaling blended finance for ecosystem services requires not only effective financial structures, but also a clear economic rationale. Investments in nature-based solutions can improve productivity, reduce risks, and strengthen market access—creating more stable and attractive cash flows for farmers and value chains. The following policy actions build on this dual objective of delivering both environmental and socio-economic returns.

1. Design ecosystem service programmes as bundled transition packages that align environmental outcomes with farmer livelihoods.

Structure programmes to combine upfront investment, technical assistance, transition support, and performance-based rewards rather than relying on stand-alone environmental payments. Nature-based practices should be directly linked to tangible livelihood benefits—such as productivity gains, diversified income streams, and reduced climate risk—to ensure sustained adoption.

Why: Evidence from CompensACTION pilots shows that farmers adopt environmental practices when incentives are embedded in a broader transition package and when benefits for farm productivity and resilience are visible early.

2. Anchor ecosystem service finance in long-term institutions and funds rather than temporary projects.

Create or strengthen national climate/emissions reduction funds, landscape restoration funds, or blended finance platforms that have a mandate to operate over multiple years.

Why: CompensACTION pilots in Lesotho, Ethiopia, Brazil and the Fairtrade Access Fund model show that durable institutions—revolving funds, national windows, long-term credit vehicles—are far more effective at sustaining support and crowding in private capital than short-term project envelopes.

3. Use public finance strategically to reduce risks and mobilize private capital.

Provide guarantees, first-loss capital, concessional loans, and government-backed aggregation mechanisms to lower perceived risks for lenders and investors. Pair this with investment in project preparation, farmer aggregation (see 5), and simple but credible MRV.

Why: Private investment does not flow into smallholder or ecosystem-service projects unless early risks are absorbed by the public sector and projects are “investment-ready.” CompensACTION pilots and Chapter 5 both show that the combination of risk-sharing and good preparation can result in more private finance.

4. Ensure farmer benefits through inclusive governance, fair incentives, and strong market links.

Embed farmer representation, transparent benefit-sharing rules, value-chain partnerships, procurement mechanisms, and safeguards for women and marginalized groups. Support programmes that strengthen market access (see 6), price stability, and resilience tools (insurance, risk mitigation).

Why: Pilots demonstrate that farmers adopt and sustain practices only when incentives are fair, predictable, accessible, and linked to real market opportunities—not just environmental payments. Inclusive governance and market integration significantly improve uptake and long-term viability.

5. Strengthen farmer aggregation and value-chain partnerships to reduce transaction costs and create investable scale.

Policy makers should support the development of cooperatives, producer associations, and supply-chain clusters, and encourage anchor-buyer partnerships that standardize quality, aggregate volumes, and reduce per-farmer lending costs. Public guarantees can further de-risk these structures for banks.

Why: CompensACTION pilots show that aggregation is essential for private investment because it lowers due-diligence costs, enables group-based lending, simplifies MRV, and strengthens market integration—making ecosystem-service programmes more bankable and scalable.

6. Leverage public procurement and policy commitments to create predictable demand that attracts private investors.

Governments can use their purchasing power (e.g., school feeding, hospital food, institutional buyers) to provide long-term, sustainability-linked procurement contracts for farmers who adopt ecosystem-friendly practices.

Why: Predictable demand and guaranteed buyers reduce market risk—one of the main barriers for private lenders and impact investors. When farmers have stable off-take agreements, banks are more willing to finance their transition to sustainable practices. This transforms ecosystem services from a “public good” into part of a stable business model.

1. Introduction

As public funding for climate action, environmental protection, and food security declines, the need for innovative financial mechanisms to support sustainable and resilient food systems is becoming increasingly urgent. In the European Union alone, unmet demand for agricultural credit and investment reached €62 billion in 2022, disproportionately affecting young farmers and green investments (European Commission, 2023). At the same time, global assessments show that public funding remains insufficient to meet climate and biodiversity objectives (CPI, 2023). Blended finance—combining public, philanthropic, and private capital—offers a promising pathway to support ecosystem services such as climate mitigation, biodiversity conservation, water regulation, and soil restoration.

This report explores how financial incentives can mobilize private capital for blended finance instruments that reward farmers for maintaining ecosystem services underpinning food security. These services—such as carbon sequestration, biodiversity protection, soil health, and climate resilience—are often undervalued in traditional markets despite being essential for long-term productivity, rural livelihoods, and global environmental goals.

Financial incentives in agriculture are increasingly shifting from traditional subsidies toward market-linked models that reward environmental stewardship and livelihood improvements. The CompensACTION initiative, launched under the German G7 Presidency in 2022 and supported by the German Federal Ministry for Economic Cooperation and Development (BMZ), exemplifies this new generation of compensation mechanisms (CompensACTION, 2024; Federal Ministry for Economic Cooperation and Development, 2022). Through projects in Brazil, Ethiopia, Lesotho, Kenya, India, Nicaragua and Colombia, CompensACTION seeks to demonstrate how fair, transparent, and scalable systems can enhance rural livelihoods while contributing to climate and biodiversity goals.

Drawing on research, field implementation, and international policy dialogues, this report examines how blended finance mechanisms are applied in practice. It highlights successes, persistent challenges—such as monitoring costs, limited institutional capacity, and fragmented policy frameworks—and emerging solutions in financial and program design. Ultimately, the report provides practical guidance for policy officers, financial institutions, and development practitioners on designing

credible, investable, and farmer-friendly financial incentive programmes. It identifies opportunities to leverage private finance and offers recommendations for blended schemes that reward farmers not only for producing food but also for sustaining the ecosystems on which food systems depend.

2. Financial incentives for farmers to support ecosystem services

Financial incentives to support ecosystem functions in food systems are mechanisms designed to reward farmers and land managers for adopting practices that enhance environmental outcomes—such as carbon sequestration, biodiversity conservation, and climate resilience—while also improving their livelihoods. Agrifood systems are central to this challenge: they are a major driver of greenhouse gas emissions, biodiversity loss, land degradation, and water stress, yet they also manage the vast majority of the world's land and natural resources and therefore hold enormous potential to deliver positive environmental change. These incentives aim to bridge the gap between agricultural productivity and the provision of ecosystem services, which remain largely undervalued in traditional markets, despite their critical role in sustaining food security, rural livelihoods, and long-term resilience.



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These incentives function by creating economic value for the positive externalities generated by sustainable land and agricultural management. Instead of focusing solely on crop or livestock production, these mechanisms compensate farmers for:

- **Carbon sequestration** (e.g., through agroforestry or reduced deforestation)
- **Biodiversity conservation** (e.g., protecting habitats or adopting wildlife-friendly farming)
- **Water and soil health** (e.g., erosion control, organic matter enrichment)
- **Climate resilience** (e.g., drought-resistant crops, sustainable irrigation)

These incentives are typically structured as **subsidies, conditional payments, credits, or investments**, and are often linked to measurable outcomes verified through MRV systems (Table 1).

3. Key barriers to scaling financial incentive programs

Scaling blended finance programs for ecosystem services—where public resources are used to mobilize or de-risk private investment—involves a distinct set of structural challenges. These programs must operate at

Table 1: Forms and Shapes of Financial Incentives

INCENTIVE TYPE	DEFINITION & MECHANISM	HOW IT DIFFERS FROM OTHERS	TYPICAL USES IN FOOD SYSTEMS	MAIN FUNDING SOURCES
Payments for Ecosystem Services (PES)	Voluntary, conditional payments to land users for maintaining or enhancing ecosystem services (e.g. carbon sequestration, watershed protection, biodiversity conservation).	Based on the beneficiary-pays principle, linking compensation directly to verified environmental outcomes.	Forest and watershed restoration, agroforestry, soil carbon programs, biodiversity corridors.	Public budgets, utilities or water users, voluntary carbon markets, and blended mechanisms.
Subsidies for Sustainable Agriculture	Governments can make grants, or provide concessional support that lower costs or provide income incentives for adopting sustainable practices or reducing harmful inputs. Can include repurposed subsidies aligned with biodiversity and climate goals.	Broader and less conditional than PES. Focuses on changing input use and production systems through fiscal or policy support rather than direct payments for ecosystem services.	Low-input farming, organic production, input subsidy reform, sustainable irrigation.	National public budgets, international development assistance.
Environmental Taxes and Tax Incentives	Fiscal instruments that discourage environmentally harmful activities or reward sustainable practices through tax credits, deductions, or exemptions.	Indirect incentive working through fiscal policy rather than direct payments; affects producer behavior via price signals.	Tax reductions for reforestation, soil restoration, or biodiversity-friendly investments; eco-tax rebates. Tax imposed on pesticides and fertilizers to reduce overuse.	National or sub-national tax systems.
Green and Concessional Loans	Loans at below-market interest rates or with extended repayment terms for investments in sustainable or climate-resilient agriculture.	Provide up-front capital and liquidity to farmers, enabling transition to sustainable practices; often repaid from productivity gains.	Agroforestry, soil restoration, water-efficient irrigation, renewable energy in agriculture.	Development banks (e.g., IFAD, KfW, World Bank), microfinance institutions, commercial banks with green credit lines.
Blended Finance / Impact Investment	Structured finance combining concessional (public or philanthropic) and commercial capital to de-risk private investments in environmental projects.	Mobilizes large-scale private capital; performance tied to both financial and environmental outcomes.	Landscape restoration, regenerative agriculture, low-emission supply chains.	Public grants and guarantees, private investors, development finance institutions.

INCENTIVE TYPE	DEFINITION & MECHANISM	HOW IT DIFFERS FROM OTHERS	TYPICAL USES IN FOOD SYSTEMS	MAIN FUNDING SOURCES
Carbon Credits	Farmers or land managers receive payments or sell verified credits for emissions reductions or carbon sequestration (soil carbon, trees, avoided deforestation).	Market-based model linking verified ecosystem services to carbon markets; relies on MRV systems for credibility.	Agroforestry, reforestation, soil carbon enhancement, carbon farming	Voluntary carbon markets, Article 6 mechanisms under the Paris Agreement, corporate net-zero commitments.
Insurance-Linked Incentives	Weather-indexed or yield insurance bundled with incentives for adopting sustainable land management practices.	Focuses on risk mitigation and resilience rather than direct financial transfer; encourages sustainable practices by reducing exposure to climate shocks.	Climate-smart agriculture, drought resilience, soil conservation tied to insurance coverage.	Public-private partnerships, insurance consortia, donor-backed risk facilities.

the intersection of public policy goals, private sector risk-return expectations, and the economic realities of smallholder and rural livelihoods.

Evidence from multiple smallholder carbon and ecosystem service initiatives shows that **carbon credits alone rarely provide sufficient income** to drive land-use transitions, especially for farmers cultivating less than two hectares. In many cases, annual revenues from soil or agroforestry carbon credits amount to no more than 50 dollars per farmer per year, after deductions for certification, aggregation, and monitoring costs—far below the level needed to offset the risks and opportunity costs of changing production systems.

Farmers often require **upfront or early-stage payments** to cover the transaction costs of participation, including labor, new inputs, training time, and temporary yield reductions during transition. Without this early financial support, adoption rates remain low even where long-term environmental benefits are clear. Crucially, long-term sustainability also depends on linking environmental transitions to **stronger market opportunities and value chain development**. When farmers can access reliable buyers, price premiums, or more stable contracts for sustainably produced commodities, ecosystem-friendly practices become part of a viable business model rather than a grant-dependent activity. Integrating finance for ecosystem services with market development therefore increases both the durability of outcomes and the attractiveness of investments for private partners.

Another central barrier lies in the **misalignment between public objectives and private financial incentives**.

Many ecosystem service activities, such as landscape restoration, soil regeneration, or biodiversity conservation, generate broad public goods but limited short-term private returns. Even where productivity gains are expected, for example through agroforestry, benefits may take years to materialize and remain vulnerable to climate and market risks. Public actors are typically willing to support these long-term environmental and social outcomes, but private investors require predictable cash flows and manageable risk profiles. This tension between public-good outcomes and private return expectations is widely recognized as a core constraint in mobilizing private capital for land-use and climate-related investments (CPI, 2023; OECD, 2023). Without strong de-risking mechanisms—such as guarantees, first-loss capital, or interest rate subsidies—private capital may hesitate to enter these sectors at scale, or may focus only on lower-risk farmers and regions, undermining inclusion objectives.

High transaction costs may further complicate the economics of blended finance in smallholder settings. Ecosystem service investments are often small and geographically dispersed, yet they require substantial effort in farmer aggregation, technical assistance, monitoring, and financial intermediation. For private financiers, the cost of due diligence, impact verification, and portfolio management can be disproportionately high relative to the size of individual investments. Studies on smallholder climate and nature finance consistently highlight that **transaction costs are a major deterrent to private engagement** unless supported by concessional or grant-based funding (CPI, 2023). Public funding is frequently expected to cover these enabling functions, but such support is often structured as short-term project funding

rather than long-term system financing. When technical assistance and monitoring systems are underfunded or treated as temporary add-ons, private partners may withdraw once public support ends, limiting the sustainability of the financing model.

Land tenure and legal uncertainty represent another major obstacle. In many rural areas, especially for women, youth, and marginalized groups, land rights are informal or poorly documented. This is not only a social inclusion issue but also a core financial risk from the perspective of private investors. Financing long-term land-based practices such as agroforestry or restoration becomes less attractive when land rights are insecure, contracts are difficult to enforce, or benefit-sharing arrangements lack legal clarity. Evidence shows that **insecure tenure is strongly associated with lower investment levels** and reduced access to formal finance for smallholders (Le et al., 2024). While public programs may choose to engage in such contexts for equity reasons, private financiers typically require additional safeguards or risk-sharing arrangements. Without these, blended finance structures may inadvertently favor better-resourced producers with clearer tenure, reinforcing existing inequalities.

In addition to financial constraints, **governance and operational bottlenecks** frequently slow the design and implementation of ecosystem service programmes. Fragmented institutional mandates across agriculture, environment, and finance ministries, and project time horizons that are too short for ecosystem and governance outcomes to materialize all limit program effectiveness. Financing early-stage nature-based solutions and climate adaptation innovations remains particularly difficult due to perceived risks and weak business cases. Procurement procedures and administrative rigidities within sovereign operations can slow implementation, especially for innovative or context-specific solutions that do not fit standard project templates (CPI, 2023).

Finally, the **complexity and cost of MRV** pose a persistent challenge. Blended finance models frequently rely on credible measurement of environmental outcomes to justify public spending and attract impact-oriented private capital. However, robust monitoring systems are technically demanding and expensive to establish and maintain. If monitoring requirements are too complex, they increase transaction costs and discourage financial intermediaries; if they are too weak, environmental credibility and investor confidence suffer. The need for cost-effective, scalable MRV systems is repeatedly highlighted as a bottleneck in results-based and blended environmental finance (Collective Payments, 2023; CPI, 2023).

At its core, the challenge of scaling blended finance for ecosystem services lies in reconciling two fundamentally different financial logics. Public finance seeks long-term environmental and social returns, including in higher-risk and lower-income contexts. Private finance, by contrast, prioritizes risk-adjusted financial returns, predictability, and scalable transaction models. Blended finance can bridge these logics, but only when public actors commit sustained resources to de-risk investments, finance system-building functions, strengthen institutions, and provide long-term policy clarity, rather than treating blended finance as a short-term leverage instrument (CPI, 2023; OECD, 2023).

4. Key lessons from CompensACTION

CompensACTION runs pilot projects to test different ways of rewarding farmers and rural communities for ecosystem services. These pilots are at different stages of development—ranging from initial design to early implementation—and therefore provide a spectrum of experiences. While evidence is still emerging, they offer valuable early insights into how different combinations of public and private finance can be structured to support both environmental and livelihood outcomes.

The pilots span diverse institutional and agroecological contexts: IFAD and ASAP+ run the pilots in **Brazil** (agroforestry and forest conservation in cocoa production), **Ethiopia** (creating a national climate and carbon-linked incentive mechanism), and **Lesotho** (landscape restoration through a national fund). KfW Development Bank and Incofin are setting up their pilots through the Fairtrade Access Fund in **Nicaragua** (agroforestry in coffee production) and **Colombia** (scaling the use of biochar). GIZ is the leading implementing partner for the pilots in **Kenya** (soil health incentives linked to subsidy reform), with the Ministry of Agriculture and Livestock Development, the World Bank, IFPRI, and CGIAR, and in **India** (bundled incentives for ecosystem services in sustainable horticulture), with the Indian Ministry of Agriculture and Farmers' Welfare. Together, they offer practical insights into how blends of public and private finance can be structured to support ecosystem services in smallholder production systems.

4.1 Finance for ecosystem services works best when integrated in a wider support package and deliver short-term benefits

Early experience across the CompensACTION pilots suggests that support for ecosystem services is most effective when structured as a bundle of financial and non-financial instruments that reduce risk, and enable practice change. Farmers adopt nature-based practices when they deliver tangible benefits such as higher productivity, diversified income streams, or reduced climate risk.

- In Brazil, producers first receive inputs and intensive technical assistance, with cash rewards introduced later once agroforestry and forest protection outcomes can realistically be achieved.
- Ethiopia combines grants and concessional loans to finance adoption of climate-resilient practices, with future carbon-related revenues expected to provide an additional performance-based income stream.
- Lesotho channels ecosystem service incentives through a grant-based landscape fund, reflecting that early-stage land restoration produces strong public benefits but limited immediate private returns.
- In Kenya, ecosystem service support is embedded in a reform of input subsidy systems, combining

performance-based public payments, e-vouchers for inputs and soil services, and targeted extension support. Both in-kind and cash incentives are used, depending on the verified soil health practices adopted.

- In India, the pilot explicitly focuses on bundling existing incentives from different sources (public subsidies, private value chains, and loans), including support for pollination, soil health, biodiversity-friendly production, and renewable energy technologies. Here, ecosystem service incentives are layered onto existing horticulture and rural development finance schemes.

Lesson: Early evidence suggests that finance for ecosystem services is most effective when it acts as a transition package—combining investment capital, service provision, and gradual performance rewards—rather than a simple payment for compliance. Successful schemes provide early and visible benefits for farmers during the transition period, helping offset risks and encouraging adoption.

4.2 Dedicated, long-term funds and financing structures are more effective than short-term payment schemes

A consistent lesson is the move away from temporary disbursements toward institutionalized financing platforms that can sustain and scale ecosystem service support.

- Lesotho's Regeneration Opportunities Fund is designed to evolve into a long-term financing vehicle, potentially operating as a revolving or blended finance mechanism beyond the initial project phase.
- Ethiopia places ecosystem service finance within a national climate finance facility, creating a permanent window embedded in public financial architecture.
- Brazil is working toward a regional fund and governance structure to continue and expand support beyond the pilot.
- The KfW/Fairtrade Access Fund model uses an existing impact investment fund as the core vehicle, with ecosystem service objectives integrated into its lending portfolio and a dedicated technical assistance facility to build long-term capacity and market readiness.
- In Kenya, the pilot is designed to inform the restructuring of national agricultural subsidies, turning short-term input support into ongoing, performance-oriented soil health financing mechanisms.
- India focuses on aligning ecosystem service incentives with existing public schemes, credit systems, and private sector mechanisms, effectively layering new environmental objectives onto long-term agricultural and rural finance channels rather than creating a parallel, temporary fund.



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Lesson: Sustainable ecosystem outcomes depend on standing financial structures that can manage resources over time, crowd in additional capital, and operate beyond the life of individual projects.

4.3 Carbon finance can provide additional income for farmers over time, but rarely finances early transitions

Across the CompensACTION pilots, carbon markets are seen as strategically important but operationally complex, and therefore considered more suitable as a later-stage financing layer rather than a starting point.

- Ethiopia has a detailed architecture for channeling carbon revenues to communities and reinvesting part of the proceeds into national ecosystem service finance. However, regulatory uncertainty and demanding MRV requirements have delayed implementation, underscoring that carbon revenues take time to become reliable.
- Lesotho is exploring carbon market links to strengthen long-term financing but relies primarily on public and donor funds for current implementation.
- Brazil deliberately designed its mechanism without depending on carbon markets, instead linking incentives to agroforestry performance and forest conservation within supply chains.
- The KfW/Fairtrade Access Fund pilot supports the development of MRV systems and market readiness for future carbon and biodiversity credit markets, but does not require immediate credit generation. Instead, it uses loans and incentives to prepare producers and value chains for potential future engagement in these markets.
- In Kenya, the focus is on soil health outcomes financed through public and private incentives; carbon is not the central revenue driver at this stage, reflecting a priority on domestic policy and subsidy reform over volatile market-based flows.
- India similarly emphasizes bundled public and private incentives for multiple ecosystem services, with MRV systems under development to enable future business models, but without making carbon revenues the immediate financial backbone.

Lesson: Carbon finance is best positioned as a future capitalization and sustainability mechanism once governance, MRV systems, and farmer capacity are in place—not as the primary funding source during early ecosystem service transitions.

5. Mobilizing private capital for blended finance instruments – *Guidance to programme design*

5.1 Why crowd in private finance?

Private investment is critical to scaling sustainable agriculture, particularly in a context where public funding for sustainability is declining. By leveraging private capital through financial incentives, it is possible not only to expand investment but also to generate greater income gains for farmers compared to approaches that rely solely on payments for ecosystem services or public subsidies (Costa Junior et al., 2025).

To scale up sustainable agriculture and environmental stewardship, private investment is essential—but it rarely flows on its own. Blended finance bridges this gap by strategically combining public, philanthropic, and private funds to reduce risk, build trust, and create bankable projects. This approach is especially powerful in agriculture, where smallholder farmers and environmental goals often struggle to attract commercial capital. The design of new programmes to support ecosystem services in food systems can be instrumental not only to unlock funding, but also to ensure that financial flows support measurable environmental and social outcomes. Blended finance can strengthen a program's long-term sustainability by attracting stable private capital, helping maintain activities even after initial public funding comes to an end. Evidence shows that these models can generate tangible economic returns. Improved soil health, reduced input costs, higher yields, and more stable market access translate into stronger and more predictable cash flows for farmers and value chains. These improvements underpin the long-term benefits of investments in sustainable agriculture and ecosystem services (CPI, 2025).

In many contexts, early-stage grant or concessional finance plays a critical role in demonstrating the viability of nature-based and climate-smart practices. By reducing initial risks and generating evidence on environmental and livelihood outcomes, public finance can help build the business case needed to attract additional private investment (CPI, 2023; Convergence, 2023; OECD, 2020).

5.2 Program strategies to crowd in private finance

This section explores four proven program design strategies that help mobilize private capital in conjunction with public finance:

- 1. Reduce risk:** Start with public or donor funding that reduces the early risks for private investors
- 2. Build aggregation:** Work through cooperatives or buyer groups and add government-backed guarantees so farmers can access finance more easily
- 3. Leverage public procurement:** Combine commitments from public food buyers linked to environmental results
- 4. Prepare clear projects:** Invest early in project preparation and simple, trustworthy monitoring systems to make clear what environmental improvements are expected and how they will be measured

1. Reduce risk: Use public or philanthropic money to make it safer for private investors to join

How it works:

Governments or donors put in money that takes on more of the early risk. This gives private investors more confidence that they won't lose their investment if projects underdeliver.

Why this brings in private finance:

Private investors are often nervous about lending to smallholder farmers or paying for environmental improvements, because results take time and risks are generally higher than in other sectors. When public money absorbs some risk, private investors are much more willing to put in their own capital.

How this supports environmental incentives:

- The public contribution helps fund early results, like in improving soil, protecting water sources, or restoring forests.
- As confidence grows in the project, more private money becomes available to scale these incentives.
- Government contributions can also support the transition of conventional farming to environmentally friendly farming.

CASE STUDY: Livelihoods Fund for Family Farming (L3F)

How risk reduction worked: The Livelihoods Fund for Family Farming (L3F) is a blended finance initiative that combines public, philanthropic, and private capital to support smallholder farmers in adopting sustainable agricultural practices. Public and philanthropic funds are used to absorb early risks—such as the cost of transitioning to more sustainable practices, which may not yield immediate financial returns. These funds provide technical assistance, training, and upfront incentives to farmers, reducing the perceived and actual risks for private investors.

How it brought in private finance: By de-risking the initial phase, L3F makes it attractive for private investors to finance projects that improve soil health, biodiversity, and water management. The fund's structure ensures that private capital is only deployed once the environmental and social benefits are demonstrably on track, and the risk of crop failure or low yields is mitigated. This approach has mobilized significant private investment in sustainable

agriculture (from Danone, Michelin, and others), which would otherwise be seen as too risky or unprofitable.

Environmental and livelihood outcomes: The fund has supported the restoration of degraded lands, reduced greenhouse gas emissions, and improved water use efficiency. For example, projects under L3F have sequestered millions of tons of CO₂ and protected critical watersheds. Smallholder farmers gain access to better markets, increased productivity, and resilience to climate shocks, directly improving their incomes and food security.

Key takeaway: Public and philanthropic capital absorbs the upfront risks and costs of transitioning to sustainable practices, while private capital scales up the successful models, ensuring both environmental and livelihood benefits are achieved at scale (Livelihood Funds, 2026; CPI, 2025).

2. Build aggregation: Work through farmer groups or cooperatives so investing is easier and cheaper

How it works:

Farmers are organized into groups—cooperatives, associations, or supply-chain clusters. This allows loans or support programs to be delivered in larger, more manageable bundles instead of many small, costly transactions. Governments or donors can also offer loan guarantees that reassure banks if farmers cannot repay.

Why this brings in private finance:

Lending to one well-organized group is cheaper and more predictable than lending to hundreds of individual farmers. A government or donor guarantee further reduces risk for banks, making them more willing to offer credit.

How this supports environmental incentives:

- Farmer groups can use the same monitoring tools, training programs, and payment systems.
- This makes it simpler to reward farmers for practices that improve soil health, reduce erosion, or boost biodiversity.

CASE STUDY: Solar-powered cold storage for farmer cooperatives in Kenya

How aggregation worked: In Kenya, a blended finance initiative supported the deployment of solar-powered cold storage units, strategically placed near farming clusters. The project aggregated smallholder farmers into cooperatives, allowing them to collectively access and benefit from the cold storage infrastructure. This aggregation made it feasible to deliver loans, technical assistance, and climate-smart technologies at scale, rather than through costly, individual transactions.

Financial mechanism:

- **Public/philanthropic role:** The Mitigation Action Facility provided 23.3 million euros in grant funding, with 16.6 million euros managed by the UN Capital Development Fund (UNCDF) through blended finance mechanisms. This included loan guarantees and technical assistance to reduce risk for local financial institutions and private investors.
- **Private sector role:** Local banks and investors provided harvest-based financing to cooperatives, with repayment linked to crop sales—made more reliable by reduced post-harvest losses thanks to the cold storage.

How it brought in private finance: Lending to organised cooperatives is cheaper and more predictable than lending to hundreds of individual farmers. The aggregation model,

combined with public loan guarantees, reassured banks that loans would be repaid, making them more willing to offer credit. The cold storage units also created a new asset class (climate-resilient infrastructure) that attracted private investment.

Environmental and livelihood outcomes: The solar-powered cold chain reduced food spoilage and associated greenhouse gas emissions, while also lowering the carbon footprint of food storage. Farmers experienced higher incomes due to reduced post-harvest losses (up to 30% less spoilage), better market access, and the ability to sell produce at higher prices. Cooperatives also gained bargaining power and access to high-value markets.

Key takeaway: By aggregating farmers into cooperatives and using public finance to de-risk investments, the project made it viable for private finance to flow into climate-mitigation solutions, delivering both environmental and livelihood benefits at scale (UNCDF, 2025; DanChurchAid, 2023).

Strategy 2 sources: FAO, 2025; Cornell University, 2022; World Bank, 2023; IFAD, 2020.

3. Leverage public procurement: Governments as buyers to drive sustainable food production

How it works: Governments use their purchasing power in public procurement to commit to buying agricultural products exclusively from farmers who adopt sustainable practices. By setting clear sustainability criteria in procurement contracts, governments create a guaranteed market for compliant producers.

How this brings in private finance: When farmers have a secure buyer (the government) and predictable demand, banks and investors gain confidence to offer

loans or finance for sustainable practices. Government procurement reduces market risk by providing long-term contracts and stable prices.

How this supports sustainable agriculture:

Farmers benefit from:

- **Guaranteed market access and fair pricing** through government contracts, and
- **Reduced financial risk**, enabling investment in sustainable methods. This model aligns economic incentives with environmental goals, making sustainability a competitive advantage.

CASE STUDY: Home-Grown School Feeding Programme (HGSF) in Brazil

How leveraging public procurement worked: Brazil's Home-Grown School Feeding Programme (Programa Nacional de Alimentação Escolar, PNAE) is one of the world's largest public food procurement initiatives. The program requires that at least 30%—planning to increase to 45%—of the food budget for school meals be spent on produce from local family farmers, prioritizing smallholders and agroecological or organic producers.

- **Buyer commitments:** Schools and public institutions commit to purchasing from local farmers, providing a guaranteed market for their products.
- **Government rewards:** The Brazilian government offers technical assistance, infrastructure support, and payments for environmental services (e.g., agroforestry, reduced pesticide use) to farmers who meet sustainability criteria.
- **Environmental incentives:** Farmers receive higher prices and long-term contracts if they adopt sustainable practices, such as reducing deforestation, conserving water, or improving soil health.

How it brought in private finance:

- **Predictable demand:** Banks and investors are more willing to finance smallholders because they have a secure buyer (the government) and a steady income stream.

- **Scalability:** The program's success has attracted private agribusinesses and impact investors to partner with smallholders, further scaling sustainable agriculture.

Environmental and livelihood outcomes:

- **Environmental:** The program has reduced deforestation, promoted agroecological practices, and lowered greenhouse gas emissions by supporting local, low-input farming.
- **Livelihoods:** Smallholder farmers, including women and indigenous groups, have seen increased incomes, improved food security, and greater resilience to climate shocks. The program has also strengthened local food systems and reduced rural poverty.

Key takeaway: By combining public procurement with environmental incentives and buyer commitments, Brazil's HGSF created a stable, sustainable market for smallholder farmers. This model not only improved livelihoods but also delivered measurable environmental benefits, demonstrating how public procurement can drive systemic change in food systems (FAO, 2021; FAO, 2015).

Strategy 3 sources: OECD, 2024; Field to Market, 2022; IDH, 2016; World Bank, 2012.

4. Prepare clear projects: Invest early in preparation and monitoring so projects are credible and ready for financing

How it works:

Before investors get involved, governments, donors, NGOs, or knowledge institutes help set up the basics: farmer registration, land information, training, and a simple monitoring system. This upfront work makes it clear what environmental improvements are expected and how they will be measured.

Why this brings in private finance:

Investors want projects that are organized, transparent, and ready to start, rather than vague plans. Early support reduces uncertainty and speeds up investment decisions.

How this supports environmental incentives:

- Reliable monitoring makes it possible to pay farmers for actual improvements, not just planned activities.
- It also builds trust with investors, farmers, and buyers.

CASE STUDY: The &Green Fund (Indonesia and Latin America)

How it worked: The &Green Fund is a blended finance initiative designed to transform agricultural commodity supply chains (e.g., palm oil, soy, cattle, and timber) by supporting deforestation-free, sustainable production. Before any private investment is mobilized, the fund invests heavily in **project preparation and monitoring**:

- **Farmer registration and land information:** Smallholders and medium-sized farmers are registered, and their land is mapped using geospatial data to ensure compliance with environmental standards (e.g., no deforestation, peatland protection).
- **Training and capacity building:** Farmers receive training on sustainable agricultural practices, such as agroforestry, soil conservation, and climate-smart techniques.
- **Monitoring systems:** A robust MRV system is established to track environmental outcomes (e.g., reduced deforestation, carbon sequestration) and livelihood improvements (e.g., increased incomes, access to markets).

How this brought in private finance:

- **Credibility and transparency:** The upfront investment in preparation and monitoring makes projects more attractive to private investors, who value clear, measurable outcomes and reduced risk.
- **Speed and efficiency:** By addressing technical and environmental risks early, the fund accelerates investment decisions and disbursement of capital.

- **Results-based financing:** Investors are more willing to commit funds when they can see that environmental and social outcomes are being tracked and verified.

Environmental and livelihood outcomes:

- **Environmental:** The fund has supported projects that protect and restore critical ecosystems, reduce greenhouse gas emissions, and promote biodiversity. For example, in Indonesia, the fund has helped smallholder palm oil farmers transition to deforestation-free production, protecting over 100,000 hectares of forest.
- **Livelihoods:** Farmers benefit from higher incomes, improved market access, and greater resilience to climate shocks. The fund's focus on inclusive business models ensures that smallholders and local communities are integrated into sustainable supply chains.

Key takeaway: The &Green Fund demonstrates how early investment in project preparation and monitoring can create credible, investable projects that attract private finance. By establishing clear environmental and social targets—and a system to measure progress—the fund builds trust with investors and ensures that both environmental and livelihood outcomes are achieved (Blended Finance Taskforce, 2020; CPI, 2025).

Strategy 4 sources: Mapanje, 2023; Haveman, 2020; UNEP, 2021; SARE, 2016.

5.3 Enabling Policies & Institutions

Scaling financial incentives for environmental services requires coherent policy frameworks and robust institutions:

Cross-sector policy alignment: There is often fragmentation between agriculture, environment, trade, finance and other ministries. Creation of inter-ministerial coordination bodies (e.g., climate–finance working groups) is critical to align subsidy reform, MRV systems, and financial regulations (HLPE, 2025).

Public finance reform: Repurposing agricultural subsidies toward environmental outcomes can send stronger signals to both farmers and investors. Transparency in public funding flows and using cooperatives to channel support enhances efficiency (HLPE, 2025; Izquierdo-Tort et al., 2024).

Regulatory and legal frameworks: Clear legal rules are needed on land rights, benefit-sharing, and verification in environmental markets. A regulated national MRV infrastructure, and harmonized certification and verification guidelines are essential (Izquierdo-Tort et al., 2024; Collective Payments, 2023).

Data and risk-management infrastructure: High-quality agricultural data, open registries, and insurance schemes can mitigate climate and price risks. Investing in digital infrastructure and the local institutional and technical capacity needed to operate these systems is essential (HLPE, 2025; Izquierdo-Tort et al., 2024).

5.4 Ensuring Farmer Benefits

To ensure that financial incentives lead to real gains for smallholders, programs must embed fairness, transparency, and strong governance:

Inclusive governance and representation: Evidence across restoration and agroecology initiatives shows that farmer-led and low-cost approaches such as agroforestry often outperform externally driven or input-heavy models. These practices build on existing knowledge, require lower financial investment, and generate visible benefits quickly, making them more attractive for smallholders and easier to scale. Farmers—particularly women, youth, and marginalized groups—must have a seat at governance tables. Transparent decision-making and local-level participation (e.g., community committees) help prevent corruption and ensure that benefit-sharing rules reflect local priorities (Collective Payments, 2023). However, meaningful participation and equitable benefit-sharing also require addressing structural barriers that often limit the ability of certain groups—especially women—to engage fully, including insecure land tenure, limited access to education, technology and financial services, restrictive social norms that constrain participation in decision-making, and the additional unpaid labour burdens that sustainability initiatives may create (FAO, 2023).

Fair and transparent benefit-sharing: Payments should reflect the effort, risk, and environmental services provided by farmers. In addition to direct monetary payments, incentives can include training to increase yields, market access, or affordable inputs. (Izquierdo-Tort et al., 2024; Le et al., 2024). Clear and accessible rules for how benefits



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are calculated, allocated, and distributed are essential to build trust and avoid elite capture. This includes transparent criteria, simple contracts, and participatory validation of results and payments at community level. Where possible, benefit-sharing mechanisms should be adapted to local contexts and ensure that women and marginalized groups receive a fair and direct share of benefits, including through individual payments or targeted support.

Safeguards for affordability, access & risk protection:

Minimum payout rules, price stabilization mechanisms (e.g., floor pricing), data-ownership protections, and climate and market insurances are important to ensure equity and risk mitigation (Le et al., 2024; GEF STAP, 2024). In addition, programmes should be informed by early gender and social analysis, including assessments of labour burdens and intra-household dynamics. Without such analysis, sustainability interventions risk increasing unpaid workloads—particularly for women—or reinforcing existing inequalities (FAO, 2023). Practical approaches such as the Gender Action Learning System have proven effective in enabling households and communities to

negotiate roles, manage trade-offs, and align livelihood, gender, and environmental objectives. Targeted support to women-led groups and meaningful participation in decision-making bodies further strengthen equitable outcomes (IFAD, 2014).

Capacity development & trust-building: Ongoing extension, transparent monitoring, and clear communication build trust between farmers, financial actors, and institutions, reducing exploitation risk (Okiria, Zaki & Noda, 2021). Effective capacity development should go beyond technical training to include financial literacy, organizational strengthening (e.g., cooperatives), and support for navigating markets and financial services. Long-term engagement—rather than short project cycles—is critical to build relationships, demonstrate results, and enable farmers to progressively take ownership of new practices. Participatory monitoring approaches and feedback mechanisms can further strengthen accountability and trust, ensuring that farmers understand how outcomes are measured and how this links to payments.



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Authors

Hugo Hooijer, Independent Consultant, Mycelium Consulting

Senni Alho, Innovations Officer, Clim-Eat

Bruce Morgan Campbell, Chief Innovation Strategist, Clim-Eat

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