Financial Instruments Toolkit for Regenerative School Meals

The Rockefeller Foundation

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The Toolkit draws on the combined expertise of the three partner organizations across fiscal policy, systems finance, and inclusive financial architecture. The authors would like to acknowledge the contributions of colleagues across each institution who provided technical input and peer review throughout the drafting process.

The document draws on an extensive body of existing literature, programmatic insights, and instrument design frameworks sourced from multilateral development banks, national programs, philanthropic initiatives, and blended finance platforms. The research synthesizes operational lessons from past initiatives, offering a structured methodology for countries to evaluate and deploy financial instruments aligned with national school meals and food systems objectives.

We also acknowledge the contributions of the Rockefeller Foundation's strategic guidance and review. Their framing ensured the document's relevance to real-world sovereign decision-making contexts and delivery challenges.

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1 Executive Summary

This Toolkit presents a comprehensive framework for transforming regenerative school meals from two independent, traditional social programs into a strategic public investment instrument. It provides a practical blueprint for countries to align their fiscal architecture with a high-impact development initiative. The financing architecture presented offers a pathway for countries to tap into new funding streams –domestic budgets, policy-linked sovereign bonds, and innovative mechanisms designed to attract private capital – and channel them towards interventions that operate at scale, with returns that materialize across entire production and delivery systems rather than at the level of individual schools and farms.

This Toolkit and its associated work are motivated by a critical insight: School meal programs function as high-frequency, high-coverage public services. Their value depends on consistency, with meals delivered daily across the academic year to a growing beneficiary base.

This operational cadence is structurally mismatched with most forms of development finance, which tend to be short-cycle, project-based, and/or subject to annual appropriations. As a result, even well-designed school feeding programs often face fiscal disruptions: deliveries may halt mid-year, geographic expansion can stall, and procurement contracts go underfunded when budgetary space cannot be sustained. –

By linking nationwide school meal programs with regenerative agriculture through public procurement, countries can achieve cross-cutting development gains at scale. This approach aligns closely with country priorities (specifically, education, nutrition, and fiscal stability) and the mandates of international financiers, making regenerative school meals a compelling prospect for targeted investment and policy innovation.

Objectives and Rationale

The primary objective of the Toolkit is to provide policymakers, multilateral development banks, and investors with a structured catalog of policy and financing measures to fund and scale regenerative school meals initiatives.

School meal systems are among the most extensive and government-integrated social programs, reaching millions of children through established budget channels and infrastructure. In parallel, regenerative agriculture – an approach that restores ecological function, and is also referred to as sustainable agriculture, agroecology, natural farming, or organic farming – is increasingly recognized as a resilience asset, with the ability to rebuild soils, improve farmer incomes, and buffer the economy against climate and supply shocks.

Marrying school meals and regenerative agriculture through deliberate policy creates a resilient "soil-to-school" public value chain that can deliver on multiple national objectives. With declining soil fertility, shifting rainfall patterns, rising heat stress and extreme weather events, and growing food insecurity, sustainably producing sufficient nutritious food to feed the global population – especially vulnerable groups such as children – has never been more challenging. Addressing this challenge requires investment across the agricultural value chain – from producers to processors to distributors – who deliver not only food, but also the services necessary for food production in the future. Regenerative school meals are a tool to link ecological renewal, farmer livelihoods, and climate resilience on the supply side to nutrition security for children on the demand side.

While setting out the strong impact case for regenerative school meals, the report identifies structural barriers that continue to limit regenerative school meals models from scaling system wide. Fragmented budgets and divergent agency mandates can prevent cohesive action, as responsibilities for school feeding and agriculture are often split across ministries. Misaligned incentives and legacy policies (such as subsidies favoring conventional agriculture or rigid procurement rules) mean that regenerative producers lack assured markets and support.

This Toolkit analyzes these frictions through a **value-chain lens**, pinpointing critical "Points of Transfer" where things often break down. These are systemic pain points where the chain of delivery between supply (producers) and demand (school children consuming regenerative school meals) tends to falter. By diagnosing where and why such failures occur, the report sets the stage for developing targeted financing and policy interventions to address them.

Innovative financing must be paired with institutional reform. Without fixing coordination and accountability gaps, even well-funded regenerative school meals programs may falter.

Integrated Financing Architecture

The Toolkit proposes a three-layer **Regenerative School Meals Financing Architecture** designed to mobilize capital, manage risk, and drive execution. This architecture is presented as a sequenced pipeline of solutions – Upstream, Midstream, and Downstream – each reinforcing the next and supported by a strong enabling environment.

At the Upstream level, generally policy driven and sovereign based, the report outlines mechanisms to generate and earmark funding for regenerative school meals. These approaches leverage a country's macro-fiscal capacity for development gains without requiring new recurrent expenditures, thereby appealing to finance ministries as well as institutional investors in sovereign instruments.

The Midstream layer focuses on bridging market gaps and incentivizing innovation in the regenerative school meals ecosystem. These instruments "shape the market", channeling private capital and enterprise toward the public good of regenerative school meals by mitigating the commercial risks that currently hinder scale.

The Downstream layer ensures that financing reaches the grassroots actors – the schools, cooperatives, and farmers who implement regenerative school meals on the ground. This downstream support, often co-funded through public and community resources, ensures local financial institutions enable investments in the supply side (production on farms) that can meet the demand (children in schools). It effectively enables small producers and local vendors to scale up production and delivery for regenerative school meals, knowing that financing and risk-sharing tools are in place if issues arise.

Enabling Environment and Implementation Capacity

Crucially, the Toolkit acknowledges that financial instruments alone are not enough. A supportive institutional environment is essential for sustainable success. The Toolkit calls for investments in **digital infrastructure** such as e-procurement platforms and farmer registries to improve transparency and traceability (so that regenerative products can be verified from farm to school and payments tracked). It also recommends establishing **robust inter-ministerial governance,** for example, through a national steering committee that unites education, agriculture, finance, and health authorities behind the regenerative school meals agenda, with clear roles and coordination mechanisms. Strengthening **local execution capacity** is another key theme: training for district officials in managing decentralized procurement, support for extension services to assist farmers with new practices, and streamlined payment systems (such as mobile money) to pay suppliers on time. These enabling measures create the conditions in which the layered financing architecture can deliver results efficiently. They reduce operational bottlenecks and ensure accountability, thereby increasing investor confidence that investments will result in tangible on-the-ground outcomes and impact.

Outcomes and Strategic Sovereign Significance

Implementing a regenerative school meals model positions a country to reap substantial long-term returns, framing regenerative school meals as an economic strategy. It channels public expenditure into local economies – when schools procure food from domestic farmers, money circulates in rural areas, stimulating income and job multipliers. This fiscal stimulus effect can be especially powerful in low-income regions, effectively turning school meal budgets into an investment in the productive base of the economy.

From a fiscal standpoint, success in a regenerative school meals program can strengthen a country's creditworthiness. Achieving education and climate targets through such a program signals effective governance and prudent use of funds, which are positive indicators for investors and rating agencies.

2 From Soil to School: Structuring a Resilient Public Value Chain

Governments that position regenerative school meals as a public investment rather than a welfare cost can demonstrate returns across three critical domains: human development, macroeconomic resilience, and food system sustainability. The case for regenerative school meals lies both in what these programs deliver individually and in how they intersect: school meals offer a nationwide, state-aligned distribution channel; RA offers a pathway to de-risk food production and rebuild natural capital given increasing extreme weather events and environmental degradation. Anchored together through public procurement, they can form a demand-stable, fiscally rational mechanism for advancing multiple national objectives, including ecological resilience, farmer livelihoods, job creation, gender empowerment, and climate action.

School Meals as an Institutional Lever

School meal programs are among the most operationally mature delivery systems in social policy. In many countries, they are funded and managed by governments, embedded in national budgets, and implemented through public education infrastructure. They operate at scale, follow routine cycles (school calendars, budget years), and are subject to administrative oversight and parliamentary scrutiny. As such, they are structurally aligned with core state functions.

Their development impacts are well documented. A World Food Programme (WFP) study found daily school feeding programmes increased enrollment by roughly 9%[1]. In India, children who received school meals throughout primary school scored 18% higher in reading and 9% higher in mathematics compared to peers with limited or no access[2]. A systematic review by the World Bank of 216 education programs in 52 low- and middle-income countries found that school feeding programmes are one of the few education interventions that show positive impact in both school participation (across enrolment, attendance, and completion) and learning (based on scores in cognitive, language, and mathematics tests), placing school feeding in a small group of education interventions that improve both access and academic performance[3].

Politically, school meal programs enjoy cross-sectoral support, reflecting their ability to simultaneously advance education, nutrition, and social safety net objectives. This broad appeal has seen leaders of 108 countries – representing over half the world's population – join the School Meals Coalition to expand and improve these programs[4].

[1] *World Food Programme (WFP), 2019*
[2] *The Broader Economic Value of School Feeding Programs in Low- and Middle-Income Countries, 2022*
[3] *World Bank Group, 2020*
[4] *World Food Programme (WFP), 2023*

Established by governments and supported by UN agencies, civil society and development partners, this coalition underlines how school feeding is aligned with statepriorities. Countries are backing their commitment with real resources: for example, Rwanda multiplied its school meals budget from US$8 million to US$80 million between 2020 and 2022 to expand coverage from 660,000 to 3.8 million children, and, in 2022, Benin committed US$270 million over five years to scale up its program[5].

Such cases reflect a major shift in political will and budgetary priority for school feeding. Even amid post-pandemic demands and cash constraints, low-income countries have increased domestic funding for school meals by about 15% since 2020[6].

Moreover, school meals initiatives necessarily involve multiple ministries and stakeholders, serving as a convergence point for government efforts and helping to break down siloed operations[7]. Few public interventions rival school meals in terms of coverage, government buy-in, and institutional embeddedness, making it a solid and powerful platform through which other national objectives – such as agricultural development – can be achieved at scale.

Redefining Regenerative Agriculture as a Resilience Asset

Just as school meals fortify human capital, regenerative agriculture strengthens the foundation of the food system and enhances national resilience. Regenerative farming practices provide environmental services (such as soil health, increased resilience to drought and flood events, and biodiversity) that society values but markets often overlook and underprice[8]. Data from the US shows a significant reduction in crop failure among regenerative farmers following flooding as compared to their conventional counterparts[9]. While regenerative agriculture varies by place, crop, and other factors, production systems that optimize for soil health, water retention, and reduced dependence on chemical inputs are demonstrating consistent or improved yields after a dip associated with the time to transition[10]. Beyond these advantages, regenerative agriculture practices such as agroforestry can also deliver co-benefits like carbon sequestration, which is increasingly valued in policy and markets. These shifts yield public benefits: lower exposure to climate shocks, reduced environmental degradation, and higher long-term productivity, each of which increases the livelihoods of producers and their families. Estimates from the Food and Agriculture Organization (FAO) suggest smallholders adopting regenerative practices can increase their net income by 30%–40%, largely through lower input costs and more stable yields (though the time required to achieve these gains can vary from <1 – 7 years depending on crop varieties, soil type, etc)[11]. These are direct public returns: stronger rural economies, reduced environmental degradation, and a more secure food supply for school meals and all food consumed, making RA an attractive public investment.

From a fiscal standpoint, climate resilient agriculture reduces the future liability of emergency aid because of its ability to stabilize food production, and internalizes environmental costs typically borne by the state. For example data from the AGree Initiative shows that farmers adopting practices such as cover cropping and intercropping often withstand drought and flooding events better than their neighbors who do not adopt these practices[12].

Regenerative agriculture also internalizes environmental externalities[13]. For example, farms that rebuild soil carbon and protect biodiversity help meet national climate and conservation targets, even though these benefits are not yet priced by private markets. In this way, regenerative agriculture functions as a capital expenditure with long-term economic returns for the public sector. By treating regenerative agriculture as a public investment, rather than leaving it solely to short-term market forces, governments can derive substantial payoffs in the form of avoided costs (e.g., reduced soil erosion and lower levels of / no fertilizer pollution to remediate) and enhanced food system robustness.

[5] *World Food Programme (WFP), 2023*
[6] *Biniam Bedasso and Susannah Hares, 2023*
[7] *Biniam Bedasso and Susannah Hares, 2023*
[8] *Alluvial Soil Lab, 2025*
[9] *Building the Resilience of the United States' Agricultural Sector to Extreme Floods, OECD, 2021 & & Revitalizing fields and balance sheets through regenerative farming, McKinsey, 2024*
[10] *Soil-water retention and its role in crop yield optimization, Robert Johnson, 2023 & Regenerative Agriculture – A Literature Review on the Practices and Mechanisms Used to Improve Soil Health, Ravjit Khangura et al., 2023*
[11] *Agroecological and other innovative approaches for sustainable agriculture and food systems that enhance food security and nutrition, High Level Panel of Experts on Food Security and Nutrition (HLPE), 2019*
[12] *Crop Insurance – AGree: Transforming Food and Ag Policy, Agree Initiative, 2025*
[13] *100 Million Farmers: Breakthrough Models for Financing a Sustainability Transition, World Economic Forum in collaboration with Bain & Company, 2024*

The growth and resilience-enhancing potential of regenerative agriculture also has sovereign credit implications, especially for agriculture-based economies. **To the extent that heavy reliance on agricultural output impacts key macroeconomic variables such as real GDP growth, inflation dynamics, trade balances, and foreign direct investment flows, the positive economic and fiscal effects of large-scale shifts to regenerative agriculture can also drive upgrades to sovereign credit ratings and support debt sustainability over the medium term by acting as a "shock absorber" to protect credit ratings against physical risks and exogenous trade shocks.**

Strategic Opportunities

Combining regenerative agriculture and school meals through procurement creates a closed, accountable value chain. On the supply side, farmers with landholdings of all sizes gain access to a demand-stable buyer, shielding them from the usual volatilities of agriculture. Instead of dealing with middlemen or fluctuating commodity prices, farmers can plan production around predictable school procurement calendars. For instance, 57% of school meal programs worldwide now explicitly aim to buy from small-scale farmers, and in low-income countries this share is even higher (80%)[14]. The result of these types of policies is increased income in farmers' pockets. A regenerative school meals value chain also has the appeal of being **traceable.**

Because it operates within a formal program, it can be monitored from the farm (production standards and perhaps organic or climate-friendly certification) to the school (nutritional content and food safety). **Traceability and oversight reduce leakage and ensure quality, making the whole chain investment-grade.** Governments, development banks, and investors can be confident that funds flow through accountable channels – e.g., via government e-procurement systems – tied to tangible outputs (meals served and food delivered) and monitored outcomes (nutrition and education indicators). Traceability also facilitates the creation of metrics and indicators to track performance against programmatic targets, which can also be embedded in financing transactions.

Definition of Regenerative School Meals

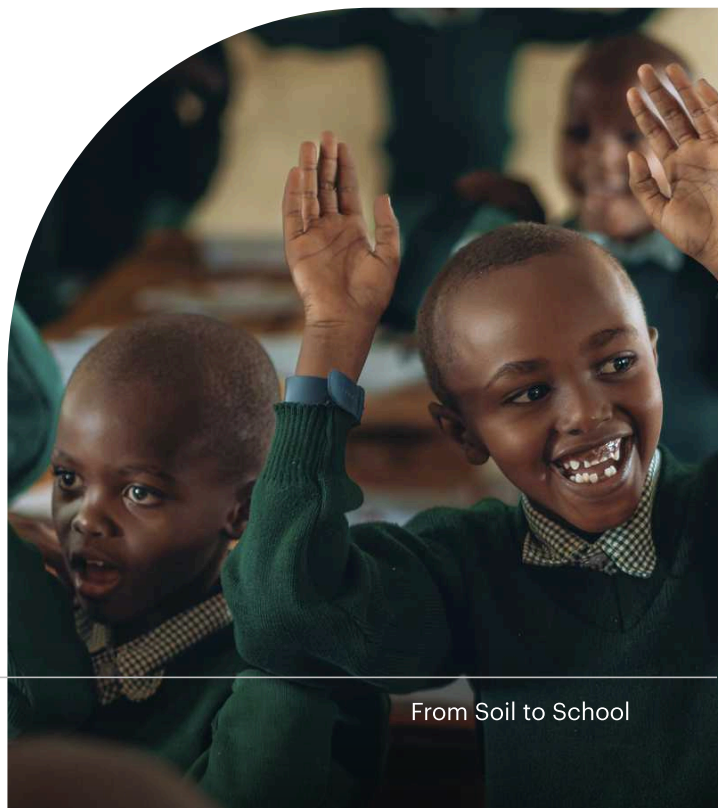
School meals that are sourced from farmers using "regenerative" practices that prioritize soil health, foster biodiversity, improve water quality, reduce greenhouse gas emissions, and center on the welfare of farmers.

Fiscal Logic and Alignment with MDB and Investment Mandates

From a fiscal and policy standpoint, Regenerative School Meal models align strongly with the budgetary priorities of finance ministries and the strategic objectives of multilateral development banks (MDBs).

First, these models leverage existing institutional infrastructure and repurpose existing budget lines (e.g., education feeding programs, agricultural extensions) making them institutionally efficient and politically feasible.

Second, the investment case is compelling: The WFP estimates a return of about nine dollars for every dollar invested in school meals when considering long-term benefits[15]. Broader analyses find benefit-cost ratios ranging from 7:1 to 35:1, once gains in health, education, employment, and economic resilience are factored in[16].



[14] *The Rockefeller Foundation, 2025*

[15] *World Food Programme (WFP), 2022*

[16] *The Broader Economic Value of School Feeding Programs in Low- and Middle-Income Countries: Estimating the Multi-Sectoral Returns to Public Health, Human Capital, Social Protection, and the Local Economy, Frontiers in Public Health, 2020*

These returns manifest as improved human capital (i.e., healthier, better-educated future workers), greater food security, and stimulus to the farm economy – all of which bolster a country's growth and stability. Such outcomes closely align with the World Bank's goals on learning, poverty[17], and nutrition, or the focus of the International Fund for Agriculture Development (IFAD) and the FAO on inclusive agricultural value chains. Investing in regenerative school meals can also help meet resilience, climate, and sustainability targets. Regenerative agriculture sequesters carbon and builds climate resilience, contributing to Nationally Determined Contributions (NDCs), National Biodiversity Strategies and Action Plans (NBSAPs), and adaptation plans, while the school feeding dimension contributes to Sustainable Development Goals (SDGs) on hunger, education, and equality.

THE LINK BETWEEN DEBT SUSTAINABILITY & FOOD SECURITY

Triple Materiality and the Case for Regenerative School Meals in Sovereign Finance

The link between debt sustainability and food security is critical but often overlooked. In Africa, for example, rising public debt – which has more than doubled from US$380.9 billion in 2012 to over US$702.4 billion in 2020[18] – has significantly reduced fiscal space for many governments, limiting their ability to invest in essential sectors such as food systems. With over one-third of Sub-Saharan African (SSA) countries now burdened by debt levels that exceed 70% of their GDP, debt-serving costs are crowding out critical public investment needs[19].

At the same time, a surge in debt-to-export earnings ratio (from 74.5% in 2010 to 140% in 2022)[20] has heightened the vulnerability of many economies to foreign exchange volatility. When local currencies weaken, this increases the cost of food imports, deepening the risk of food insecurity in countries that are reliant on external food supplies. If debt-driven currency devaluations coincide with climate-related agricultural shocks, countries could rapidly descend into systemic food crises. This is not a hypothetical risk – it is an increasingly common reality for countries classified as "debt-distressed" by the International Monetary Fund (IMF).

In such contexts, the concept of "Triple Materiality" (TM) can be applied to powerful effect to make the investment case for regenerative school meals programs. By articulating durable value creation across fiscal, social, and ecological domains, TM reflects the premise that that investment of public funds should simultaneously advance budget stability, strengthen food and education systems (social results), and shift agricultural production toward regenerative outcomes (climate results). It is a core design condition that should shape the architecture of financing from origination to deployment. Through this lens, integrating regenerative school meals programs into sovereign financial instruments represents a forward-looking, stabilizing intervention, which can serve several positive purposes – most notably, relieving long-term fiscal pressures by reducing food import dependency and strengthening human capital through improved nutrition and education outcomes. This creates a virtuous cycle where better-fed students contribute to a healthier, more productive workforce, enhancing future debt sustainability. As the world searches for holistic approaches to sovereign risk management, the inclusion of regenerative school meals offers both a moral imperative and a sound economic strategy.

[17] *Learning poverty, a metric developed by the World Bank and UNESCO, measures the share of 10-year-olds who cannot read and understand a simple text—capturing both those out of school and those failing to reach minimum proficiency. It serves as a proxy for foundational learning and a critical benchmark for SDG 4.1.1(b), which commits countries to ensuring all children achieve basic reading skills by the end of primary school*

[18] *International Debt Statistics, World Bank, 2024*

[19] *Emerging Public Debt Challenges in Sub-Sharan Africa, UNU WIDER, 2024*

[20] *Innovative Financing for School Feeding, Sustainable Financing Initiative for School Health and Nutrition, 2025*

These considerations are salient for creditors as well, including bond investors and commercial lenders. As climate, nature, and related socio-political risks rise in frequency and magnitude, they also become material risks in evaluating sovereign creditworthiness. Sovereign debt investors are paying closer attention to the actions undertaken by governments to mitigate these risks, even when the investment objective is not sustainability oriented. **By tackling critical food security, social stability, and economic resilience concerns simultaneously, regenerative school meals programs can be positioned to creditors as prudent medium-term fiscal planning and public financial management. Credible regenerative school meals targets backed by robust KPIs can bolster commitments to address these sovereign risk factors through the political cycle and over the life of sovereign instruments.**

In some nations, governments are using the purchasing power of schools to reshape markets. **In Guatemala, for example, legislation requires that 50% of school food spending be directed to local farmers. Although implementation is challenging, the law sends a clear signal to farmers that there is a dependable business opportunity in producing nutritious food[21]. In Ethiopia and Mali, evaluations of "home-grown" pilot programs found that participating farmers saw not only higher earnings but also improved access to credit, with their assured contracts making them more bankable for loans to invest in better seeds and equipment[22].** On the demand side, governments secure a domestic supply of fresh, nutritious food for schools, reducing exposure to global supply shocks or import reliance.

Public procurement has the ability to transform otherwise risky transitions for farmers (i.e., growing diverse, organic, or agroecological crops) into bankable opportunities. The certainty of forward purchase agreements enables farmer cooperatives and small and medium enterprises (SMEs) to access credit from financial institutions, thereby creating local income multipliers. Every dollar spent on "home-grown" food for school feeding can generate two to three dollars in community income[23], as farmers and caterers spend earnings in local markets, improving liquidity in rural markets.

Multilateral lenders and climate funds therefore see a policy-coherent package: well-designed regenerative school meals programs simultaneously address climate adaptation, social protection, and economic development. Further, the cross-cutting nature of regenerative school meals programs supports policy coherence and institutional coordination. Education ministries achieve improved learning and access outcomes; agriculture ministries support smallholder livelihoods, agribusiness, and sustainability transitions; and health ministries realize better nutrition and health outcomes. Because regenerative school meals programs draw these mandates into a single platform, they are more likely to gain political buy-in and traction, secure inter-ministerial collaboration, and attract diversified financing.

[21] *Inter-American Development Bank (IDB) and World Food Programme (WFP), 2022*
[22] *Inter-American Development Bank (IDB) and World Food Programme (WFP), 2022,*
[23] *Education Development Center (EDC), 2023,*

3 Key Barriers to Scaling

Because regenerative school meals programs deliver concurrent gains in education, health, and rural incomes, the procurement function generates fiscal multipliers that are extremely difficult to achieve through standalone interventions. However, despite strong national interest in, and clear returns from, regenerative school meals, scaling these models system-wide remains challenging. The primary barriers stem from institutional and economic structures that limit coordination, rather than a lack of political will.

Fragmented budgets and mandates

Responsibilities for school meal programs often span multiple ministries, each with separate budgets and priorities. This fragmentation undermines integrated planning and dilutes accountability, making it difficult to advance a unified regenerative school meals strategy. Key goals for nutrition, local agriculture, and climate mitigation are often pursued in silos, hindering the coherent scaling of regenerative school meals initiatives.

Lack of supportive policy interventions

Policy frameworks play a determinative role in shaping the viability of agri-finance. Although large farms may have access to credit and an important role to play in supplying regenerative school meals, a third of the domestic food supply in low- and middle-income countries (LMICs) comes from smallholders with limited access to financial services[24]. This difficulty in accessing capital, often prevents small-scale farmers from transitioning to RA and helping to meet the demand that regenerative school meals programs create.

In many jurisdictions, conservative financial regulations systematically exclude farmers and small- and medium-size agri-enterprises from formal credit markets. Credit bureaus often fail to capture data from informal lenders or microfinance institutions, effectively rendering smallholders "credit invisible" and, thus, "high risk". Structural constraints such as insecure land tenure and restrictive collateral laws further inhibit access to finance, as legal systems may not recognize moveable assets or anticipated harvests as bankable guarantees. Smallholder farmers and local vendors bear most of the risk (such as lower initial yields, higher costs of certification, or supply volatility) with governments and buyers offering limited risk-sharing mechanisms. There are often no guarantees, insurance, or advance purchase agreements to buffer smallholders against losses. These barriers not only misprice rural credit risk but also constrain capital allocation to regenerative agriculture.

[24] *Small family farmers produce a third of the world's food, FAO, 2021*

Weak demand signaling

Public procurement for school meals currently provides weak demand signals for regenerative agriculture. Contracts are typically awarded at lowest cost and volume, without requirements for sustainably produced or locally sourced food[25]. This lack of clear demand and long-term purchase commitments means farmers and suppliers have little assurance that investing in regenerative practices will result in sustained enhancements to the level and reliability of their income.

A lack of regenerative agriculture certification and labelling schemes also weakens demand signaling. If regenerative agriculture products are not reliably certified or labelled, buyers cannot confidently identify and invest in them. This reduces visible demand, which in turn discourages producers from scaling up climate-smart cultivation for school programs, perpetuating a feedback loop where both supply of and demand for regenerative school meals remain low.

Fragmented financing and delivery frameworks

The cross-sector nature of regenerative school meals does not fit neatly into prevailing public finance and service delivery frameworks. Traditional development programs and funding streams are organized in sector-specific silos – for example, education budgets fund schools, agricultural loans support farming, and climate grants target emissions reductions. In spanning across these sectors, holistic regenerative school meals initiatives can stall due to the lack of a driving champion or clear facilitator. Even when multiple agencies agree in principle, without formal mechanisms to pool budgets and co-manage programs, the execution of regenerative school meals can falter at the boundaries of bureaucratic responsibility.

Data and MRV constraints

There is a significant lack of data and robust MRV systems to capture the full benefits and performance of regenerative school meals programs. Decision-makers have limited evidence on outcomes such as improved nutrition, educational attainment, farmer income, and environmental impact specific to regenerative school meals. Likewise, there are few standardized metrics or verification protocols to ensure that food procured is truly the result of regenerative or climate friendly practices. These information gaps make it harder for governments and funders to justify scaling regenerative school meals, as they cannot easily measure progress or quantify returns on investment.

[25] *Frontiers in Sustainable Food Systems, 2024*

Limited retail finance for farmers in general, especially smallholders and small agribusinesses

Smallholders and small agribusinesses engaged in the production of nutritious food face severe financing constraints to increase productivity/production, transition to regenerative agriculture, and meet the demand of regenerative school meals programs. The current exposure of the formal financial sector to local agricultural value chains is limited despite concessional credit lines and guarantee funds to banks and microfinance companies. Financial products that do exist are often poorly tailored to the needs of agribusinesses and their customers. This mismatch stems from several factors, including the type of capital being offered (e.g., debt availability is scarce but critical for working capital) and misaligned repayment schedules with agricultural production cycles. Inflexible collateral requirements further exclude borrowers with viable but informal operations.

Deep entrenchment of conventional farming practices in agriculture finance and market institutions, especially for large-scale agribusiness

Even where formal agriculture finance is accessible and market infrastructure is adequate, yield-based price incentives embedded within the financial products can discourage agribusinesses from transitioning to regenerative practices. For example, the premiums on crop insurance tend to be based on historical loss rates and yield distributions, which generally reflect conventional farming practices. To the extent that yields drop during the regenerative agriculture transition, this may feed through to higher insurance costs where models are backward looking or short-term in outlook. Policy interventions such as yield-based direct payments or premium subsidies can reinforce these price disincentives, while regulation and market conventions can lock in yield-based risk-pricing models.

The formal financial sector therefore requires further support to develop risk management strategies and financial products that can enable expansion of financial service delivery for investments facilitating the regenerative transition. This means investing in internal R&D capabilities to analyze sector-specific risks, build agriculture-specific credit scoring models, test alternative collateral mechanisms, and pilot new product prototypes that respond to the cash flow and investment profiles of agricultural actors transitioning to regenerative practices. Yield-based risk-pricing models need to be adjusted to reflect resilience gains post- regenerative agriculture transition, while policy measures such as subsidies for crop insurance premiums must be adapted to remove potential distortions and disincentives. For example, subsidies can be targeted by linking them to regenerative practices.

However, while the challenges for scaling regenerative school meals are multi-faceted, they are not insurmountable. Looked at through an action-oriented lens, they signal where reforms and innovative financing models must concentrate to create connective tissue between education and agriculture bureaucracies, align subsidies with nutrition goals, structure procurement to guarantee demand, share risk more equitably, and build unified monitoring systems.

In the sections that follow, the Toolkit will focus on how these handoff failures can be mitigated. Identifying the pain points in the farm-to-school value chain (regenerative school meals value chain) is only the first step – this must be followed by action to design and implement financial and governance solutions that remove or reduce these areas of weakness or friction to create a resilient public value chain.

4 Mapping the Regenerative School Meals Delivery Chain

The public regenerative school meals value chain spans multiple stages – from input provision and farm production to aggregation, procurement, meal delivery, and finally monitoring and evaluation. A defining feature of the chain is its cross-government structure, involving agriculture, education, health, and finance ministries (among others). Each has a role in budgeting, compliance oversight, and service delivery.

The regenerative school meals program must navigate institutional mazes that a private supply chain might bypass. Coordination across these agencies is critical, yet often weak: analyses of home-grown school feeding have found that fragmented coordination between implementing actors and support institutions leads to major inefficiencies. These institutional constraints, described in Section 2, tend to manifest as delivery breakdowns at specific handoff points along the value chain.

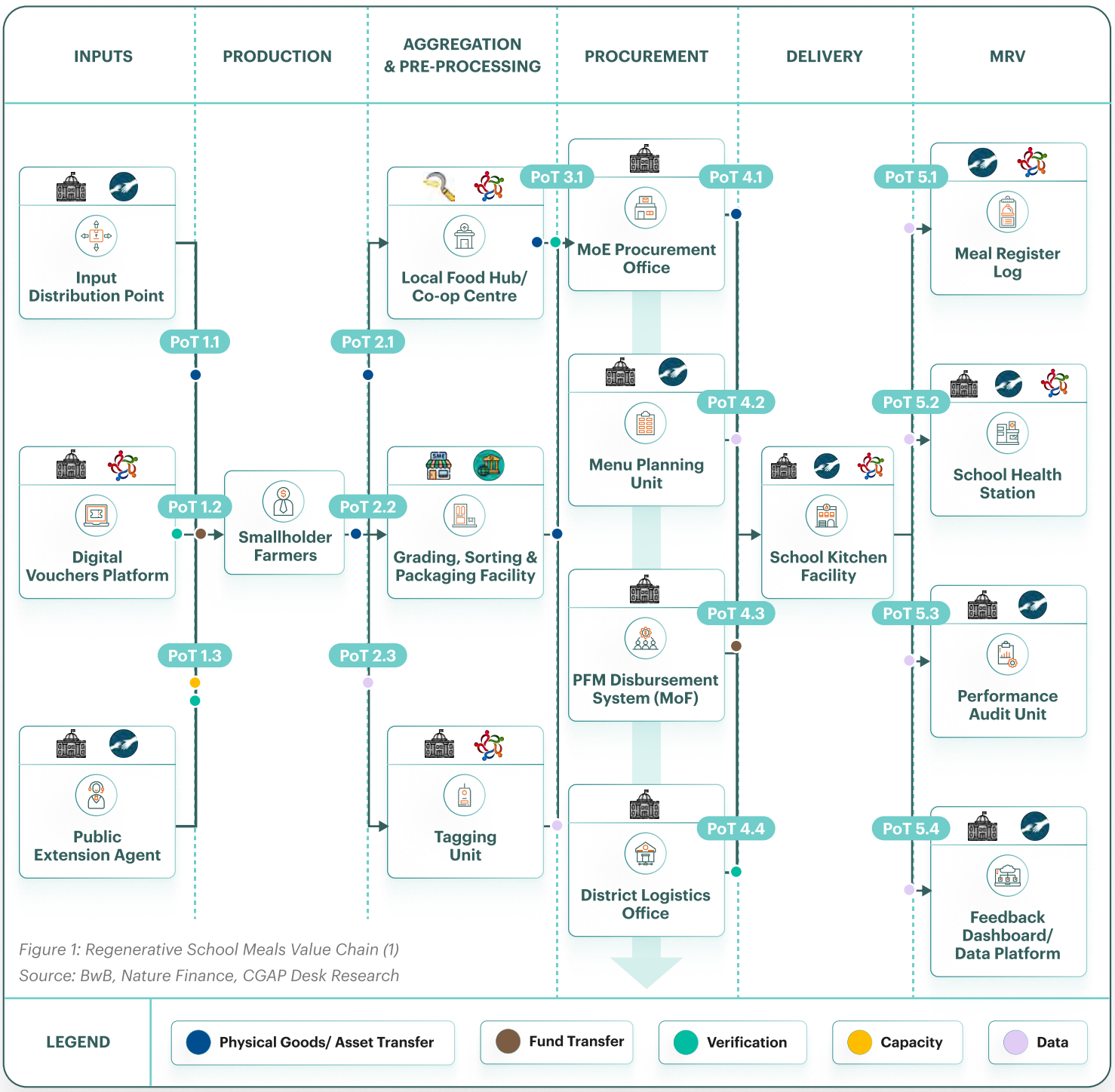


Figure 1: Regenerative School Meals Value Chain (1)
Source: BwB, Nature Finance, CGAP Desk Research

Notably, for the purposes of this Toolkit, large-scale commercial farmers have been excluded from the core analysis of actors in the regenerative school meals value chain. While these producers play a significant role in national food systems, they are typically oriented toward high-value export markets where price premiums outweigh the incentives offered by local procurement schemes such as regenerative school meals[23]. Even when engaged in domestic supply, their production is often concentrated in industrial cash crops such as rice, sugar, wheat, and soy, which is not aligned with the diverse, nutrition-focused menus promoted by regenerative school meals programs. Shifting production toward regenerative, school-linked supply would require strong assurances of stable, multi-year procurement and pricing competitiveness that most regenerative school meals programs are not yet structured to guarantee. By contrast, smallholder farmers tend to be less entrenched in fixed market pathways and more responsive to institutional incentives[24]. When supported with tailored financial and technical assistance, they are better positioned to adopt cropping practices in line with the nutritional and agroecological goals of regenerative school meals initiatives.

Additionally, in practice, delivery across the value chain is not sequential. Each function is influenced, and reinforced, by decisions and data from other parts of the system. Procurement choices signal upstream demand for specific crops. School-level uptake and audit findings shape future menu planning, supplier eligibility, and even the choice of inputs. The value chain is therefore best understood as a coordinated system of interlocking functions, requiring tight alignment across institutional mandates, data systems, and physical execution – each subject to local constraints and operational realities.

[23] *Education Development Center (EDC), 2023*
[24] *Small family farmers produce a third of the world's food, FAO, 2021*

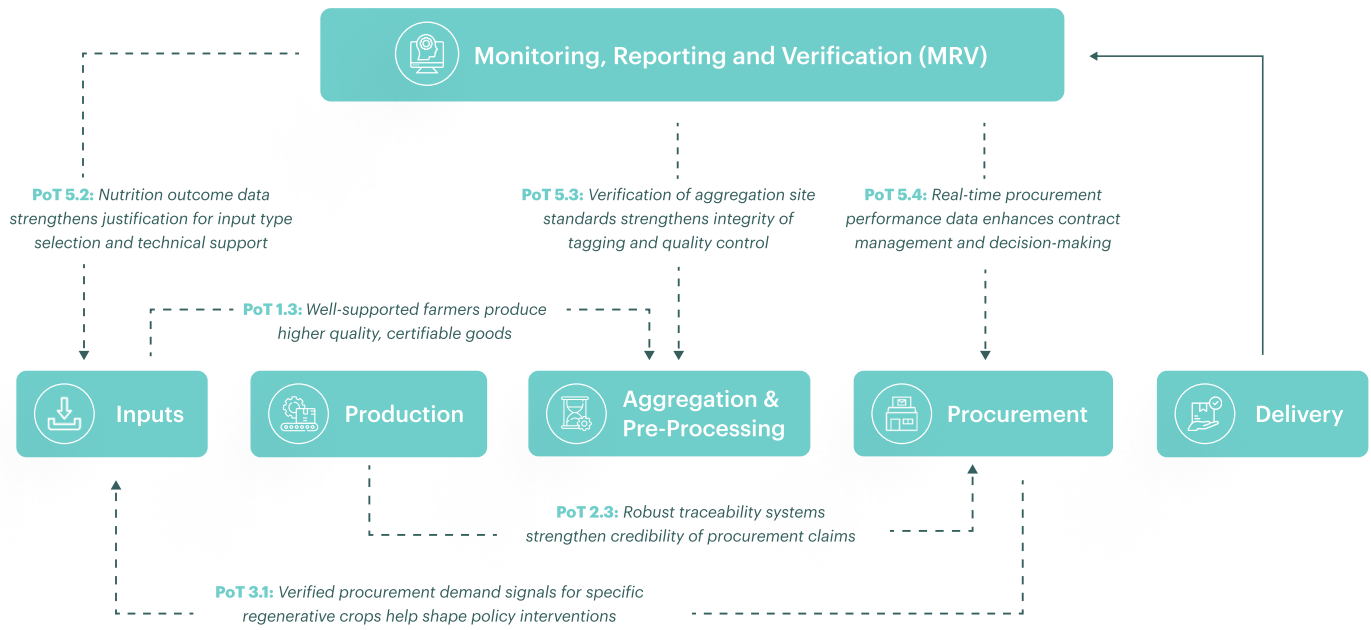


Figure 2: Regenerative School Meals Value Chain (2)

Source: BwB, Nature Finance, CGAP Desk Research

The chain is governed by public budget cycles, formal procurement rules, and compliance checks at every step. This means that well-known bureaucratic constraints i.e., annual budget releases, tendering procedures, audit requirements, amongst others, shape how and when resources move. Some institutional constraints, as described in Section 3, tend to manifest as delivery breakdowns at specific "handoff points" along the value chain.

A Point of Transfer (PoT) is any institutional or operational handoff where risk, value, control, or compliance responsibility shifts from one actor to another.

In a public regenerative school meals system, such points occur whenever a good, funding, or official sign-off passes from one entity to the next – for example, when an input subsidy is handed to a farmer, a farmer's produce is aggregated for a school contract, a payment is issued to a supplier, or a report is sent to a funding agency.

At a PoT, delays, information gaps, or accountability lapses can cascade into system-wide failures. Because implementation contexts vary, the specific PoTs can differ across countries, districts, or delivery models. This Toolkit uses an illustrative set of PoTs that reflect some of the core functional transitions that hinder effective regenerative school meals delivery.

Table 1: Illustrative Points of Transfer in the RSM Value Chain

PoT	Type	Themes	Explanation
PoT 1.1	Input Distribution Point	Physical Asset Transfer	Publicly or donor-procured agricultural inputs are distributed to registered farmers via centralized or district-level channels. When timely and targeted, input distribution enables predictable volumes of production aligned with institutional demand, reducing supply shocks.
PoT 1.2	Digital Vouchers Platform	Funds, Data	Farmers are issued digital entitlements to access subsidized inputs, with eligibility and redemption tracked through a centralized platform (optional). Digital vouchers link subsidies to verified recipients, improving fiscal targeting and creating a transparent bridge between agricultural support and school food supply.
PoT 1.3	Public Extension Agent	Capacity, Verification	Government/donor-backed extension officers and peer farmer trainers provide technical support and certify readiness for regenerative production. These extension services strengthen production quality and readiness, ensuring that school-linked supply chains remain resilient and standards-compliant.
PoT 2.1	Farmers to Local Food Hub	Physical Asset Transfer	Local food hubs consolidate harvests into institutional-grade lots, making smallholder produce viable for public procurement while reducing last-mile coordination burdens on schools.
PoT 2.2	Grading, Sorting & Packaging	Physical Asset Transfer	Produce is processed and quality-assessed to ensure it meets procurement and food safety standards.
PoT 2.3	Tagging Unit	Data	Unique identifiers are applied to track origin, production methods, and compliance with regenerative criteria.
PoT 3.1	Food Hub to Ministry of Education (MoE) Procurement	Data, Verification	Verified procurement bids provide assurance to ministries that schools are sourcing safe, eligible food, thereby creating audit trails that support program continuity and scale.
PoT 4.1	MoE to School Kitchen Facility	Data, Capacity	Executed contracts feed into nutritional planning, translating procurement data into operational dietary guidance. Effective data transfer from procurement to kitchen enables school staff to align meal planning with actual deliveries, minimizing waste and improving menu execution.

PoT	Type	Themes	Explanation
PoT 4.2	Menu Planning to School Kitchen Facility	Physical Asset Transfer, Capacity	Menus are implemented by kitchen staff using centrally or locally procured ingredients in school-level facilities.
PoT 4.3	PFM* Disbursement System *Public Financial Management	Funds	Supplier and service provider payments are routed through the treasury system, linked to delivery and performance triggers.
PoT 4.4	District Logistics Office	Verification	District-level logistics offices play a pivotal role in bridging central systems and school sites by coordinating food movements and troubleshooting disruptions before they impact service.
PoT 5.1	Meal Register Log	Data	Daily logs verify meal delivery and uptake, serving as a basis for compliance, planning, and potential disbursements.
PoT 5.2	School Health Station	Data	Student nutrition outcomes are periodically assessed through health screenings, forming the basis for program evaluation, validating the efficacy of the food program and informing future policy designs and budgetary allocations.
PoT 5.3	Performance Audit Unit	Data	Independent audits strengthen accountability and confirm delivery against targets, enabling financial accountability in performance-linked structures.
PoT 5.4	Feedback Dashboard / Data Platform	Data	Real-time dashboards aggregate delivery, nutrition, and spending data to help steer national programs in real time and demonstrate transparency to funders.

The PoTs in this report are grouped into five broad categories:

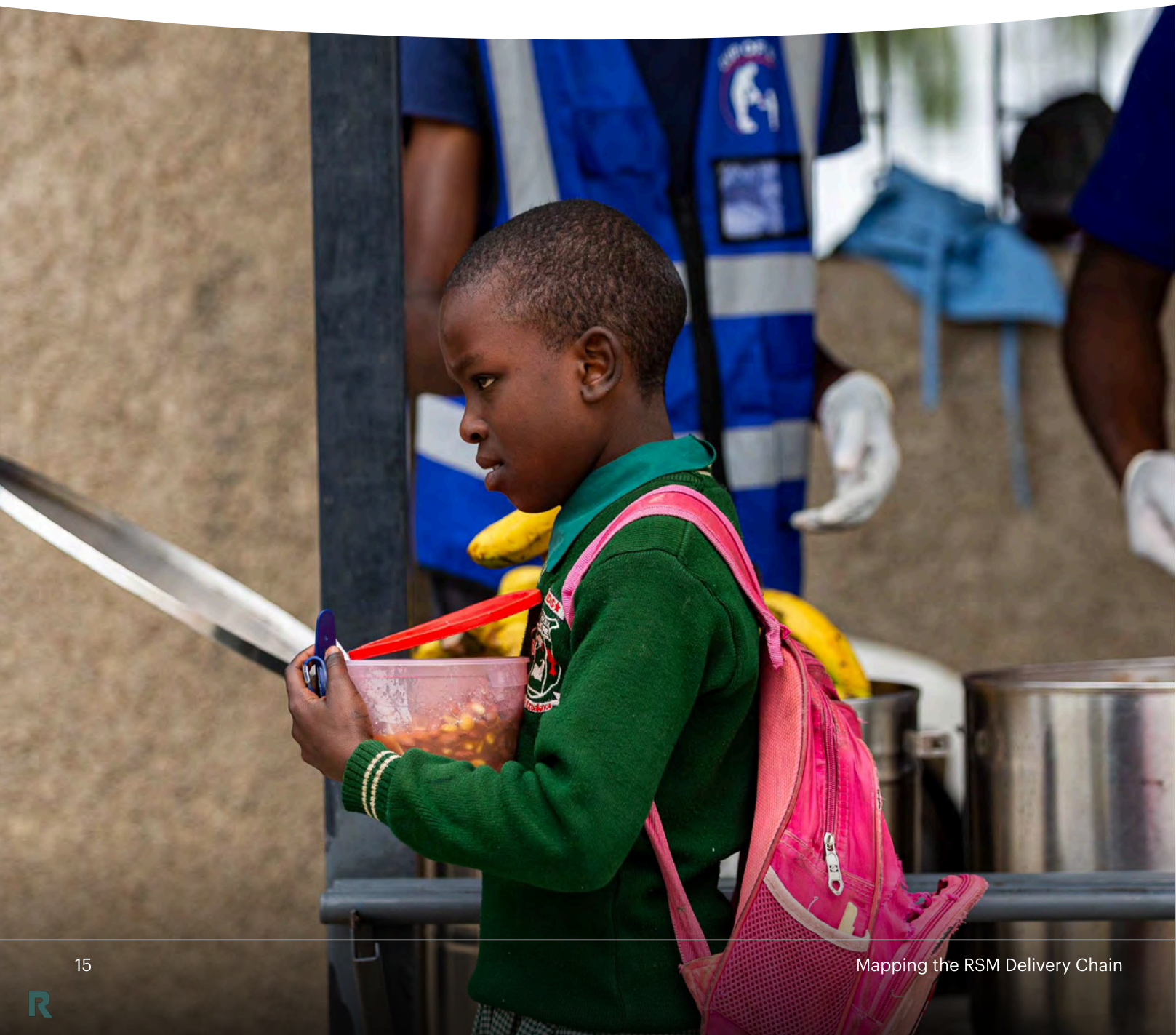
- Physical Goods/ Asset Transfer
- Fund Transfer
- Verification
- Capacity
- Data

Each one is mapped to a specific delivery function within the school meals value chain and tagged to the relevant institutional actors involved in that process. While these PoTs are illustrative, they are designed to help readers contextualize where friction points typically occur — where the system breaks down and generates delivery risk. Following this diagnostic, the report sets out a financing architecture that aligns instrument design to these failure points, identifying how targeted financial tools can resolve bottlenecks, stabilize delivery, and unlock scale across the regenerative school meals system.

Financing-Relevant Frictions as Targets for Structuring Capital

Across these illustrative PoTs, a pattern emerges: the most troublesome breakdowns occur where institutional constraints intersect with operational handoffs. In a multi-ministerial regenerative school meals value chain, weak links appear at the junctures of input distribution, compliance verification, procurement contracting, payment disbursement, and outcome reporting. These are not just technical problems – they define where and how money and risk flow through the system.

The frictions identified above are points of weakness that constrain scale and undermine fiscal predictability. At the same time, they are also points of high-leverage opportunity for innovative financing interventions. Recognizing these as financing-relevant pain points is essential to making regenerative school meals systems scalable and investable. Doing so helps guide the selection of financial instruments and structuring approaches, some of which are listed in Section 5, that are specifically designed to alleviate these transfer failures in the demand and supply of regenerative school meals.



5 Financing Mechanisms

The Regenerative School Meals Financing Architecture below is a three-layered system that mobilizes and sequences capital to ensure national regenerative school meals programs succeed. Its effectiveness lies in expanding program reach, as well as ensuring a commensurate supply of regenerative products. Rather than a loose collection of funding tools, it is designed as an integrated pipeline that runs from origination to deployment. Upstream, Midstream, and Downstream layers work in sequence – supported by an enabling environment – to allocate, structure, and disburse funds in a way that attracts diverse investors, manages risks, and delivers results at scale.

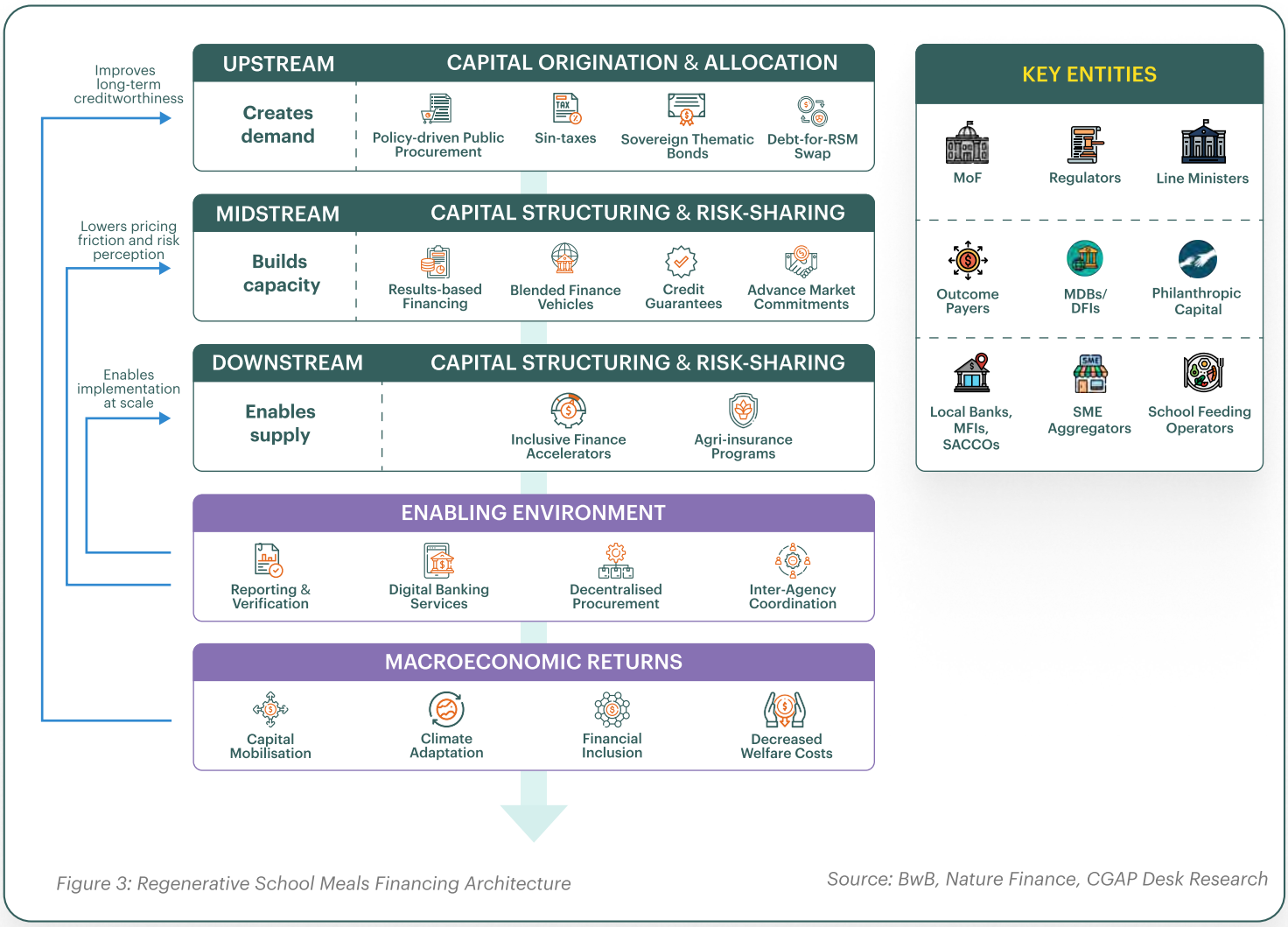


Figure 3: Regenerative School Meals Financing Architecture

Source: BwB, Nature Finance, CGAP Desk Research

Each layer is sequenced to reinforce the next – from Upstream policies that unlock capital, to Midstream instruments that optimize and de-risk it, to Downstream channels that absorb and deploy it.

Additionally, this architecture is **informed by the PoT framework** in Section 4. By addressing the institutional handoffs, governments and their partners can convert political will into effective on-the-ground delivery. The design insight subsection for each financing mechanism explores how specific instruments can be deployed in response to common system failures identified across the five PoT categories. The result is a virtuous cycle: mobilized capital drives effective implementation, and successful outcomes strengthen creditworthiness and economic resilience.

5.1 Upstream: Capital Origination and Allocation *(Creates Demand)*

The Upstream layer focuses on raising and allocating capital, essentially creating demand for investment in regenerative school meals. Sovereign entities (e.g. the Ministry of Finance, line ministries) initiate funding through policy and debt instruments, encouraging innovation by providing financial incentives for valuable new interventions, and anchor regenerative school meals in the national budget and financing strategy.

Collectively, these Upstream mechanisms secure multi-year funding and signal credible demand for regenerative school meals outputs. Embedding regenerative school meals in debt policy and procurement plans improves the sovereign's creditworthiness over time by investing in human capital and food security (which can enhance growth and fiscal stability). This layer thus establishes the financial foundation for regenerative school meals and triggers the flow of resources into structured vehicles along the pipeline.

Notably, the order of presentation does not imply prioritization. Determining priorities requires country-level selection based on which PoTs are most consequential within the specific structure of the national regenerative school meals value chain.

Regenerative School Meals Policy-Driven Procurement and Verified Meal-Sourcing Incentives

Key Features

Public procurement has the potential to correct market imbalances by explicitly valuing social benefits. Rather than minimizing cost per calorie, the system assigns value to nutritional and ecological performance. Initial price premiums create investable conditions for producers, which may reduce over time as markets mature. This instrument uses legislatively backed government procurement targets to guarantee demand for regenerative, locally produced food in school meal programs.

To encourage regenerative practices and account for potentially higher production costs, the instrument incorporates structured price incentives. A legally binding procurement mandate dedicates a portion of school meal budgets to be spent on ingredients sourced from local smallholder farms, with priority given to those using agroecological, regenerative or organic practices. Such mandates create a fixed, non-discretionary market for qualifying farmers, ensuring that public meal programs consistently source from domestic, sustainable producers.

In addition, to ensure farmers can profitably participate, the instrument could build in price premiums (typically 15–30% above market prices) paid for qualifying regenerative or organic products. This menu-linked price banding also means procurement budgets are adjusted to ensure priority foods on the school menu (often fresh, seasonal, and/or agroecological items) are financially viable for suppliers. Importantly, these premiums are capped within bands to control costs, but they send a clear signal to farmers that investing in sustainable practices will be rewarded by guaranteed school demand.

Rather than relying solely on costly third-party certifications, this instrument could leverage community-based verification to certify "meal-eligible" producers. **Participatory Guarantee Systems (PGS)** are locally focused quality assurance schemes wherein producers, consumers, and other stakeholders jointly establish standards and verify compliance. Such systems are recognized by authorities[26] and provide an accessible way for smallholders to prove they meet the regenerative criteria necessary for school meal procurement, aligning procurement with trust and transparency in the supply chain[27].

Blended financing is often used: national governments allocate core funding, which is supplemented by state or municipal grants, and sometimes by contributions from farmer cooperatives or social investors (e.g., co-op equity or community-supported agriculture funds) to cover infrastructure or training. Contractually, schools or education departments typically sign purchase agreements with farmer cooperatives or SMEs, stipulating volume, quality, and premium price terms under the policy guidelines.

How does the instrument amplify regenerative school meals goals?

Provides budget predictability for school meal delivery

A legal procurement mandate makes funding needs more predictable and secures an annual market for regenerative foods. Because a portion of the school meal budget is earmarked by law for local sourcing, finance ministries must plan for it, insulating these funds from ad-hoc cuts or delays, and thereby reducing the volatility often seen in school feeding budgets in low-resource settings.

Reduces variability in expenses

Globally, school meal programmes already represent a large and predictable market – about US$48 billion annually – which can be leveraged for sustainable food investments[28]. By locking in part of this market for regenerative producers, governments turn school meals into a steady financing stream for climate-smart agriculture. By orienting a portion of this steady demand towards regenerative outcomes, governments effectively use an existing program to achieve new benefits (e.g., soil restoration, climate resilience, rural employment) with relatively low additional administrative cost. The case of Brazil's PNAE (see the case study below) shows how a school meals program can be leveraged to drive transformation in food systems at scale.

Incentivizes alignment through structured pricing

The instrument deploys price premiums and food-type quotas to shift farm-level production toward diversified, nutrient-rich crops, enabling supply to meet menu-specific targets.

Brings in menu diversity and anchors it in locally available and verified sources of food

The instrument ties school menus directly to the local agricultural calendar and the outputs of verified regenerative farms. Nutritionists and menu planners design meals around what can be seasonally and sustainably supplied by nearby producers, rather than importing foods that might be cheaper but disconnected from the local context. Research on "structured demand" finds that large, predictable orders for a range of nutritious foods can increase the viability of diversified farming systems while improving nutritional outcomes[29].

Through menu anchoring, mitigates fundamental challenges around what is tendered and what farmers can deliver

This approach means fewer menu substitutions or emergency food shipments, since the mandated suppliers are already producing the needed items. Verified "meal-eligible" certification (e.g., via PGS) further ensures that the foods on the menu meet safety and sustainability standards, so meals are not only locally sourced but also high quality.

[28] *World Food Programme, 2023*

[29] *Agronomy for Sustainable Development, 2019*

CASE STUDY

BRAZIL'S PROGRAMA NACIONAL DE ALIMENTAÇÃO ESCOLAR[30]

One of the most cited examples of policy-driven school meal procurement is Brazil's National School Feeding Program (Programa Nacional de Alimentação Escolar, PNAE).

Federal Law 11.947, passed in 2009, fundamentally reoriented PNAE's sourcing strategy toward local family farming. The law requires that at least 30% of the funds transferred from the federal government for school meals must be used to purchase food directly from family farmers and rural family entrepreneurs.

Governance Structure

Brazil's school feeding system operates through a multilevel governance structure. At the federal level, the government provides supplementary transfers, regulatory oversight, technical assistance, and international coordination, while state, district, and municipal governments manage program implementation, including the transfer and use of school meal funds, procurement from family farms, hiring and training of food staff, rural extension services, school infrastructure, and menu design. The National Fund for Education Development (FNDE), a federal authority under the Ministry of Education, administers key education programs, including the PNAE.

Implementation Strategy

At the program level, oversight is carried out by over 80,000 School Feeding Councils (CAEs), which supervise PNAE delivery across hygiene, food quality, procurement, financial execution, and compliance. CAEs are composed of representatives from government, education workers, parents, and civil society. They are legally required for subnational entities to access federal funding – embedding social accountability into the system's institutional design.

PNAE's implementation is monitored through a suite of digital systems. SIGPNAE tracks data on School Feeding Councils and nutritionists; SIGEF monitors FNDE-managed bank accounts; BB Ágil compiles financial statements and compliance with family farming quotas; SIGAE records fund transfers and administrative statuses across federal and subnational entities; and PNAE Monitora streamlines both in-person and remote monitoring by FNDE and CECANE, ensuring standardized and timely oversight.

Success indicators under Brazil's PNAE in 2024

- 40 million students benefited by the PNAE – 100% of students enrolled in all stages and modalities of basic education in municipalities, states and the Federal District, including federal schools, philanthropic entities and religious schools maintained by non-profit entities
- 150,000 state and municipal schools attended, of which 3,586 are indigenous and 2,590 are quilombos (Afro-Brazilian communities descended from residents of quilombos)
- 77 federal institutions benefited
- 40 thousand family farmers benefited by the sale of products to the PNAE
- 8,000 nutritionists working on the PNAE with the implementing entities (state, Federal District and municipal education
- 50 million daily meals served

[30] *Brazil: National School Feeding Program (PNAE), Policy Basket, 2024*

Design insights for application to Regenerative School Meals

Statutory procurement targets create fixed, enforceable markets

for regenerative producers, directly addressing demand uncertainty. By anchoring this demand in law, governments convert routine budgetary flows into catalytic capital that delivers specified outcomes.

The instrument links price premiums and product quotas to verified delivery of regenerative outputs

This helps realign the supply base with national nutrition objectives and, consequently, corrects for market under provision of high-quality, sustainable foods. This helps realign the supply base with national nutrition objectives and, consequently, corrects for market under provision of high-quality, sustainable foods. The untapped value of this instrument is its adaptive design. Policy-driven procurement requires iterative calibration. Brazil's experience, through legislative amendments, revised guidelines, and institutional innovation such as PGS, underscores the importance of continuous refinement.

Embedding data systems from the outset supports real-time diagnostics

This allows governments to course-correct without compromising standards, enabling policy intent – such as verified local sourcing or nutritional balance – to remain maintained and operational methods to remain responsive to delivery constraints. Adaptive execution protects the integrity of the instrument while sustaining performance at scale.

Sin Taxes

Key Features

Sin taxes – essentially, excise taxes on socially harmful goods such as tobacco, alcohol, and sugar-sweetened beverages – can be structured as powerful public finance instruments for regenerative school meals delivery at scale. By design, sin taxes serve a dual purpose: they discourage unhealthy consumption while raising domestic revenue. Governments impose targeted excise taxes on products deemed harmful and these are collected via the normal tax administration. Critically, a policy decision is made to earmark all or part of these inflows for regenerative school meals programs, often through legal statutes or budget provisions that protect the funds for a designated purpose. This earmarking can be "hard" (legally mandated for exclusive use) or "soft" (a political commitment within budget processes), but in either case it ensures that **a portion of private expenditure on unhealthy items is automatically converted into public expenditure on child nutrition.**

Once in the regenerative school meals fund, sin tax proceeds can be merged with other financing streams (e.g., domestic budgets, donor grants) as part of **a blended capital approach** (further explored in the Midstream section) to school feeding. For example, a country might channel soda tax receipts into a national School Meals Trust, which co-finances program costs alongside general education budgets. This flow-of-funds design can expand the domestic resource base. When these revenues are earmarked for public nutrition programs, governments achieve a fiscal "win-win" – i.e., **steady funding for high-impact school meal interventions and improved population health outcomes from reduced unhealthy consumption.**

How does the instrument amplify RSM goals?

Provides funding predictability

A dedicated sin tax provides a steady, predictable funding stream for school meals, mitigating the timing mismatches and volatility that often plague budget transfers. Unlike donor funds or discretionary budget lines that may be delayed or cut in hard economic times, earmarked tax revenues flow in proportion to a broad consumption base, making them relatively stable. This improves cash flow at critical PoTs (e.g., from central treasuries to implementing ministries and onwards to schools).

Supports alignment on timing and execution

Sin tax earmarking can be structured to synchronize **fund availability with the school calendar**, reducing delays at transfer points. For instance, if soda tax revenue is credited monthly to a school feeding program, implementing agencies can maintain revolving funds and avoid interruptions in feeding schedules. This addresses PoT frictions where cash arrives late in the school term or after planting seasons in the local area.

Supports local delivery and reduces leakage risk

Many PoTs in school feeding (central-to-local treasury, local treasury-to-school, etc.) risk leakage or diversion. Sin tax funding, especially if managed via a ring-fenced trust, can bypass some of these layers. For example, a portion of tobacco tax could be credited directly to a School Meal Fund that then disburses grants directly to schools or districts based on enrollment. **This streamlining of transfers skips over bureaucratic hurdles that cause leakage.**

CASE STUDY

THAIHEALTH'S SIN TAX MODEL[31]

The Thai Health Promotion Foundation (ThaiHealth) is globally recognized for its dedicated "sin tax" financing model, legislated under the Health Promotion Foundation Act B.E. 2544 (2001). This mechanism **earmarks a 2% surcharge on the excise taxes of tobacco and alcohol,** establishing a sustainable funding stream for multi-sectoral health promotion initiatives.

The law requires Thailand's Ministry of Finance to t**ransfer revenues collected from the 2% surcharge** on alcohol and tobacco excise taxes **directly to ThaiHealth's fund**. This off-budget model ensures financial autonomy, preventing political interference and enabling long-term strategic planning.

Key Features

Revenue Generation

The 2% surcharge on tobacco and alcohol excise taxes is mandated by the Health Promotion Foundation Act.

Annual Revenue

ThaiHealth's annual revenue from this surcharge has been reported to be approximately US$150 million.

Allocation of Funds

Supports over 3,000 programs across various health promotion areas, including tobacco and alcohol control, road safety, healthy diets, and physical activity.

Transparency and Accountability

Publishes annual performance and financial reports to Thai parliament and makes them publicly available

As of 2023, the ThaiHealth model has inspired or directly informed[32]

- **Vietnam**: Establishment of a draft law for health promotion fund with earmarked taxes
- **Mongolia**: Tobacco and alcohol tax revenue partially allocated to health promotion.
- **Lao PDR, Malaysia, Bhutan, and the Philippines**: Technical consultations ongoing through the Southeast Asia Tobacco Control Alliance.

[31] *Health Promotion Foundation: Sustainable Financing and Governance, 2025*

[32] *Health Promotion Foundation: Sustainable Financing and Governance, 2025*

Considerations for adaptation to regenerative school meals

While sin taxes offer significant promise for regenerative school meals financing, their design and implementation must account for several important considerations to fit the political economy and technical context of individual countries.

Political economy and public acceptance

Sin taxes often face fierce opposition from relevant industry lobbyists and can be sensitive among the public if seen as regressive and/or paternalistic. Securing these reforms requires strong leadership, evidence, and advocacy.

Relative socio-economic impact

Studies have found that when health gains and education gains are considered, excise taxes on tobacco, alcohol and sugary foods are progressive overall. Lower-income groups see disproportionate health benefits, outweighing their higher share of tax paid. Tiered tax structures (e.g., exempting some products) and complementary measures (such as nutrition education) can help address equity concerns.

Revenue adequacy and volatility

By design, a successful sin tax will reduce consumption of harmful goods, which implies the tax base will shrink over time. This creates tension; relying on a diminishing revenue source. In practice, moderate declines in volume are often offset by periodic rate increases and by economic growth (consumption tends to track income). Conservative revenue forecasting is prudent, and governments may consider stabilization measures such as minimum earmark guarantees.

Public financial management alignment

The credibility of a sin tax for regenerative school meals hinges on getting the money to the program. Earmarking is the tool for achieving this, but it must be designed within the country's public financial management system.

- **Hard earmarks** (in law) guarantee funding but reduce flexibility. Finance ministries often worry that earmarks constrain budgets and can lead to inefficient allocation if revenues outpace absorptive capacity.
- The **risk of fungibility/offsetting** is an issue as a government might cut other funding to the program since the earmark provides new money, yielding no net gain. To counter this, regenerative school meals advocate should push for additionality clauses – for example, the school feeding budget will increase by the amount of sin tax revenue, not simply replace existing appropriations.
- A **soft earmark** can be a compromise. The government could establish a notional allocation for regenerative school meals in its budget circular or medium-term plan, without a rigid legal entitlement, but with political commitment. Such soft earmarks can be useful in the short term to inject funding, provided there are public financial management safeguards to ensure the money is spent as intended. Those safeguards include creating a special account or fund code for the sin tax revenue and regularly reporting on its collections and expenditures.

Downstream absorptive capacity

As significant new funds flow into regenerative school meals from sin taxes, program managers must ensure the capacity to use them effectively. This means strengthening the delivery systems – for example, expanding school kitchen infrastructure, supplier contracts, monitoring and evaluation, so that additional meals can be delivered. If sin tax revenues vastly increase the budget, phasing the scale-up is wise to avoid waste.

Design insights for application to regenerative school meals

- Studies indicate that corrective taxes on alcohol, tobacco, and sugary foods could mobilize **significant new resources**, in the order of 0.7% of GDP in many LMICs, if fully implemented. Globally, that equates to an estimated US$50+ billion in additional funding annually[33], more than enough to close the school meals financing gap.
- Careful thought, however, should be given to the incidence of benefits. Sin taxes are justified even if somewhat regressive because their proceeds fund pro-poor services. To maximize this, regenerative school meals programs should be targeted to schools and regions in greatest need (i.e., low-income and food-insecure communities) so that the funds improve equity.
- Complementary measures can enhance public acceptance. For example, subsidizing healthy food alternatives or nutrition programs can offset any incremental tax burden on lower income groups. Political economy also dictates that visibility of impact is crucial – demonstrating, with data, the improvements in student attendance, nutrition, and local agriculture resulting from sin-tax funding will reinforce the rationale for it being imposed.
- Governments should anticipate and manage any unintended consequences. For example, if a tobacco tax drastically cuts farmer income in one region, some of the school feeding produce procurement could be directed to that community as alternative livelihood support. Thus, an adaptive design is needed, but these are surmountable challenges.

[33] *Sustainable Financing Initiative with Rockefeller Foundation Support Identifies Innovative Ways to Expand School Meals Worldwide," The Rockefeller Foundation, 2024,*

Performance-based sovereign financing with RSM KPIs

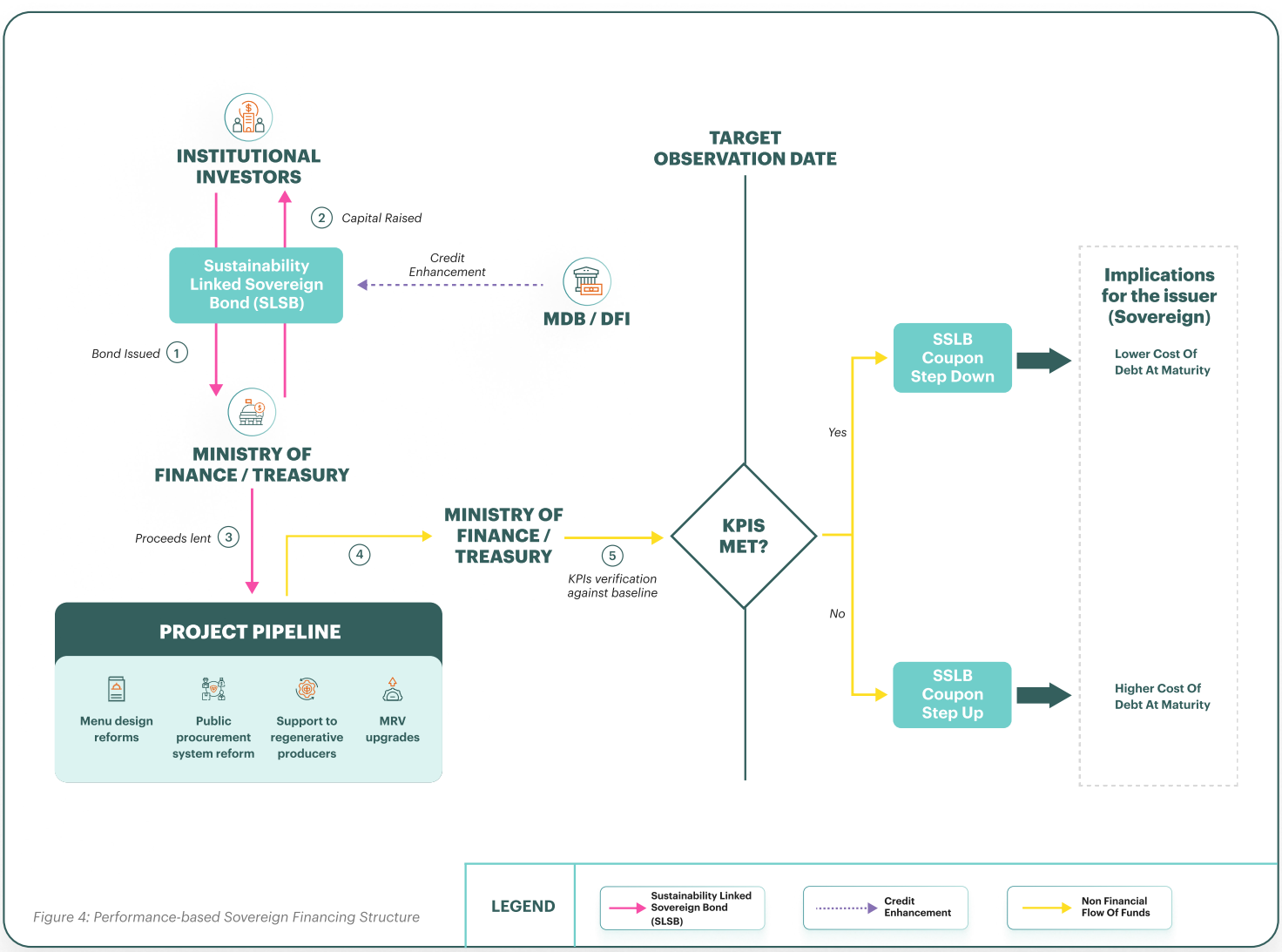


Figure 4: Performance-based Sovereign Financing Structure

Key Features

The government raises capital through sovereign bonds or policy-based loans that include regenerative school meal performance targets. These targets – ambitious but realistic – are embedded in the debt terms. For example, a sovereign bond or an MDB development policy loan specifies KPI outcome indicators. Investors or lenders commit to an interest rate reduction i.e., a "coupon step-down", if the targets are met at predefined evaluation points. The debt's use of proceeds is flexible (general budget support or liability management), so the country can refinance existing debt or fund broad programs without earmarking funds, ensuring the instrument does not add undue fiscal strain. The crux is the financial incentive for achieving policy outcomes: if the country delivers on the agreed regenerative targets, its debt service costs drop, rewarding performance. Contracts typically define verification mechanisms (independent monitoring of KPIs) and schedule rate adjustments (for instance, interest step-downs) over the loan/bond tenor. Initiation of such instruments often involves collaboration between the sovereign (Ministry of Finance) and an MDB or impact investors to set credible targets and verification protocols.

How does the instrument amplify regenerative school meals goals?

Regenerative school meals enhance the logic and appeal of such financing mechanisms

For investors and donors, adding school feeding outcomes means the instrument is delivering broad-based social impact – feeding children (immediate human capital gain) while also advancing climate-smart agriculture (long-term sustainability gain).

Broadens the coalition of support

For instance, climate-focused stakeholders join education-focused ones. From a risk perspective, having multiple benefits (education plus climate plus agriculture) may improve the country's overall performance likelihood even if one target faces challenges. For example, if a drought affects local sourcing one year, the education target might still be met. This reduces the risk of outright failure.

Linking school meals to financing improves domestic buy-in

It is politically easier for a government to justify a reform or borrowing if it is framed around highly tangible benefits such as feeding 1 million additional children in exchange for discount on national debt. This narrative can rally public support in a way that abstract fiscal measures cannot.

Regenerative school meals use strengthens debt outcomes by improving economic resilience

Ensuring children are better fed can support better learning outcomes and, longer term, results in a healthier and more productive adult population – boosting future growth and revenues.

CASE STUDY

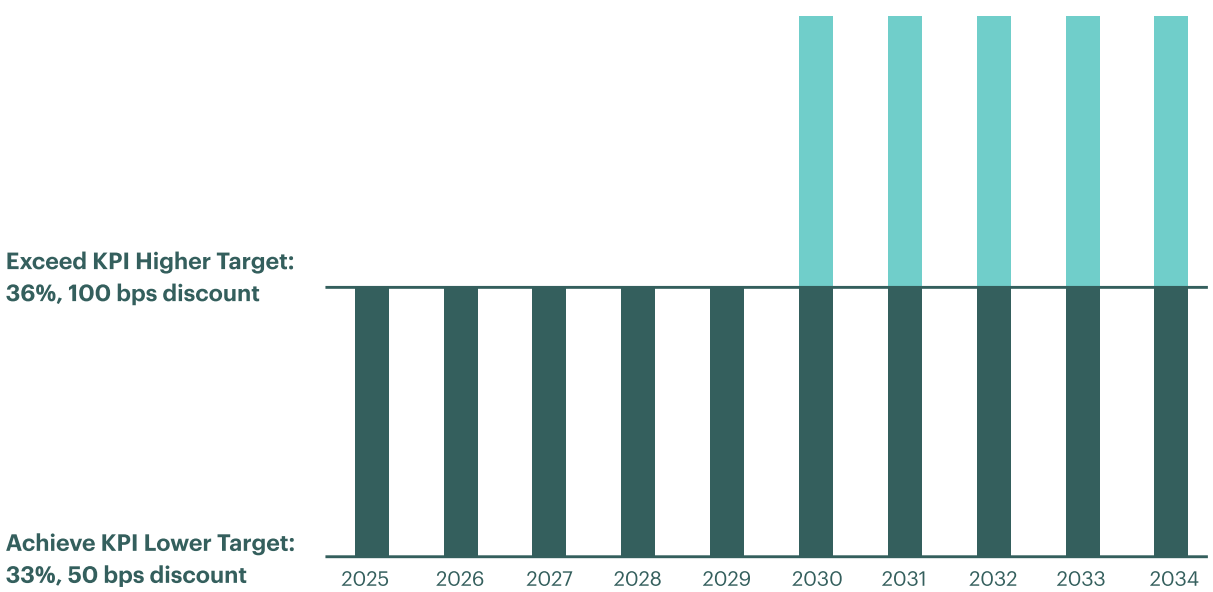
URUGUAY SUSTAINABILITY LINKED LOAN[34]

In 2023, the World Bank provided Uruguay with an innovative development policy loan under its country envelope. Under this pioneering sustainability-linked loan, interest payments are reduced if Uruguay meets its ambitious targets for lowering the methane emissions intensity of beef production.

[34]*Case Study: Uruguay Pioneers World Bank's First Loan with Built-in Climate Incentives, World Bank, 2024*

Performance against targets is underpinned by regenerative livestock farming practices, exemplified by the Livestock and Climate pilot project (Ganadería y Clima). The project demonstrates how regenerative practices such as managing and improving grass and feed can lead to productivity and sustainability gains, as well as improved resilience (e.g., the farms that were part of the program reportedly experienced a 9% increase in meat production and 32% increase in income during the first two years, which coincided with a severe drought).

Debt Conversion Structure



Transaction Highlights

Key Transaction Components	Meeting the first target triggers a 50 basis point reduction in the interest; Meeting the second targets produces a 100 basis point step-down
Loan	USD 350 million
Tenure	15.5 years

Pricing	• IBRD Variable Spread + SOFR
Pricing Discount	• Up to 50 basis points from 2028-2033; and • Up to 100 basis points from 2033-2037 (contingent upon meeting targets)
Key Conservation Impact	• Commitment to reduce methane emissions per unit of bovine cattle by at least 33% between 2025-2029, and by at least 36% between 2030-2034, overperforming its NDC targets

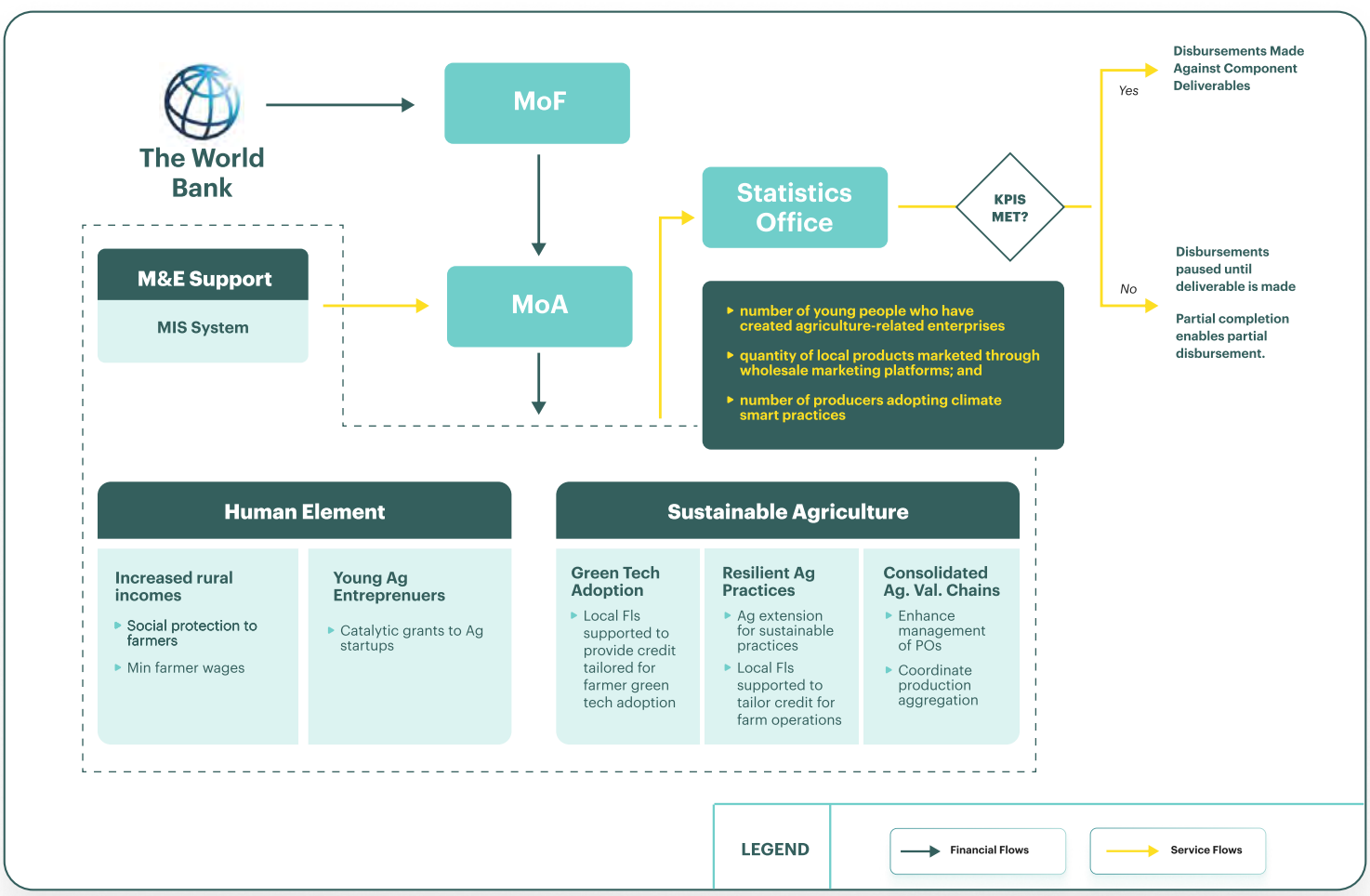
CASE STUDY

MOROCCO'S GREEN GENERATION PROGRAM-FOR-RESULTS[35]

The Morocco Green Generation Program-for-Results is a US$250 million World Bank-financed initiative supporting rural youth inclusion and climate-smart agri-food value chains through performance-based financing, anchored in national agricultural transformation goals.

[35] *Morocco Green Generation Program-for-Results, World Bank, 2024*

Morocco's Green Generation Program for Results (2020-2030)



Program Design Overview

Objectives and Strategic Focus

The Program Development Objective is twofold:

- to increase economic inclusion of rural youth, and
- to improve the marketing efficiency and environmental sustainability of Morocco's agri-food value chains.

These goals are tightly aligned with Morocco's post-COVID-19 recovery and long-term agricultural transformation ambitions.

Alignment with National Strategy

The program is embedded within the Green Generation Strategy (GGS), which shifts agricultural policy from a production-centered model (as under the previous "Plan Maroc Vert') to a people-centered strategy. The GGS focuses on creating a rural middle class, fostering youth and women's entrepreneurship, and promoting sustainability through climate-smart agriculture, digitalization, and inclusive finance.

Program-for-Results Instrument

Disbursements are linked to the achievement of specific Disbursement-Linked Indicators (DLIs) across nine results areas, which include youth entrepreneurship, digital innovation, water use efficiency, agri-food export capacity, and market modernization.

Results Areas and DLIs

The program includes comprehensive results areas such as:

- Developing youth-run agri-enterprises via financial support from local financial institutions
- Enhancing agricultural extension for agri-enterprises, leveraging digital agricultural services (e-extension, e-marketing).
- Improving irrigation efficiency and climate resilience.
- Upgrading wholesale markets and value chain logistics.
- Strengthening institutional frameworks and inter-ministerial coordination.

Each area has DLIs tied to tangible outputs and outcomes such as the number of youth-supported businesses, hectares under improved irrigation, or wholesale markets modernized.

Institutional and Implementation Arrangements

The Ministry of Agriculture, Fisheries, Rural Development, Water and Forestry (MAPMDREF) is the lead implementing agency, supported by a Program Management Unit and a Steering Committee. Implementation involves collaboration with multiple national and regional agencies. The Statistical Office of the Government leads capacity building and monitoring and evaluation systems to ensure effectiveness.

Partnerships and Co-Financing

The World Bank and Agence Française de Développement (AFD) are co-financing the program through a harmonized approach. Total financing is US$487 million, with contributions from the Government of Morocco, the World Bank (US$250 million), and AFD (US$115 million).

Considerations for adaptation to regenerative school meals

Integrating school meals might also involve multiple outcome payers

The loan's disbursement or interest rebate is partly conditional on achieving targets like increased attendance or improved learning outcomes in regions where meals are provided. Because school feeding has proven effects on attendance and learning metrics[36], it would directly contribute to the education goals that governments, multiple MDBs and philanthropists, amongst others, care about.

Broadens the coalition of support

The loan's disbursement or interest rebate is partly conditional on achieving targets such as increased attendance or improved learning outcomes in regions where meals are provided. Because school feeding has proven effects on attendance and learning metrics, it would directly contribute to the education goals that multiple MDBs and philanthropists, amongst others, care about.

Define clear school-meal-related outcomes as the basis for payments

For instance, the instrument could fund the expansion of a farm-to-school program in a region, and investors' coupons would be linked to the number of verified regenerative meals served to students or the increase in local organic produce procured over a baseline. Another approach is to tie returns to a proxy outcome with market value, such as carbon credits from regenerative agriculture that supplies the schools.

Policy triggers (optional)

For example, as part of the financing agreement, the government commits to adopt a policy that 30% of school food is procured locally (mirroring successful models like that used in Brazil – see case study above)[37]. Achieving that policy reform and sustaining it (a proxy for integrating regenerative agriculture in schools) could be a condition for receiving the full concessional benefits.

Focused financing terms

Some finance officials might view school feeding costs as recurrent expenditures that do not fit into loan financing. However, this can be overcome by focusing loan funds on the capital and institutional investments for school feeding (infrastructure, systems, initial scaling efforts), with the understanding that once the program scales, domestic budgets and perhaps efficiency gains (e.g., saved healthcare costs due to better nutrition) will pick up recurring costs.

Select KPIs could include

- number of additional nutritious meals delivered to students over the baseline
- Metric tons or dollar value of food procured from smallholder regenerative farmers for the school program
- Building of school meals infrastructures
- Renovation of school meals infrastructures (e.g., clean cooking solutions) which have the potential to unlock carbon credit revenues
- Number of school kitchens, storage facilities and logistics systems for school meals delivery built/upgraded and operational

[36] *Education Commission, 2023*
[37] *Education Commission, 2022*

Design insights for application to Regenerative School Meals

- By integrating sustainability targets into sovereign debt, this instrument binds government policy commitments to financial incentives. This incentivizes program continuity – because the interest rebate is on the line, current and future administrations would need to sustain the school feeding program at scale to earn the bond's interest reduction throughout political cycles.
- Importantly, the "step-down only" design improves political buy-in as governments face limited downside risk. The design is all carrot and no stick – i.e., there is no financial penalty if targets are missed, only a benefit if targets achieved. However, the magnitude of savings must be meaningful to truly motivate action.
- Can prompt deeper analysis of the economic co-benefits of regenerative practices. While financially not transformative on its own, this instrument signals credibility to investors and stakeholders. Moreover, it prompts a deeper analysis of the economic co-benefits of regenerative practices (e.g. higher yields, climate resilience) that, although not explicitly monetized in the loan, could far exceed the direct interest savings.

Debt-for-Regenerative School Meals Swap

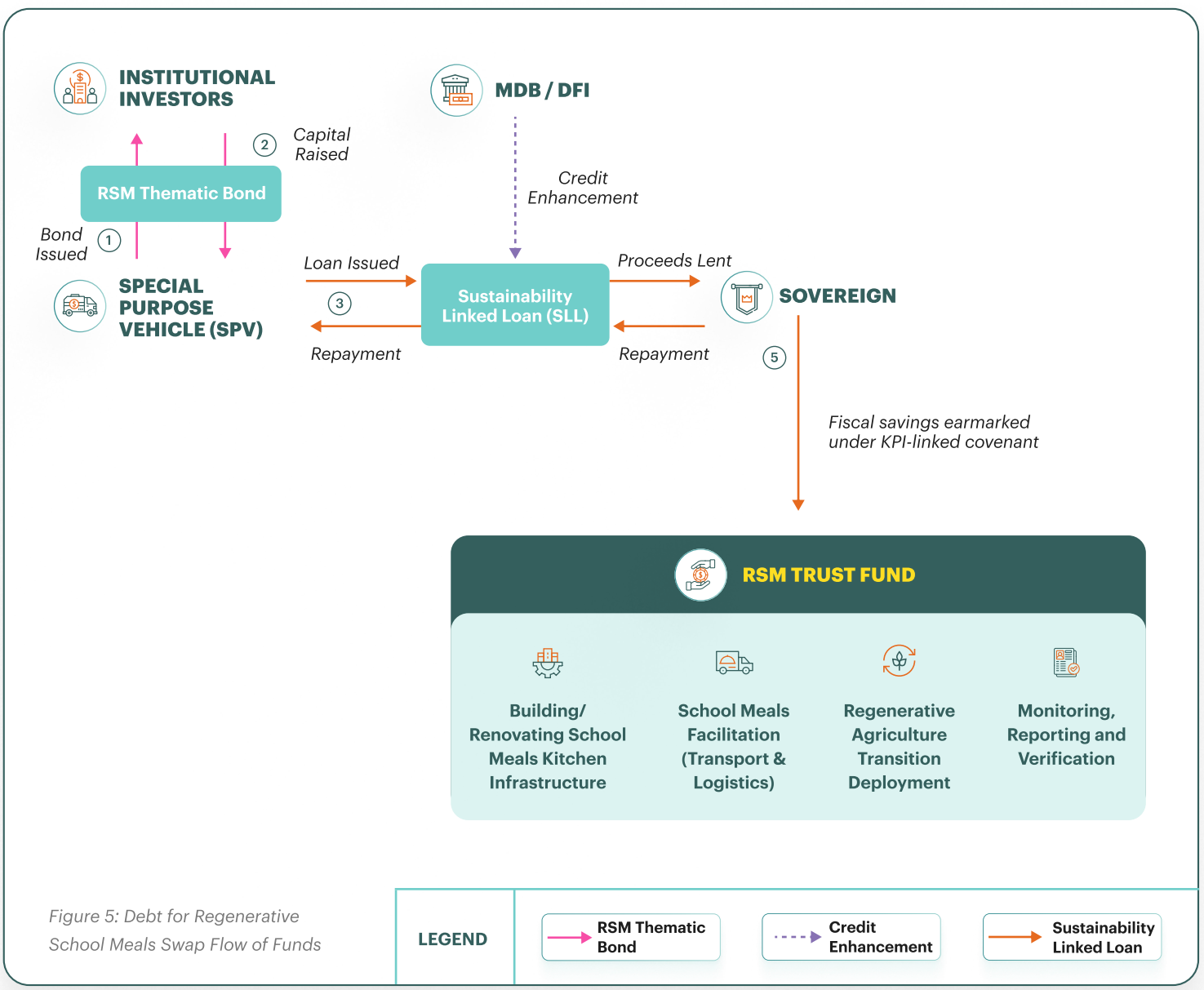


Figure 5: Debt for Regenerative School Meals Swap Flow of Funds

The structure illustrated in Figure 5 is a representative adaptation of the debt-for-nature and debt-for-climate swap model, calibrated specifically to support regenerative school meals. While the core mechanics mirror recent sovereign transactions (e.g. in Belize and Barbados), this version demonstrates how the same fiscal, legal, and capital structuring principles can be redirected to fund measurable school meals and regenerative agriculture outcomes. A debt swap or conversion – the terms are often used interchangeably, although the latter generally denotes situations that do not entail any debt relief – refinancing outstanding "expensive" debt with cheaper fresh debt that has been enhanced via guarantee, credit insurance, or other de-risking mechanisms to lower the cost of borrowing. The resulting savings in interest – and principal in the event of a debt write-down – are channeled towards regenerative school meals.

While this model can be structured exclusively around regenerative school meals, this is not the only option. Regenerative school meals financing can be embedded as one allocation within a larger, multi-purpose debt swap, alongside climate, nature, or health outcomes, drawing from the same pool of fiscal savings.

Structure

A sovereign, in partnership with development finance partners, restructures high-cost debt and redirects savings to regenerative school meals. The transaction sponsors establish a Special Purpose Vehicle (SPV) to issue a credit-enhanced RSM-themed bond in international capital markets. In return for a commitment to fund regenerative school meals, an MDB or Development Finance Institution (DFI) guarantee provides a rating uplift, lowering the bond's interest cost. This market-facing bond does not need to contain "coupon ratchets" or other built-in incentives, or strict use-of-proceed provisions.

Rather, the bond proceeds are on-lent to the government via a Sustainability-Linked Loan (SLL) that embeds agriculture school meal KPIs (e.g., number of children reached with regeneratively sourced meals or improvements in nutritional adequacy). The sovereign uses the SLL to buy back existing expensive debt on the secondary market at a discount, reducing overall debt stock and interest burden. Crucially, the interest savings from this debt swap are contractually earmarked under the SLL's covenants – they cannot revert to the general budget. Instead, saved fiscal outlays are channeled into a ring-fenced trust fund governed independently of the treasury. This trust fund must finance the regenerative school meals transition by disburses along multiple streams, which could include:

- **Construction of new centralized or decentralized kitchens and the renovation of existing facilities to adopt clean cooking technologies (which may also generate carbon credits and establish a future revenue stream)**
- **Premium payments to verified producers who supply school meal programs using verified regenerative practices**
- **Logistical support for school meals delivery, including transportation and storage**
- **The monitoring and verification costs to ensure compliance with the SLL's regenerative school meals KPIs over time**

Select KPIs may include -

- % of participating schools with regular meal service
- % of school meals prepared using climate-smart cooking methods or infrastructure
- % increase in student attendance linked to school meals
- number of new school meals kitchens set up, repaired or renovated
- % of students receiving meals consistently

How does the instrument amplify regenerative school meals goals?

Anchors multi-year social investment through structured financing

By converting debt service obligations into budgetary room for school meals and sustainable agriculture, the sovereign could secure a multi-year funding for regenerative school meals that is insulated from annual budget cuts or political shifts. This long-term horizon is critical for program stability. In Belize's case, the conservation funding is locked in through 2041 as part of the swap[38]. Such predictability allows regenerative school meals initiatives to scale up nationally and plan for impact at a strategic level, rather than remaining short-term pilots.

Unlocks government ownership and visibility

Because debt swaps reallocate government-held debt into domestic programs, they inherently require and foster strong political commitment and inter-ministerial coordination. This is essential for school meals, which sit at the nexus of education, health, agriculture, and social protection.

Offers fiscal and credit advantages

As discussed in the earlier sections, every dollar diverted to regenerative agriculture and school nutrition is an investment in human and natural capital that can yield economic returns. By reducing a country's exposure to climate shocks and improving human capital, a large regenerative school meals program can enhance the sovereign's credit profile over the medium term.

Supports diversified investor base

A debt swap-for-regenerative school meals leverages the cross-sectoral nature of regenerative school meals to attract broader support. For example, funds from a swap could finance climate-smart school kitchens (mitigation through clean cooking), nutritious meals for children (human capital gains), and regenerative agriculture subsidies (ecosystem restoration), all through one integrated program. This layered impact makes the regenerative school meals platform amplifies the pool of capital and expertise devoted to the program. A global education funder, a climate finance facility, and an agricultural development program could all co-invest alongside the swap, each paying for the verified outcomes in their respective domains.

[38] *International Monetary Fund, 2022*

CASE STUDY

MOZAMBIQUE'S DEBT-FOR-DEVELOPMENT SWAP[39]

In 2017, Russia forgave US$40 million of Mozambique's debt on the condition that the equivalent amount be redirected to development projects. The funds were allocated to the National Home-Grown School Feeding Programme (PRONAE), implemented by WFP in collaboration with Mozambique's Ministry of Education and Human Development (MINEDH).

Transaction Highlights

Transaction Size	• US$40 million
Type	• Bilateral debt swap
Tenure	• Five years
Broker	• World Food Programme
Annual Allocation	• Mozambique committed US$8 million per year to a special account designated for development programs, which was transferred to WFP for program implementation
Program Focus	• Expansion of PRONAE to provide school meals to 150,000 children, scaling from 12 schools in 2017 to 70 schools in 2018, reaching 150 schools by 2019 and 300 schools by 2021

Design insights for application to Regenerative School Meals

- This instrument can apply **sovereign liability management** to create a dedicated financing stream for regenerative school meals through a structured, performance-linked mechanism. The fiscal planning horizon created by a debt swap – typically 10 to 20 years – mirrors the long-run returns of school feeding: improved educational attainment, human capital formation, and rural economic stimulus.
- If structured through a sustainability-linked instrument, swaps can embed enforceable performance targets (e.g., coverage, nutrition adequacy, domestic sourcing), tying debt relief directly to delivery outcomes. This creates an accountability loop that conventional grants or budget lines often lack. The linked policy-based financing can drive deeper institutional reforms in regenerative agriculture, including procurement mandates, input subsidies, or digital traceability systems. These parallel channels allow governments to advance operational change while building external credibility.

[39]*WFP Mozambique Annual Country Report, 2018*

5.2 Midstream: Capital Structuring and Risk-Sharing

(Builds Capacity)

Most innovation occurs through natural market forces and requires no external intervention. But in sectors where the social return on innovation far exceeds the private return, critical solutions often fail to emerge or scale. Climate adaptation, pandemic preparedness, and regenerative school meals all exhibit this pattern of market failure – where innovation "should" happen, but doesn't, because commercial incentives are misaligned or diffuse. In regenerative school meals specifically, demand-side constraints such as fragmented procurement, limited payment guarantees, and lack of predictable offtake mean that solutions that could improve meal quality, traceability, or delivery logistics remain commercially unattractive or operationally stranded.

The Midstream layer serves as the conduit between Upstream fiscal commitments and Downstream delivery systems.

Its role is to translate upstream signals into financial structures that enable co-investment, manage performance risk, and sequence disbursement in line with program needs. Consultations with stakeholders reinforced the importance of this layer in contexts that involve incomplete markets, high external risk exposure, or limited institutional depth.

Instruments in this layer blend various forms of capital, including but not limited to grants, concessional funds, and commercial capital with risk guarantees and performance incentives to reduce pricing friction and investors' risk perceptions. MDBs, DFIs, and philanthropic outcome payers play critical enabling roles by providing technical structuring, co-investment, or absorbing first-loss risk to unlock capital at scale for regenerative school meals delivering interventions.

Regenerative School Meals Results-based Financing

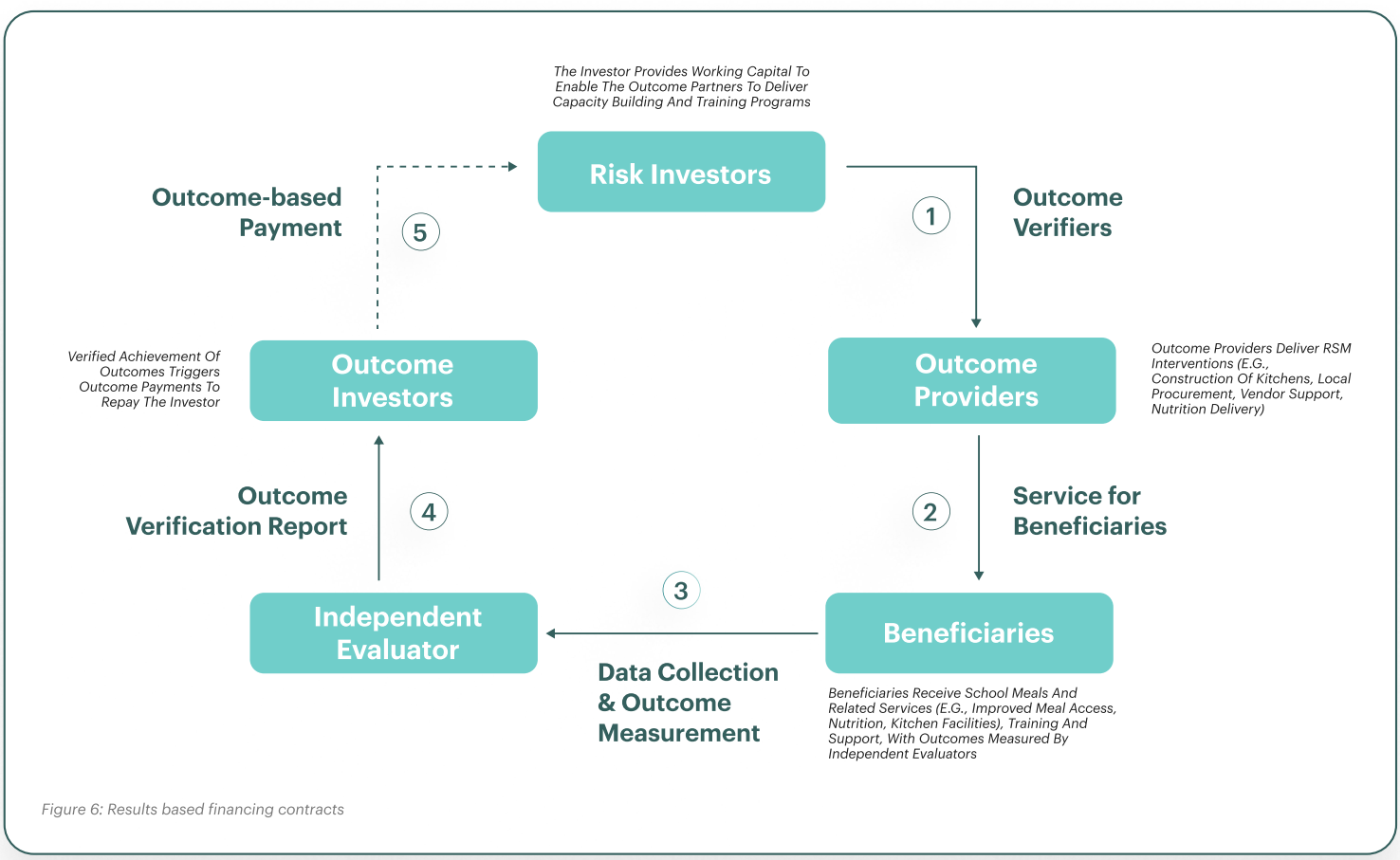


Figure 6: Results based financing contracts

Key Features

This instrument uses pay-for-success contracts to attract private investment into RSM supply chains, with repayment contingent on achieving specified outcomes. In a typical structure:

Impact investors or service providers

deliver upfront funding to scale a school meals initiative (for example, financing local farms to supply schools or building school kitchens).

Outcome payors

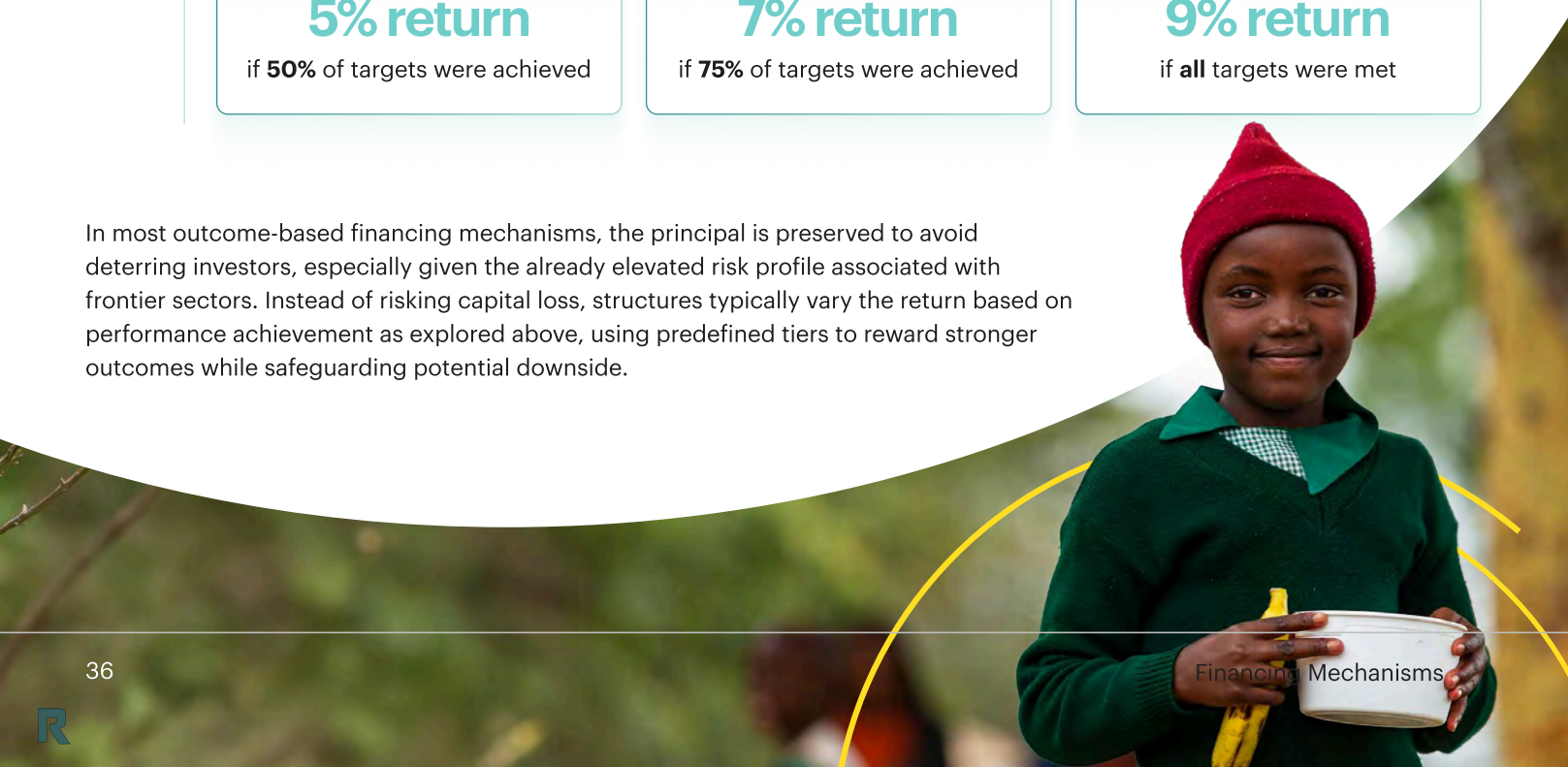
usually government agencies or donor organizations, commit to reimburse those investors with a return only if target results are achieved. These targets are framed around concrete school meals metrics, such as:

- Number of **hot meals delivered per day or per school year**
- Number of **functional kitchens built or upgraded** (e.g. with cold storage or clean cookstoves)
- Percentage of **enrolled children receiving nutrition-compliant meals**
- Number of **schools reached with improved delivery systems**
- Share of **local regenerative procurement** in total school meal inputs

If the program meets or exceeds the agreed indicators the outcome payor releases payments that cover the investors' capital plus a premium. This structure creates a built-in incentive for implementers to deliver results, while protecting the government or outcome funder from paying full yields on underperforming programs. However, if targets are not met, investors may not recover the full investment, shifting performance risk away from the public sector. For example, an instrument might offer a graduated return structure, such as:

5% return	7% return	9% return
if **50%** of targets were achieved	if **75%** of targets were achieved	if **all** targets were met

In most outcome-based financing mechanisms, the principal is preserved to avoid deterring investors, especially given the already elevated risk profile associated with frontier sectors. Instead of risking capital loss, structures typically vary the return based on performance achievement as explored above, using predefined tiers to reward stronger outcomes while safeguarding potential downside.



How does the instrument amplify regenerative school meal goals?

Adding a school meals lens plays to the strengths of outcome-linked financing.

School feeding programs offer clearly measurable outputs

These could include, for example, meals served, enrollment rates, and procurement volumes. Furthermore, such programs can operate within existing reporting systems, reducing monitoring costs relative to less trackable interventions. Their national footprint allows successful pilots to be rapidly integrated into public delivery systems and scaled through the budget process. This creates a credible pathway for follow-on investment, supporting both larger and faster issuances.

Structuring bonds around RSM also enables layered impact

Education, nutrition, and climate objectives can be delivered through a single instrument, broadening the pool of potential outcome funders. A global education fund, for example, could co-finance with a climate facility, each disbursing against distinct, verified outcomes – mobilizing more capital per transaction.

Over time, RSM-linked outcome bonds could serve as an entry point for institutionalizing results-based budgeting

demonstrating fiscal savings and accountability gains that justify replication across other public programs.

Results-based financing mechanisms can be easily integrated into existing funding channels

This can be done either as a standalone results window or as a performance-linked tranche within a broader facility. This flexibility allows governments to align the structure with current institutional mandates, such as school meals agencies or pooled education budgets without necessitating the creation of entirely new funding structures.

For instance, The Results in Education for All Children (REACH) initiative by the World Bank has implemented over 30 results-based financing activities across 23 countries. These activities often involve embedding results-based financing components within existing education systems, allowing for targeted interventions without overhauling entire funding mechanisms[40].

[40] *World Bank Group, 2019*

Considerations for adaptation to RSM

Adding a school meals lens plays to the strengths of outcome-linked financing.

Define clear school-meal-related outcomes as the basis for payments

For instance, the proceeds from an outcome-based contract could fund the expansion of a farm-to-school program in a region, and investors' coupons would be linked to the number of verified regenerative meals served to students or the increase in local organic produce procured over a baseline. Another approach is to tie returns to a proxy outcome with market value, such as carbon credits from regenerative agriculture that supplies the schools (similar to the Vietnam case, where each water purifier's impact on emissions was monetized).

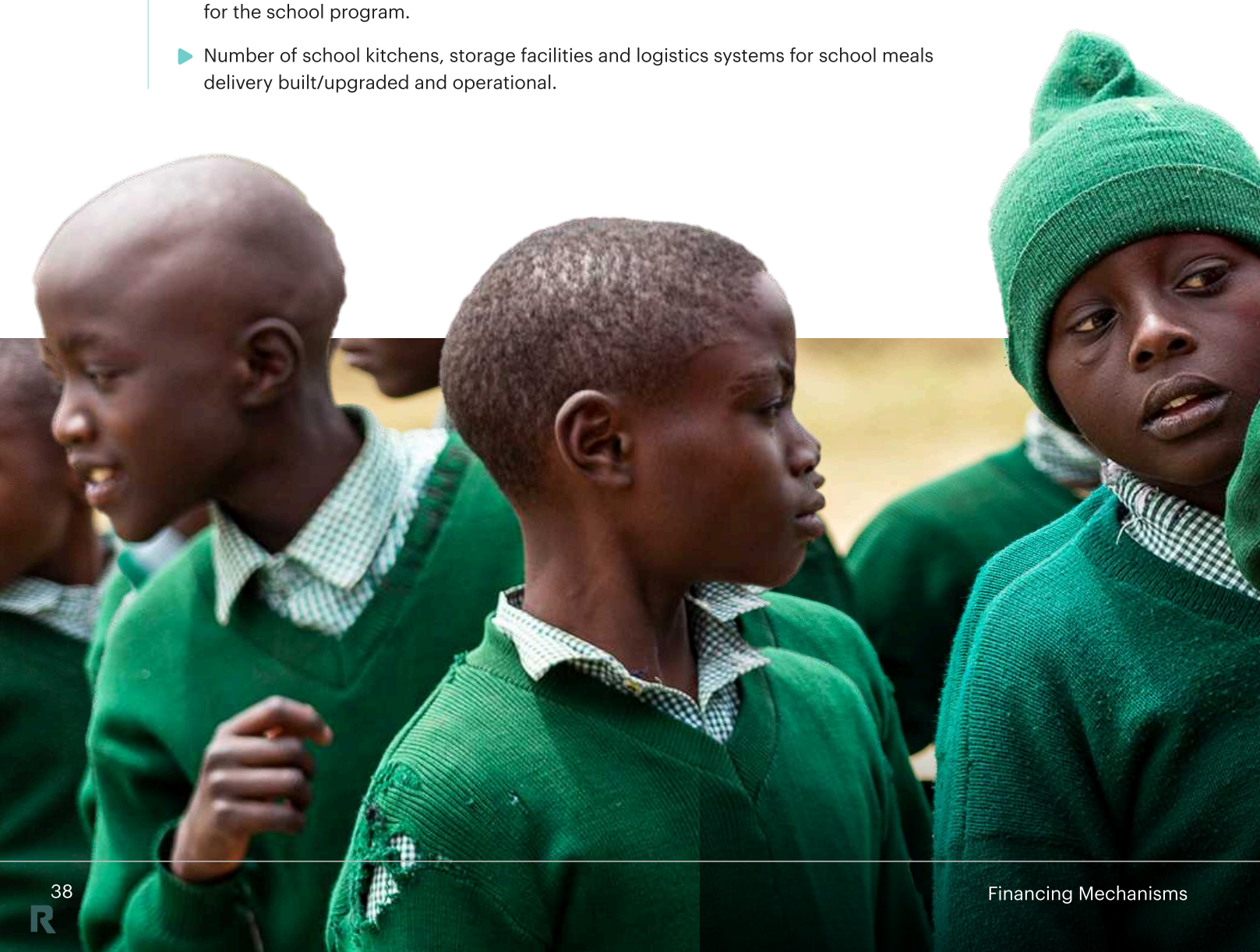
Integrating school meals might also involve multiple outcome payers

A government could pledge to pay for verified nutrition outcomes (e.g., reductions in anemia rates among students), while a climate fund pays for verified soil carbon gains – layering incentives.

A robust MRV system is needed

For meals delivered, digital attendance and meal logs from schools could be used; for farming practices, third-party certification or remote sensing could verify regenerative methods on supplier farms. These outcomes would be independently audited before triggering investor payouts. Select KPIs could include:

- Number of additional nutritious meals delivered to students over the baseline.
- Building of school meals infrastructure.
- Renovation of school meals infrastructures (e.g., clean cooking solutions) which have the potential to unlock carbon credit revenues.
- Metric tons or dollar value of food procured from smallholder regenerative farmers for the school program.
- Number of school kitchens, storage facilities and logistics systems for school meals delivery built/upgraded and operational.



CASE STUDY

EDUCATION OUTCOME-BASED FINANCING MECHANISM IN INDIA[41]

This initiative was structured as a four-year results-based contract (2018–2022) aimed at improving student learning outcomes[42]. UBS Optimus Foundation provided around US$3 million in upfront capital, which allowed NGOs to carry out activities such as teacher training, remedial education, and school enhancement programs. Outcome funders, including the Michael & Susan Dell Foundation and the British Asian Trust, supported by both public and private donors – pledged up to US$11.2 million in payments.

However, these funds were only released based on verified improvements in student learning, as measured by independent assessments. If the programs failed to meet their targets, the payments would be reduced, and the investor risked financial loss – ensuring that all stakeholders were aligned toward student achievement.

During the first two years, the initiative made notable progress. It reached more than 100,000 students across 700 schools. An independent assessment involving 6,000 children revealed that participants gained the equivalent of over two additional years of learning compared to students in a control group[43]. All participating organizations surpassed their annual learning targets for two consecutive years[44]. By the end of the program in 2022, the initiative had either met or exceeded its predefined goals, unlocking full payments from the outcome funders – including returns for the investor and performance-based bonuses for the service providers[45].

Capital Commitment	• US$11.2 million
Upfront Investor	• UBS Optimus Foundation
Outcome Funders	• Michael & Susan Dell Foundation (lead funder), Comic Relief, The Mittal Foundation, British Asian Antitrust, and The Larry Ellison Foundation
Service Providers	• Gyan Shala, Kaivalya Education Foundation (KEF), Society for All Round Development (SARD), and Educational Initiatives-Pratham Infotech Foundation
Investment Horizon	• Five years
Programmatic Objectives	• Enhance foundational literacy and numeracy skills among primary school children. • Reach marginalized and underserved communities in low-income students. • Align financing with measurable student outcomes.
Beneficiary Country	• India (across several states, including Maharashtra, Gujarat, Uttar Pradesh, and Delhi)

[41] *UBS Optimus Foundation, 2025*
[42] *UBS Optimus Foundation, 2025*
[43] *UBS Optimus Foundation, 2025*
[44] *UBS Optimus Foundation, 2025*
[45] *Quality Education Indian DIB, 2025*

Design insight application to Regenerative School Meals

- Results-based financing introduces accountability and precision into public programs by tying financial disbursements to independently verified outcomes rather than inputs.
- The India case study illustrates how this model can overcome a critical financing friction: the mismatch between when capital is needed (e.g., to deploy infrastructure or services) and when results become measurable.
- Applied to regenerative school meals, the insight is potent: many PoT failures in school meal systems (such as delayed supplier payments or postponed food deliveries) are fundamentally timing gaps. Outcome-linked instruments can channel capital exactly at those friction points (e.g., paying regenerative farmers at planting time or frontloading procurement for peak school months), and recover costs once meals are delivered or regenerative sourcing targets are met. This shifts performance risk to outcome funders, while ensuring public budgets only pay for verified success.
- If designed around robust regenerative school meals metrics, such instruments could pioneer a new class of climate-nutrition financing tools – for example, supporting school greenhouse gardens that both sequester carbon and improve meal quality as well as ad-hoc clean cooking kitchens built for the distributions of RSM, with investor returns tied to both emissions reduction and verified child nutrition outcomes.

RSM Blended Finance Fund

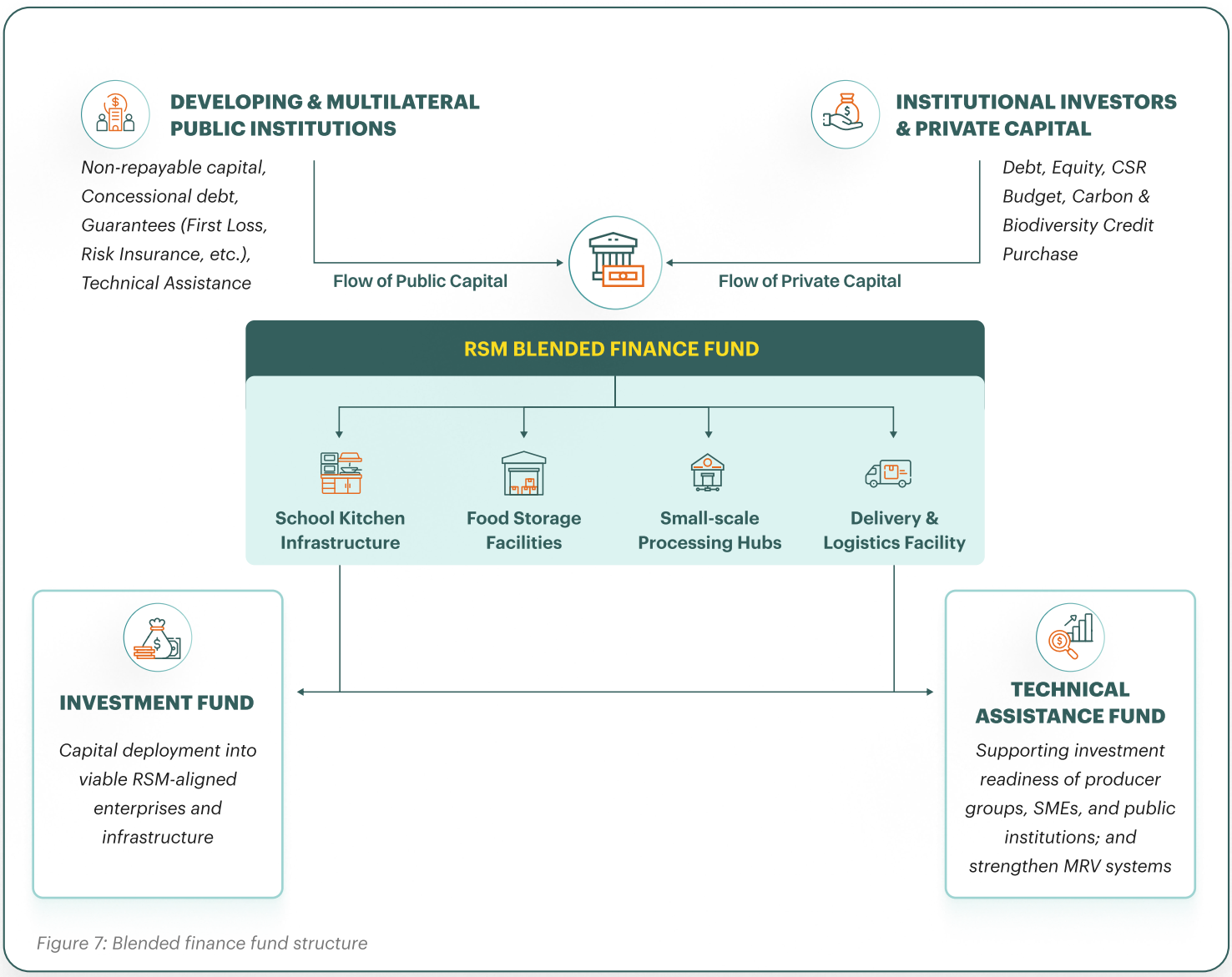


Figure 7: Blended finance fund structure

Key Features

A blended finance fund is a dedicated investment pool that combines public, philanthropic, and private capital to finance regenerative school meals programs or related agrifood enterprises at scale. It is typically initiated by a coalition of actors – for example, a national government and one or two anchor donors (or MDBs) who seed the fund with concessional resources, and a professional fund manager who raises additional capital from private investors. The fund's capital stack is structured in tiers to align different risk/return expectations (explored further below).

The fund is governed via a formal vehicle, often an SPV, with an investment committee that approves projects aligned to regenerative school meals objectives (e.g., financing school meal caterers, farm-to-school supply chains, storage and logistics, or agro-processing facilities for school food). Funds can be deployed through a mix of instruments – grants, low-interest loans, or equity investments – tailored to fill gaps in the value chain. An MDB or national development bank may host or administer the fund, ensuring strong fiduciary standards and alignment with national development plans. Administrative mechanisms also include technical assistance facilities attached to the fund, helping pipeline development (for example, training farmer cooperatives to become investment-ready or helping schools design bankable kitchen infrastructure projects).

Capital interaction in a blended finance fund

While different forms of capital do not determine which activities can be funded, each serves a distinct financial function within the capital stack. For instance, a junior tranche (first-loss equity or subordinate debt), typically provided by governments, donors, or MDBs, absorbs volatility and enables investment in activities without direct revenue streams. This risk-layering allows institutional investors to enter higher in the stack, financing commercially viable components with a reasonable expectation of capital preservation.

The combined architecture allows the fund to finance both the non-revenue-generating infrastructure critical for delivering regenerative school meals and the revenue-backed segments that sustain long-term investor participation. This way, every dollar of high-risk public funding can mobilize several dollars from the private sector[46].

Grant capital provides the risk-absorbing and enabling layer that anchors the entire fund's investability

- This tranche serves as a first-loss cushion, absorbing downside in the fund's early years, particularly in farmer and aggregator segments where volatility and execution risk are high; enabling the financing of public goods that are essential for regenerative school meals implementation but lack commercial return.
- This might include activities such as technical assistance to train farmers in regenerative practices, nutrition and food safety training for school kitchen staff, and the deployment of rural extension services, among others.
- It also allows the fund to support early-stage program design and operations, including menu planning aligned with local crop cycles, matchmaking systems between farmer groups and schools, and the establishment of MRV systems for activities such as soil testing and data platforms to verify regenerative practices.

Concessional capital, typically in the form of soft loans or junior equity, plays an intermediation role, offering below-market financing to scale activities with partial or delayed returns, while crowding in senior investors

- It supports farmer inputs and working capital by providing affordable credit for regenerative inputs; and enables aggregation and storage infrastructure that is critical for linking farm production to school demand, including local grain silos, cold storage units, and transport hubs.
- Transition financing is a core use case: multi-year, low-interest loans are extended to farmers undergoing the costly shift from conventional agriculture to RA. On the procurement side, concessional capital allows the fund to support the development of digital systems that connect public procurement orders with verified regenerative producers, and the establishment of transparent payment systems that ensure small suppliers are paid reliably and on time.
- These investments generate indirect returns by enhancing delivery efficiency and market readiness but require soft capital because they may not yield near-term cash flows.

[46] *Blended Finance and Leveraging Concessionality, Convergence, 2020*

Commercial capital, in the form of senior debt or equity, is protected through financing investable components of the school meal value chain with structured revenue streams and commercial return expectations.

- These include mid- to large-scale food enterprises that source regeneratively and supply schools at scale, kitchen-as-a-service operators linked to multiple local schools, and logistics and distribution firms moving regenerative produce from farm to school.
- Revenues for these investments come from multi-year school meal contracts, bulk produce sales, and service fees paid by implementing entities.
- Because upstream risks are absorbed by the concessional and grant layers, commercial investors are insulated from early-stage volatility, allowing them to participate without bearing exposure to the more fragile segments of the value chain.

How does the instrument amplify regenerative school meal goals?

Adding a school meals lens plays to the strengths of outcome-linked financing.

Ensures the fund's investments yield immediate social returns (children fed better) alongside longer-term climate/economic return

This dual impact can make the fund more appealing to impact investors and climate donors alike, since it touches multiple SDGs.

By broadening the focus to regenerative school meals, the fund likely gains political support

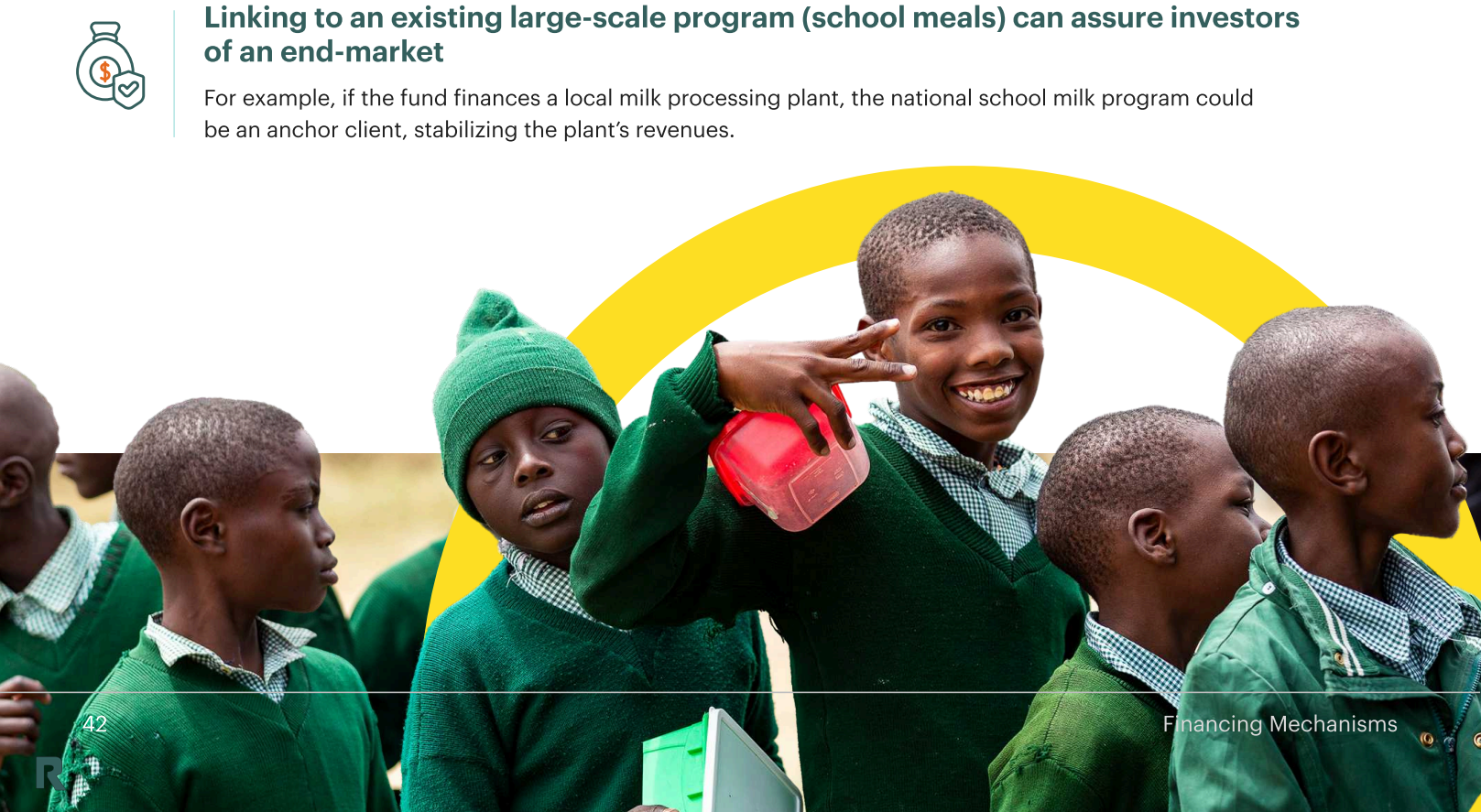
Education and agriculture ministries may champion it, potentially contributing budget or policy support as co-investors or by de-risking projects through procurement guarantees.

Helps overcome a core challenge often faced by climate funds: finding projects with community buy-in

For example, a cold storage or solar kitchen financed under regenerative school meals has built-in community demand (from schools and parents), reducing project risk.

Linking to an existing large-scale program (school meals) can assure investors of an end-market

For example, if the fund finances a local milk processing plant, the national school milk program could be an anchor client, stabilizing the plant's revenues.



CASE STUDY

PROJECT ACORN[47]

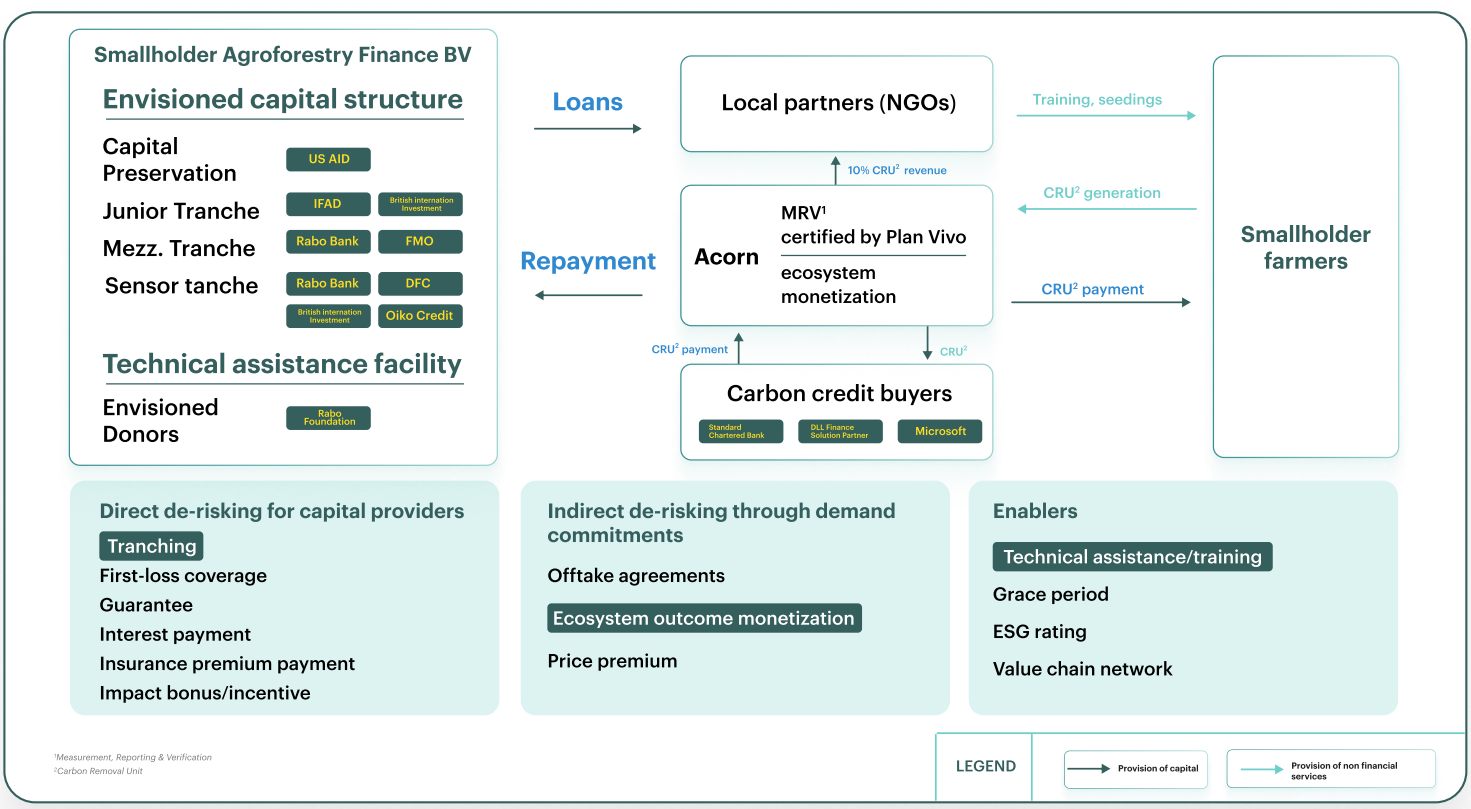
Project Acorn, led by Dutch lender Rabobank, raised approximately $100 million to help smallholder farmers transition from monoculture to agroforestry by covering their upfront transition costs and verifying and issuing carbon removal units.

[47]*World Economic Forum, 2025*

The proceeds from the sale of these carbon credits repay the upfront costs and compensate farmers for sustainable agroforestry practices. The proceeds from the sale of these carbon credits repay the upfront costs and compensate farmers for sustainable agroforestry practices.

Transaction Highlights

Capital Raised	• USD 100 million
Primary Donor & Fund Administrator	• Rabobank
Additional Financing Partners	• Oikocredit and the US International Development Finance Corporation
Investment Horizon	• Five years
Programmatic Objectives	• Help smallholder farmers transition from monoculture to agroforestry
Beneficiaries Countries	• Latin America, Africa and Asia
Beneficiaries Impacted	• 470,000 farmers



Considerations for adaptation to regenerative school meals

Integrating school meals into the fund's mandate

Integrating school meals into the fund's mandate: The fund's investment charter would explicitly prioritize projects that enable or enhance regenerative school meals delivery. For example, it might target sectors like decentralized renewable energy for schools (to power kitchens and refrigeration), school kitchen infrastructure, sustainable food production and storage (community grain banks for school feeding), and nutrition-sensitive agribusiness.

A practical adaptation could be establishing an RSM window or sub-fund under an existing climate fund

This would ensure that proposals are evaluated not just on financial viability and climate impact, but also on regenerative school meals metrics (e.g., how many schools or students will benefit). The fund could integrate school meal program representatives in its governance – for example, by having a seat for the Ministry of Education or a school feeding agency on its investment committee – to verify that investments align with program needs.

Pipeline sourcing should involve education and agriculture networks

For example, identifying districts where school meal quality is low due to lack of local supplier capacity, then financing a project in that area (e.g., a farmers' aggregation center or a food processing unit) to fill the gap.

The governance must balance public and private interests

A public entity or MDB (or similar) would serve as fund custodian or manager to ensure alignment with national goals. Private fund managers bring investment discipline, but investment criteria should include regenerative school meals impact requirements (e.g., a project must report on how it contributes to school feeding outcomes). Payout or exit conditions might be innovative: for instance, the fund could earn returns through long-term offtake agreements with the government (a school meals program might pay a service fee to a storage facility built by the fund, providing revenue).

Select KPIs may include:

- number of additional nutritious meals enabled per dollar invested
- increase in local procurement (%) in areas where the fund invests
- number of school kitchens or storage facilities built/upgraded and operational

Design insight application to regenerative school meals

- The core value of a blended finance fund in the regenerative school meals architecture lies in its ability to r**ewire the terms on which public and private actors co-invest in public goods.** By integrating regenerative school meals expenditures into a risk-layered vehicle, the fund enables ministries of finance to scale school meal delivery without relying on fragmented or off-budget support.
- By embedding regenerative school meals outcomes into the investment mandate of a professionally managed vehicle, countries can convert policy ambitions into a structured pipeline of bankable transactions, each with defined risk-sharing, governance, and monitoring rules. This addresses a **recurring bottleneck in regenerative school meals systems: the lack of financial intermediation between fiscal intent and investable delivery.**
- For governments, the design has **two strategic advantages:**
  - It provides a controlled platform to absorb and deploy external regenerative school meals-aligned concessional flows (e.g., climate finance, nutrition-linked aid) in alignment with national investment priorities.
  - It institutionalizes fiscal discipline: Technical assistance and concessionality are deployed to unlock viable projects, not to perpetuate unscalable transfers. The fund allocates capital across the full regenerative school meals.
  - delivery architecture without separating activities by commercial viability. Expenditures that do not generate revenue – such as training frontline staff, building verification systems, and upgrading school kitchens – are financed within the pooled structure, not relegated to parallel grant facilities. Their cost is absorbed at the portfolio level through internal cross-subsidization, where investable segments such as food enterprises, logistics providers, and service contractors generate predictable returns. Senior capital is deployed into these commercially structured components, while junior and concessional tranches absorb volatility in upstream production and delivery. Therefore, this structure allows governments to commit to systemic delivery reform without creating carve-outs or risking capital flight.

RSM Credit Guarantees

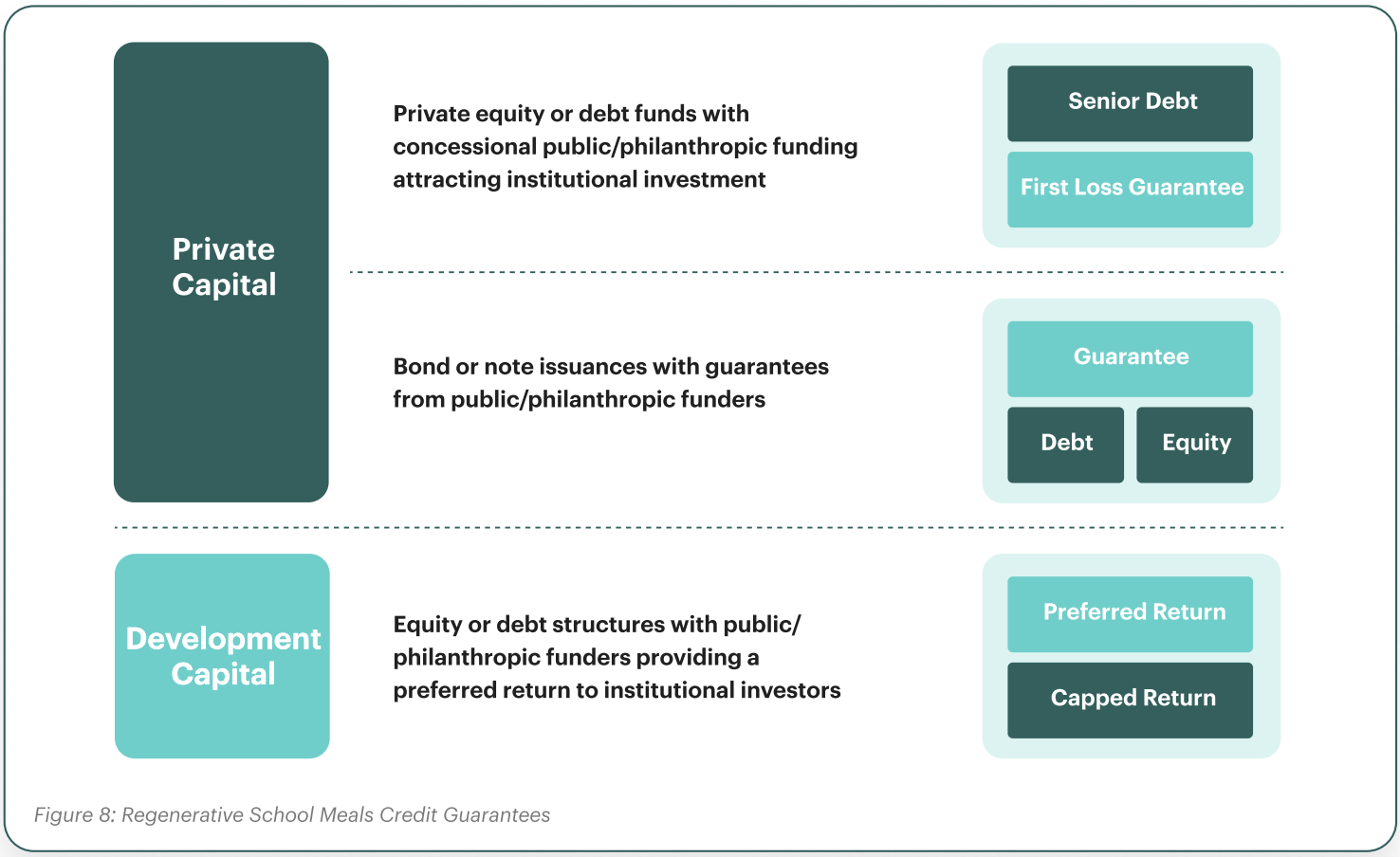


Figure 8: Regenerative School Meals Credit Guarantees

Key Features

Credit guarantees are risk-sharing mechanisms that encourage banks to lend into underserved sectors by having the government or a DFI absorb a portion of any losses. These guarantees are typically capitalized by public or concessional funds and are designed to absorb a predefined share of losses if a borrower defaults. By assuming a portion of the risk, the guarantee facility lowers the effective credit exposure for lenders, thereby making it commercially viable to finance actors who may lack collateral, formal credit histories, or stable cash flow.

The guarantor commits to cover, for example, 50–80% of a lender's losses on defaulted loans that meet the program criteria (such as loans to smallholder farmers adopting regenerative practices, or to local enterprises supplying school feeding programs). Commercial banks and microfinance institutions thus have their risk greatly reduced, making them more willing to extend credit to these borrowers at reasonable interest rates.

The structure often involves development partners providing the first-loss or capped-return layer, while private capital participates through senior lending. Guarantees can apply to loans issued to smallholder suppliers, caterers, storage providers, or cooperatives delivering goods or services into the RSM chain. While lenders retain control over underwriting and due diligence, they are required to meet pre-agreed conditions, such as extending more favorable terms to borrowers or adhering to defined eligibility criteria.

The facility is typically capitalized by public funds or donor contributions held in trust, and it issues guarantee contracts to participating lenders. Operationally, lenders must screen and approve loans as usual, but they can invoke the guarantee if a borrower fails to repay, receiving partial compensation from the facility.

The guarantee agreements also often set conditionalities: lenders might be required to reduce collateral requirements or slightly lower interest rates for the targeted loans, passing some benefits to borrowers. By backstopping the riskiest portion of loans, the guarantor effectively uses public capital to leverage a much larger volume of private lending for RSM-aligned investments.

How does the instrument amplify regenerative school meals goals?

Credit guarantees expand access to finance for the producers, vendors, and service providers responsible for delivering regenerative school meals, who are typically excluded from formal credit markets. By absorbing a portion of lender risk, guarantees make it commercially viable for banks and MFIs to extend capital to these suppliers. This allows critical delivery functions, such as input purchase, aggregation, kitchen upgrades, or last-mile distribution, to be executed on time, improving consistency in meal service.

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They enable informal but essential actors to participate in public procurement by offsetting collateral requirements, allowing smallholder farmers, women's cooperatives, and decentralized aggregators to secure loans linked to school meals contracts.

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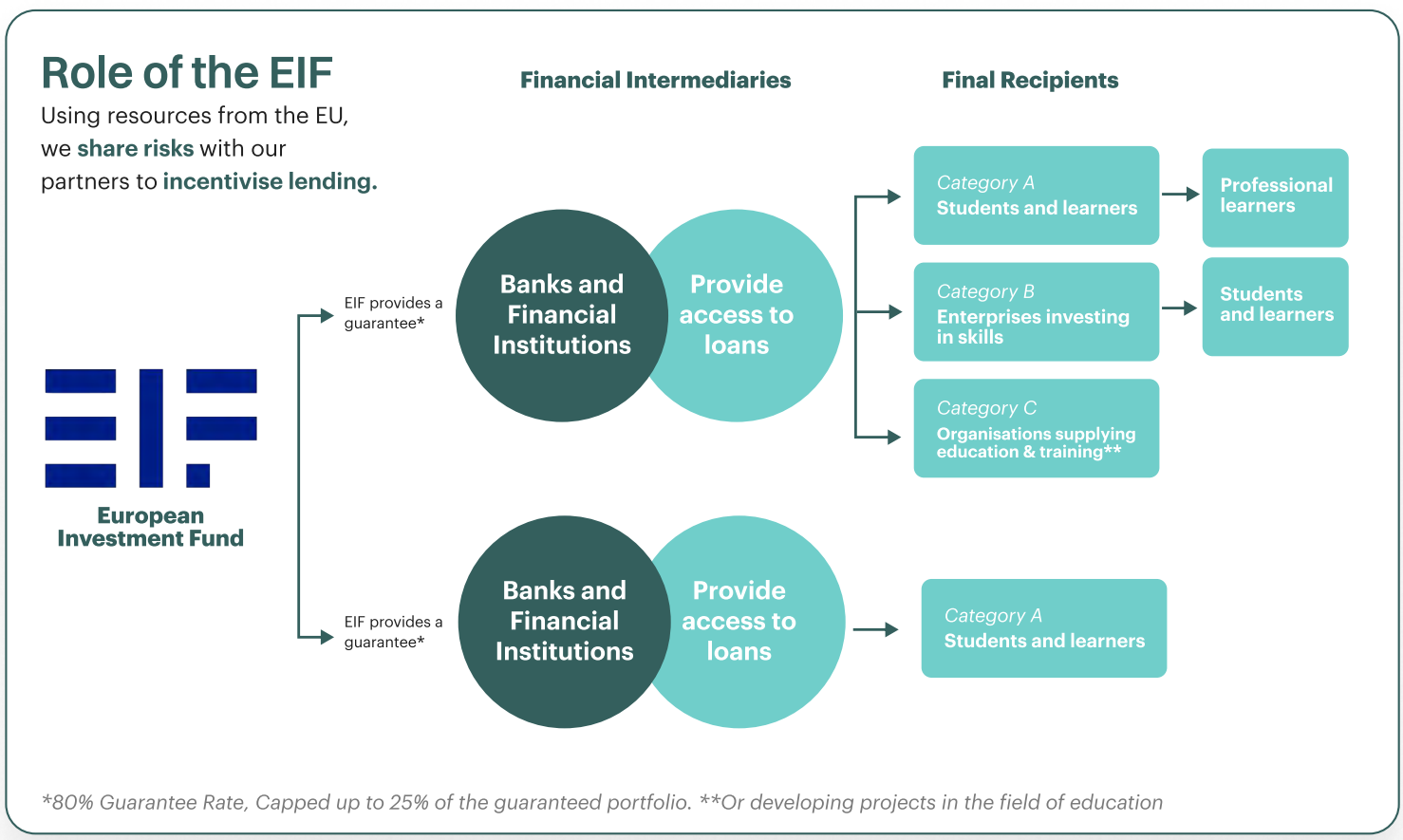
They stabilize the supply base over time by improving the financial resilience of actors who face seasonal cash flow variability or exposure to climate shocks, reducing volatility in the availability and quality of school meal inputs.

CASE STUDY

SKILLS & EDUCATION GUARANTEE PILOT IN EUROPE[48]

The Skills & Education Guarantee Pilot (S&E Pilot), launched by the European Investment Fund (EIF) in collaboration with the European Commission, aims to enhance access to finance for education and skills development across Europe. The pilot provided a €50 million EU guarantee, intending to mobilize over €200 million in financing for students, enterprises, and educational organizations.

The EIF offered a free-of-charge first-loss capped guarantee to selected financial intermediaries, covering up to 80% of the credit risk, capped at 25% of the guaranteed portfolio. As of the latest available data, the pilot had facilitated approximately €380 million in target financing, supporting various education and skills-related projects across EU Member States.



*80% Guarantee Rate, Capped up to 25% of the guaranteed portfolio. **Or developing projects in the field of education

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[48]*The European Investment Fund, 2020*

Interventions financed

The S&E Pilot has supported a diverse range of interventions through agreements with multiple financial intermediaries across Europe. Notable examples include:

StudentFinance (Spain)

Received a guarantee covering a portfolio of up to €4 million in Income Sharing Agreements (ISAs), enabling over 1,000 students to finance their education, particularly in digital skills.

Fundação José Neves (Portugal)

Provided ISAs to students, with repayments contingent upon successful employment, aiming to support 650 students with €5 million in financing.

Banca Transilvania (Romania)

Offered financing solutions to students and enterprises investing in workforce skills development.

Building on the success of the S&E Pilot, the initiative has been integrated into the broader InvestEU Programme, specifically under the "Social Investment and Skills" policy window. This transition aims to continue supporting education and skills development through enhanced financial instruments and increased budgetary allocations.

Considerations for adaptation to regenerative school meals

Define target beneficiaries and eligibility

A guarantee-based instrument for regenerative school meals must take a broader view of the value chain. Farmers, particularly smallholder producers practicing or transitioning to regenerative practices, must be recognized as primary beneficiaries, given their role in supplying fresh, locally grown food to schools. Additionally, school kitchens, decentralized procurement bodies, and community-based organizations managing school meals are integral to the delivery mechanism. Their cash flow cycles, procurement risks, and infrastructure needs may justify financing under the same umbrella. Training institutions and youth-oriented agricultural programs that promote regenerative farming and food entrepreneurship can be considered secondary beneficiaries, especially where income-contingent repayment schemes (e.g., ISAs – see case study in this section) are viable.

Align with the diverse risk profiles and financial behaviors across these actors

- A portfolio first-loss guarantee offered to local financial institutions could reduce the perceived risk of lending to small regenerative producers, particularly where loans are intended for inputs, equipment, or post-harvest processing.
- In public school systems with known delays in payment to suppliers, a payment guarantee could reduce the cash flow burden on smallholder-linked aggregators.
- In the case of social enterprises delivering nutritional and ecological outcomes through regenerative school meals programs, a performance-based backstop, i.e., where partial defaults are covered if impact milestones are met, could incentivize both delivery and innovation.
- Where youth are supported through upskilling or entrepreneurship schemes, income-linked or deferred repayment mechanisms may be appropriate, backed by guarantees to mitigate future income volatility.

Set performance-linked conditions

Even if the payouts are triggered by defaults. For example, participating banks might agree to slightly lower interest rates or collateral demands for loans used to expand meal coverage. The government (possibly via an education or agriculture ministry fund) would absorb, for example, 60% of losses on loans to grain cooperatives or women's groups cooking school lunches. This would directly channel capital to bolster school feeding operations, in turn increasing meal coverage.

Select appropriate governance mechanism

This mechanism could mandate regular reporting on regenerative school meals indicators (e.g., number of additional children fed from a financed project) to track impact. While loan repayment remains the basis for lender reimbursement, embedding regenerative school meals KPIs in the monitoring ensures the credit is serving its intended purpose. Key KPIs could include:

- Percentage of suppliers paid within 30 days.
- Number of verified smallholder farmers or local enterprises, delivering to school meals programs, receiving guaranteed loans.
- Volume of school food (tons) procured from guarantee-supported suppliers.
- Number of school kitchens or storage facilities upgraded via guaranteed financing.
- Percentage of meals meeting nutritional standards.

Design insights for application to Regenerative School Meals

- Credit guarantee schemes address a critical midstream bottleneck – **perceived credit risk**. Governments have tight budgets, and banks often view small farmers or unproven agri-food enterprises as too risky, especially those venturing into new regenerative practices. A targeted guarantee flips this dynamic by de-risking loans to these actors, ensuring that **working capital and investment funds flow to where meals are produced and delivered.**
- This **instrument scheme can be tuned to policy priorities**. For example, offering a higher coverage ratio for loans financing organic inputs or school kitchen upgrades sends a signal to direct credit into those areas.
- **This instrument can therefore shorten procurement cycles and reduce service disruptions**. For example, if school meal cooks can borrow to purchase ingredients in bulk, they aren't halted by late government disbursements, and children reliably get fed.
- Further, a guarantee-driven approach can **also foster inter-ministerial cooperation**. Ministries of finance become comfortable that banking-sector capital is bearing much of the upfront cost, while ministries of education and agriculture see their objectives (e.g., increased enrollment via meals, stronger markets for farmers) advanced with minimal new spending.
- In practice, such a regenerative school meals guarantee facility would likely be capitalized by a blend of public funds and MDB support (ensuring credibility) and could leverage every dollar of guarantee into four or five dollars of actual lending – a significant multiplier for cash-strapped governments[41].

RSM Corporate Advance Market Commitments (AMCs)

Key Features

Advance market commitments (AMCs) involve large off-takers (usually private corporations in the food industry) committing to future purchases of specific products under predefined terms, creating a secure market for producers.

The pneumococcal vaccine AMC led by Gavi and donors is a classic example of shaping a market. Donors pledged US$1.5 billion to guarantee vaccine purchases, which persuaded pharmaceutical firms to produce an affordable pneumococcal vaccine for low-income countries. It accelerated vaccine availability and saved an estimated 700,000 lives[49].

Translating this to school meals, a consortium of donors, government buyers, and or corporates (such as food manufacturers and distributors) could similarly guarantee purchases of specified nutritious foods. For instance, an alliance might commit funds to buy a new high-protein maize variety from local farmers at a floor price, on the condition that it is used in school porridge. As such offtake agreements span multiple years, they provide certainty to farmers to jump-start adoption of the crops that can help ensure schools get a consistent supply of healthier ingredients. Just as the vaccine AMC lowered prices over time through scale, a food AMC could eventually bring down unit costs of fortified or foods produced through regenerative practices as production ramps up, giving producers confidence the market will meet them.

Initiation of AMCs usually comes from a coalition of corporate social responsibility initiatives and public or donor facilitation: for example, a government might convene major grain buyers to secure commitments to purchase climate-smart varieties for school programs, or a global food company might volunteer an AMC as part of its sustainability pledges. The contracts will specify standards (the product must meet pre-defined regenerative or organic criteria), volume, delivery schedule, and premium pricing (e.g., 20% above baseline market price) that reflect the true cost of regenerative production. In some cases, philanthropic capital or MDB guarantees might backstop the corporate commitment – ensuring the purchaser honors the contract even if market conditions change – which further increases confidence for all parties.

The success of a regenerative school meals-focused AMC should be measured by metrics that capture both school feeding outcomes and the strength of the supply chain. Key KPIs could include:

- Percentage of school meal food volume sourced through AMC contracts.
- Volume of nutritious food delivered to schools under the AMC (tons/year).
- Percentage of meals meeting nutritional standards.
- Number of menu days per school year that include diverse or locally sourced items.
- Percentage of contracted suppliers compliant with regenerative practices.

[49]COVAX – Global access to COVID-19 vaccines, Cepei, 2020

How does the instrument amplify regenerative school meals goals?

In the context of RSM, AMCs have the potential to create assured demand for nutritious, sustainably-grown foods for school meal programs.

It de-risks the farmers' switch to more nutritious or climate-resilient crops that might otherwise lack a stable market.

It also helps processors plan investments (e.g. a dairy might invest in chilling facilities if it knows school milk demand is secured for years).

The pricing aspect is key: AMCs often offer a slightly higher than market price or a subsidy to encourage target practices. Donors or climate funds could subsidize this premium so that small farmers earn more for regeneratively grown food, while schools receive affordable supplies.

Importantly, these commitments are locked in for multiple years, providing certainty. Farmers can even use the signed purchase agreements as collateral for loans, since a guaranteed future revenue stream makes them more creditworthy.

Overall the AMC structure shifts market risk away from farmers and onto entities better able to bear it (governments, donors, corporations), all in service of ensuring children receive nutritious meals consistently.

Design insight applicable to Regenerative School Meals

- Corporate AMCs harness private sector buying power to drive agricultural change: By de-risking the demand side of the equation, they effectively "de-commoditize" a crop – farmers are no longer price-takers on the open market but instead have a differentiated product with a locked-in premium. This enables pricing that reflects sustainable production costs, which is critical for regenerative practices to spread.
- For governments and development partners, leveraging corporate commitments is a way to inject market viability into regenerative school meals value chains without direct subsidies: the market itself rewards the desired practices. It aligns well with corporate sustainability goals (ESG commitments), creating a 'win-win' outcome where companies secure high-quality inputs and burnish their responsible sourcing credentials, while farming communities gain reliable income.
- AMCs are valuable downstream complements to public financing: They ensure that once farmers have transitioned (perhaps with the help of other instruments such as grants or credit guarantees), there is a profitable market outlet for their goods, making the entire model economically sustainable.
- Politically, engaging the private sector through voluntary but contractually binding commitments can face less resistance than regulatory mandates, and can be quicker to implement. However, it requires identifying the right corporate partners and ensuring the commitments are truly additional (and not just relabeled "business-as-usual" procurement).

5.3 Downstream: Capital Deployment and Access

(Enables Supply)

The Downstream layer is where capital is deployed and accessed by the actors delivering services and producing goods for the RSM program to be implemented successfully. These financial mechanisms are focused on ensuring that local implementers, farmers, and enterprises have the financing and risk management tools to scale up delivery and successfully meet the demand created by RSM programs.

Financial mechanisms presented solve for constraints related to high service delivery costs, limited visibility into customer creditworthiness, and inability to quantify risks associated to lending to this mostly rural clientele.

Inclusive finance accelerators to scale RSM delivery

Financial sector support programs to enable retail finance for regenerative agriculture can take several forms. Some promising types of programs include financial innovation challenge funds to tailor adequate financial products. The formal financial sector faces limited capacity and incentives to deliver adequate financial services for working capital and investments needed by agriculture value chain (AVC) actors supplying RSM programs. These retail financial services are needed to produce those regenerative agriculture products demanded. To address the market failures that create these financial sector limitations, governments and donors have successfully launched financial innovation challenge funds that support R&D processes among all those financial service providers (FSPs) willing to expand their services to AVC actors. These may include banks, microfinance institutions, credit and savings cooperatives, and agri-fintechs. These funds involve technical assistance programs and grants for R&D that support selected FSP product teams to ideate products, develop internal Management Information Systems to deliver these products, and design risk management strategies that meet AVC actors' financial needs.

The implementation of these innovation funds has accelerated the delivery of finance to promote the adoption of improved agriculture practices, which can include regenerative agriculture, and the adoption of new technologies, like bio inputs or irrigation systems. Such funds can also be ideated to support the establishment of those upstream and midstream financial mechanisms described in sections above, aiming to mobilize funds to scale RSM programs.

CASE STUDY

ESTABLISHMENT OF FINANCIAL INNOVATION CHALLENGE FUND FACILITIES BY UN CAPITAL DEVELOPMENT FUND[50] [51]

Through the provision of competitively sourced matching grants and technical assistance, financial innovation challenge funds can overcome market failures that would otherwise prevent a financial service provider from making internal investments to enhance agriculture finance services that support regenerative agriculture. These investments include covering the costs of information discovery, mitigating risks or human resource capacity[43].

Over the past fifteen years, challenge funds have become an established mechanism through which to incentivise FSPs to deliver financial services that address the needs of underserved populations, like smallholders and agri-SMEs. They can be summarised as being:

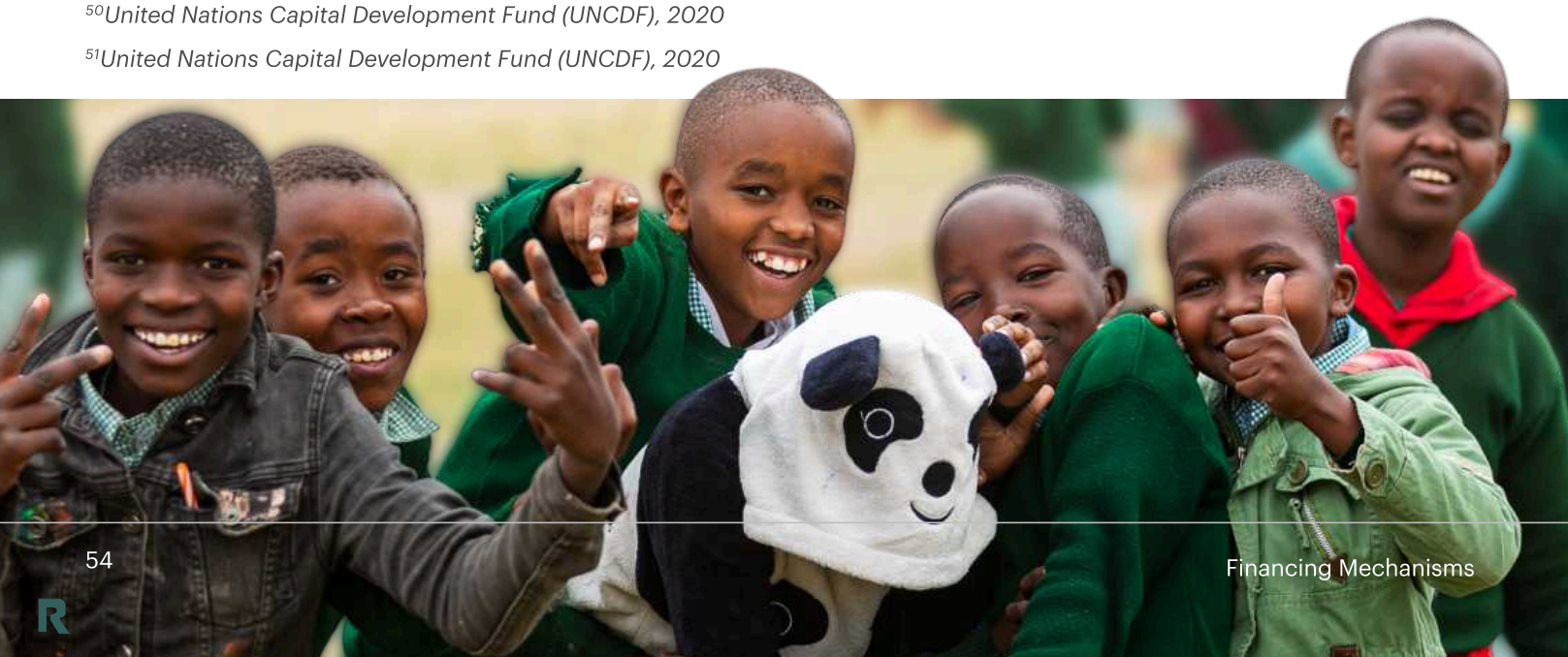
A competitive mechanism that places the burden of innovation on the retail financial sector. The entry of new financial products fosters competition, crowding in FSPs as new agriculture finance markets are revealed through piloting and experimentation.

They are a cost-effective way of casting a wide net of ideas to unlock finance for agriculture. They support ideas from diverse players across the financial sector, MNOs, financial technology firms and NGOs, which meet financial needs and can scale.

By requiring co-investment from FSPs supported, challenge funds can ensure that grantees also have something to lose if the project fails (something lacking from a pure grant mechanism). This aspect reduces moral hazard.

[50] *United Nations Capital Development Fund (UNCDF), 2020*

[51] *United Nations Capital Development Fund (UNCDF), 2020*

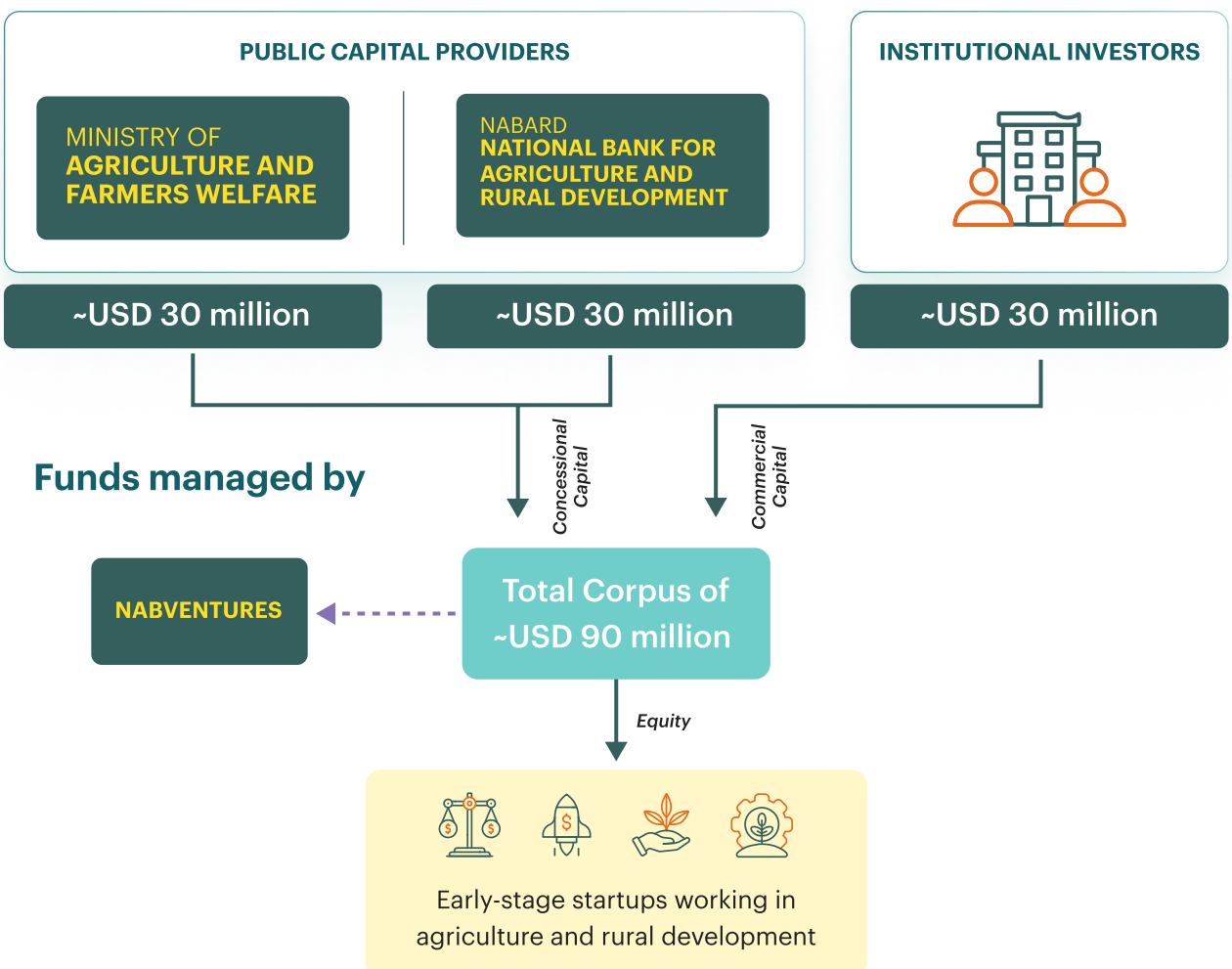


CASE STUDY

INDIA AGRISURE FUND[52]

Announced in February 2023, India has launched the Agriculture Fund for Start-Ups and Rural Enterprises (AgriSURE) through NABVENTURES, the venture capital arm of NABARD to stimulate the growth of the agricultural and rural innovation sector. With approximately USD 87 million in public capital, the fund targets early-stage AgTechs developing technology-enabled solutions across agricultural value chains—from input selection to post-harvest marketing. The AgriSURE (Agri Fund for Start-ups & Rural Enterprises) Scheme aims to support innovative, technology driven, high-risk, high-impact activities in agriculture and allied areas[44].

Structure and Management of the AgriSure Fund



(Photo Source: NABARD

[52]*National Bank for Agriculture and Rural Development (NABARD), 2025*

The Fund has two schemes

1. AgriSURE – FoF Scheme

- **Aim:** Support Alternate Investment Funds (AIFs) that make onward investments in start-ups
- **Facility Size:** INR 450 crore (~ USD 53 million)
- Maximum Ticket Size: 5% of the AIF AUM or ₹25 crore (~USD 30 million), whichever is lower.

2. AgriSURE - Direct Scheme

- **Aim:** Direct equity investment in early-stage Start-ups that are recognized by the Department for Promotion of Industry and Internal Trade (DPIIT) and are incorporated in India.
- **Facility Size:** INR 300 crore (~ USD 35 million)
- **Maximum Ticket Size:** ₹25 crore (~USD 29 million)
- **Fund Tenure:** 10 years from date of inception, extendable by two years
- **Target Beneficiaries:**
  - *Support about 85 Start-ups by the end of the Fund life*
  - *Start-ups working in agriculture and rural development include but are not limited to:-*

    > Agri-tech, food processing, animal husbandry, fisheries, supply chain management, farm mechanisation, biotechnology, waste management, renewable energy, agri value chain including primary cooperative societies development, support for FPOs, technology support at farm level and climate change.

Considerations for Regenerative School Meals adaptation

Integrating a school-meals focus

The mandate of the innovation fund would be tailored to include explicit regenerative school feeding outcomes as a criterion. For example, the fund could solicit proposals from financial institutions that finance those farmers with RSM contracts to adopt regenerative agriculture practices and produce nutritious foods specified in menus. The fund could also support proposals to finance investments that address "last-mile" delivery of fresh food to schools, or increasing protein content in school meals via local production.

Evaluation of startup investments

Startups that receive investments supported by the fund could be evaluated partly on how their product/service could enhance RSM through better nutrition, lower cost and environmental impact, faster delivery, or improved safety and monitoring. To integrate with the school system, the fund might facilitate pilot programs where funded startups partner directly with government school meal programs. For instance, if a startup creates a digital platform connecting small farmers to school procurement officers, the fund could coordinate with a district education office to pilot this platform in their schools.

KPI selection criteria: KPIs for each investment might include

- Reduction in meal cost per child achieved by this innovation; and
- Increase in micronutrient content delivered.
- Increase in the proportion of school meals that are sourced from producers adopting at least 1 regenerative practice
- At the portfolio level, the fund might track how many of its supported ventures get integrated into government programs or secure contracts with school meal providers.

Scaling mechanism

The fund could provide small initial grants to financial institutions and startups supporting RSM programs and the farmers that supply them to test their models in a few schools, and if successful, follow-on funding (or facilitation with government) to expand to hundreds of schools.

Fund governance mechanism

For example, this could involve representation from the national school feeding program or education ministry to ensure alignment – e.g., a committee that helps select startups with high relevance to school meal challenges (similar to how some health innovation funds include health ministry representatives). Governance should ensure agility (so the fund can move at the pace of startups, faster than typical government procurement) while maintaining accountability for public outcomes. A possible adaptation is a public-private board, where the government provides capital and strategic direction (like targeting underserved regions or pressing nutritional needs), while experienced venture investors manage due diligence and mentorship for the startups.

Fund Returns

The payout for startups is not in coupons or interest, but in equity or milestone-based grants; however, the "return" for government is measured in improved RSM outcomes and possibly future cost savings. Therefore, the fund's structure might blend a return-seeking component (for commercially viable agri-tech startups) with a grant component (for more public-good innovations that might not yield profit but have huge social impact, like an open-source school meal nutrition app).

Regenerative School Meals Insurance Programs

Key Features

Climatic risk drives greater unpredictability and extreme weather events, which is a major barrier to unlocking financial services for AVC actors supplying regenerative school meals programs. Parametric agricultural insurance is a solution that can help smallholders and FSPs manage climatic risk more efficiently. By leveraging remote agricultural and climatic data, parametric insurance models can automate payouts and reduce the administrative and verification costs typically involved in traditional claims processes. Parametric insurance can reduce risk exposure for both farmers and financial institutions: farmers are protected against catastrophic income loss, while lenders face lower default risk in the event of weather-related shocks. This increases trust and uptake, ultimately helping stabilize farmer incomes and shift farmer behavior toward long-term investments rather than risk-averse short-term survival strategies.

How does the instrument amplify RSM goals?

Aligning insurance with school feeding brings a clear purpose and target group to what can otherwise be a broad, hard-to-scale policy. It ensures that the insurance is not operating in a vacuum – instead, it's directly tied to maintaining a public service (school meals).

This likely means higher uptake: farmers might be more willing to enroll if they know it's effectively mandated or facilitated by the program that buys their produce (they see a direct benefit to staying insured: it could even be a condition to be a school supplier, which would dramatically raise participation).

For the insurance scheme, having **a concentrated pool of insured tied to an institutional buyer** (the school program) can improve risk pooling and premium collection (perhaps premiums can even be deducted from payments the farmers receive from schools, smoothing the process).

From the perspective of the school meals program, having climate insurance in place **strengthens the continuity of the program's logic:** no more sudden breaks in local supply due to droughts or floods, which means meal quality and quantity can be maintained year to year.

In broader terms, it **demonstrates a coherent policy approach** where multiple interventions complement each other – as noted in the Senegal example below, combining insurance with input subsidies yielded better adoption of good practices.

CASE STUDY

COMPAGNIE NATIONALE D'ASSURANCE AGRICOLE DU SÉNÉGAL[53]

The Compagnie Nationale d'Assurance Agricole du Sénégal (CNAAS) was established by the Senegalese government in 2008 as a state-backed agricultural insurance company to address reluctance among existing private insurers to cover agricultural risk. CNAAS offers indexed insurance products for crops and livestock in a centralized public-private governance model where CNAAS covers up to 50% of the cost of insurance to the farmer. While CNAAS does not yet link payouts to specific practices, CNAAS could incentivize regenerative practices by offering higher payouts to farmers adopting regenerative methods such as composting, cover cropping or crop rotation[45].

Considerations for adaptation to regenerative school meals

Integrating school feeding into insurance

The insurance products could be designed around the specific needs of the school meals program, covering those crops that ensure healthy diets. For example, if a district's school meal menu relies heavily on local maize, pulses or vegetables, an index insurance could cover those specific crops against bad weather and pests in that district. In the event of a related negative shock that reduces yields, the policy payout ensures farmers can still get compensated. Enabling insurance in RSM programs can encourage farmers to enroll in supplying food to schools and prevent them from dropping out of the program in case of shocks. Another approach is to insure the program itself against supply shocks: e.g., if local procurement falls below a certain threshold due to weather, the policy pays the school feeding authority funds to procure replacement food from other areas, thus children are not left without meals.

Coordinating insurance enrollment with procurement

Farmers who sign contracts to supply schools could automatically get subsidized insurance coverage as part of that contract. The school program could even be the premium payer or co-payer, bundling insurance to ensure reliable meals. By doing so, the program essentially "locks in" climate resilience. In terms of structure, a dedicated RSM insurance pool could be created under the national scheme – with government and donors capitalizing a reserve that covers the school-linked risks.

A key adaptation is defining trigger metrics that matter for school meals

Instead of generic nationwide indexes, triggers might be location-specific and tied to school agricultural calendars (e.g., rainfall during the planting season for crops intended for Term 1 school feeding). Payouts should be quick and possibly in two tiers:

- *one portion directly to insured farmers supplying to school meal programs (to compensate yield loss), and*
- *another portion possibly to the school feeding program if meal delivery is threatened (to purchase emergency supplies).*

[53] *Compagnie Nationale d'Assurance Agricole du Sénégal (CNAAS), CNAAS*

Governance would involve both the agriculture insurance entity and the education authorities

For instance, a memorandum so that when an insurance payout is due, the school feeding unit is notified and can assist in its disbursement to ensure the money goes toward sustaining the supply chain.

Monitoring of practices

Could be done via field inspections or remote sensing (which many index schemes already use for yield estimates). The government's role in subsidy is crucial – as in Senegal, paying ~50% of premiums – because small farmers cannot afford full-cost insurance. Donors or climate adaptation funds might chip in, seeing this as a resilience measure with food security co-benefits.

Bundling with credit

Often, insurance enables credit access (banks lend more if crops are insured). In RSM, that means school suppliers could get loans (to adopt RA practices, buy better seeds or expand production) because lenders know insurance has their back. So a holistic design might link insurance enrollment with access to low-interest farm loans earmarked for those in the school supply program.

Select KPIs may include -

- % of farmers supplying schools are insured
- Reduction in supply disruption
- Percentage of farmers and food suppliers in the RSM program who have active index insurance policies
- Average time from shock trigger to payout disbursement to insured RSM farmers
- Proportion of insured RSM farmers adopting specified regenerative practices, and differential outcomes for them.

Design insights

- The design of a national strategy should consider how these tools complement each other. Retail-level loan features are often influenced by macro-level regulations and sources of funding that come with restrictions regarding tenor, grace period durations and interest rates. Making regenerative finance work in practice requires a holistic view from the ground up of what financial terms farmers and small- and medium-size agri-enterprises actually need – and then retrofitting those features across the financial supply chain to enable them at scale.
- For example, a debt swap might fund a regenerative school meals trust that in part provides guarantees to local banks, or a procurement mandate might be supported by an AMC from a company to ensure supply. Importantly, many of these mechanisms require certain enablers – including policy frameworks, data systems, and human capacity – for successful implementation.

5.4 Enabling Environment

As discussed in earlier sections, a sound enabling environment is key for funds to flow smoothly from capital sources to end beneficiaries, ensure procurement and reporting are transparent, and that all relevant agencies work in concert. The following key components underpin the operational feasibility and coherence of the RSM financing architecture:

Digital Infrastructure and Data Systems

Digitizing RSM programs is fundamental for efficiency, transparency, and scalability. E-procurement platforms enable traceable tenders, bids, and contracts, facilitating decentralized procurement with oversight.

A digital marketplace

allows schools to source food from accredited farmer cooperatives, with prices and quantities logged electronically.

A farmer registry

captures essential data, including land area, crop types, regenerative practices, and payment details, enabling targeted support and progress tracking.

Monitoring, Reporting, and Verification (MRV) platforms

track agricultural and nutritional outcomes, feeding into results-based financing.

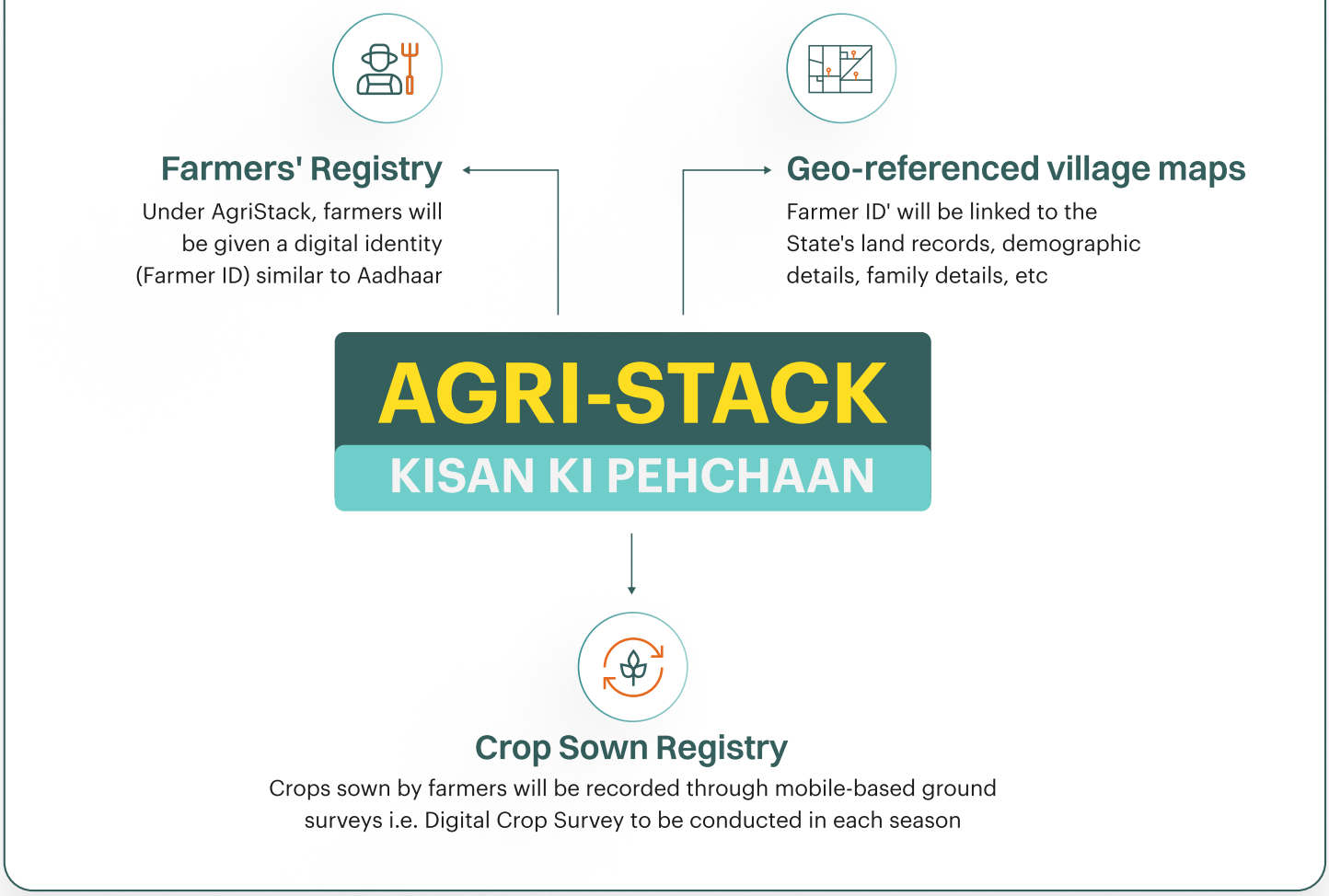
Digital payment systems

such as mobile money and direct bank transfers, ensure timely and transparent fund flow.

CASE STUDY

INDIA'S AGRI-STACK INITIATIVE[54]

India's new Agri-Stack initiative, a digital public infrastructure platform streamlines how farmers access subsidized financial services, quality inputs, digital extension guidance, production data and other government programs. By creating a central source for input sourcing, extension, market linkages and finance, Agri Stack is enabling productivity gains by allowing all agriculture value chain actors to access time series information on critical transactions along the agriculture value chain (e.g. input use, farmer ID, harvest sales, extension services received).



This type of information from rural smallholders or agri-MSMEs has historically been scarce or non-existing, making it difficult for RMS programs to monitor supply of regenerative food, as well as for financial service providers to serve AVC actors that produce such food. When this information exists, it tends to be fragmented between different government agencies or private agribusinesses. Agri-stack can be a powerful solution to overcome such information asymmetry challenges.

[54] *World Economic Forum, 2023*

Supporting Registries/Master Databases in Agri Stack

CORE REGISTRIES

Core Registries	Geo-Referenced Village Maps	Crop Sown Registry

SUPPORTING REGISTRIES

Crop Registry	Seed Dealers	Seeds
Fertilizers	Fertilizer Manufacturers	Fertilizer Warehouses
Fertilizer Whole seller	Fertilizer Retailers	Fertilizer Importers
Pesticides	Pesticide Manufacturers	Pesticide Wholesalers
Pesticide Dealers	Pesticides testing laboratories	Pesticides importers
Central Insecticide laboratories	Insecticide testing laboratories	Krishi Vigyan Kendras
NBFCs	Banks	Common Service Centres
Farmer Producer Organisations (FPOs)	Farmer Producer Companies (FPCs)	Service Providers (For inputs)
Scale of Finance		

ENABLING DATA STANDARDIZATION	CATALYSING INTEROPERABILITY	ACCELERATING ECOSYSTEMS

Similarly, governments can support retail financial innovation for smallholders by creating an enabling environment that reduces risk for financial service providers and incentivizes product development tailored to rural clients. This includes investing in public digital infrastructure such as interoperable payment systems, e-KYC, and farmer registries, which lower the cost of customer acquisition and onboarding, especially in rural areas.

Data integrity and system interoperability, i.e., linking systems with national IDs, government service and private sector transactions, are critical to reducing information asymmetries and administrative costs; as well as ensuring seamless operations.

Inter-Ministerial Governance and Coordination

RSM programs require coordinated governance across multiple ministries.

National ministerial coordination

comprising key agencies like Finance, Agriculture, and Education, aligns policies, budgets, and objectives. This coordination ensures synchronized supply and demand by, for example, aligning resources, like ag extension programs from agriculture ministries with school meal funding managed by education ministries. National Steering Committees are an example of such interministerial coordination.

Regular inter-agency meetings

address operational bottlenecks and harmonize procurement policies to support local suppliers.

Shared responsibilities for MRV

across ministries ensure accountability and trigger financing actions.

A central program management unit

reporting to the steering committee, manages implementation, reporting, and stakeholder engagement.

Such a governance structure ensures unified financial flows, procurement processes, and accountability mechanisms, preventing fragmented implementation.

Decentralised Execution and Financial Management

Effective RSM implementation depends on local-level execution.

Decentralized procurement

requires local officials to use e-procurement systems to source food from farmers. Therefore, it is crucial that district governments, local education offices, and community organizations have the ability to manage day-to-day program activities.

Training local officials

ensures they can evaluate bids, manage contracts, and ensure timely delivery.

Dedicated units at the local level

coordinate between schools and farmers, managing logistics and ensuring compliance. Agriculture extension officers provide targeted support to farmers, guiding them on regenerative practices aligned with school needs.

Strengthening local financial management,

including transparent tendering and record-keeping, is critical for accountability. Simplified payment processes, such as direct digital transfers, ensure timely compensation for farmers and reduce delays.

Local community involvement,

such as through school management committees, strengthens oversight.

Such measures enable local actors to better follow national frameworks while adapting to regional conditions, with effective feedback loops ensuring best practices are shared and scaled.

5.5 Macroeconomic Returns

Lastly, implementing a RA and school feeding program at scale is an economic strategy that extends beyond social benefits. Channeling expenditures through local supply chains generates significant economic returns. When schools purchase food from smallholder farmers and local enterprises, the funds re-circulate within the community, stimulating additional income and employment. From a fiscal perspective, money invested in the regenerative school meals program yields a higher multiplier than many traditional expenditures, as it taps underutilized resources like rural labor or fallow land. This makes it an effective strategic expenditure, particularly in economic downturns or post-crisis recoveries, acting as a stimulus targeting the economic base, as explored in the Uruguay sustainability-linked loan case in Section 5.1.

Capital Mobilisation

The Regenerative School Meals Financing Architecture deliberately expands the resource base by aligning sovereign fiscal planning with innovative financing instruments. At the Upstream layer, governments allocate or reallocate public funds for regenerative school meals – for example, by ring-fencing existing school feeding budgets, issuing social/sustainability bonds, taxing hydrocarbons or processed foods with high sugar content, or converting debt into regenerative school meals programs. These sovereign measures demonstrate commitment to regenerative school meals and can unlock concessional loans or grants from multilateral and climate funds. Issuing bonds under recognized standards (e.g., green/social bond principles)[55] signals credibility to institutional investors and broadens market participation.

CASE STUDY

IMF RESILIENCE AND SUSTAINABILITY TRUST (RST)[56]

The IMF's Resilience and Sustainability Trust (RST) offers long-duration, low-cost financing to support structural reforms that improve economic resilience to climate change and public health risks. It is capitalized through the voluntary reallocation of Special Drawing Rights (SDRs) from higher-income IMF members and offers financing on highly favorable terms: 20-year maturities with a 10½-year grace period.

Unlike traditional IMF instruments designed to address balance-of-payments crises, the RST supports forward-looking reforms with structural, cross-sectoral impact. The loan proceeds are not earmarked for specific sectors; rather, access depends on a credible reform plan aligned with sustainability priorities, supported by an existing IMF program (e.g. Extended Fund Facility or Policy Coordination Instrument).[57]

RST financing is drawn from voluntary reallocations of Special Drawing Rights (SDRs) contributed by high-income IMF members. As of early 2024, over US$40 billion had been pledged, with active RST programs approved in countries such as Rwanda, Bangladesh, and Costa Rica.[58]

[55] *Climate Bonds Initiative, Latinex, and IDB Invest, 2025*
[56] *Resilience and Sustainability Trust, International Monetary Fund 2025*
[57] *Resilience and Sustainability Trust, International Monetary Fund 2025*
[58] *IMF Finances, International Monetary Fund, 2025*

RST Application to RSM Financing

Positioning Regenerative School Meals Within Climate Resilience Strategies

RSM programs have emerged as powerful tools for enhancing both community and environmental resilience. These programs deliver daily nutritious meals to schoolchildren while actively reshaping food systems to become more sustainable and climate resilient. Integrating RSM into RST-funded reform packages can support countries in:

Addressing climate risks in agriculture by scaling regenerative practices that supply schools with fresh, seasonal, and locally grown food.

Stabilizing rural economies through guaranteed demand for sustainable agricultural products via school feeding procurement.

Reducing climate-related vulnerabilities in education and nutrition, especially in areas where food insecurity and climate shocks intersect.

Programmatic Entry Points for RST-Financed RSM Initiatives

To qualify for RST support, countries must align their RSM initiatives with broader climate strategies. Several key entry points include:

✔ Climate-Smart Agricultural Support for School Meals

RST financing can be used to scale up agroecological and regenerative farming systems that supply school meal programs. Specific interventions might include:

- Farmer training programs in organic composting, crop diversification, and water-efficient techniques.
- Support for farmer cooperatives that directly supply school kitchens with grains, legumes, fruits, and vegetables.
- Resilience assessments that identify climate risks to school meal supply chains and propose localized mitigation strategies.

✔ Green Infrastructure for Meal Preparation and Distribution

The transformation of school meal infrastructure is essential. RST resources could be allocated to:

- Solar-powered kitchens and cold storage units for schools in off-grid areas.
- Rainwater harvesting systems and greywater reuse for school gardens.
- Development of low-carbon logistics systems to connect smallholder producers to school feeding programs.

✔ Institutional and Policy Reforms to Embed RSM in Climate Agendas

Embedding Regenerative School Meals in national frameworks enhances both legitimacy and impact. Countries could use RST funding to:

- Integrate school feeding into National Adaptation Plans (NAPs) or Nationally Determined Contributions (NDCs).
- Establish inter-ministerial task forces linking education, agriculture, environment, and finance ministries.
- Develop robust monitoring and evaluation frameworks to measure climate, nutrition, and learning outcomes from school meals.

Cross-Sectoral Benefits of Regenerative School Meals

Positioning Regenerative School Meals at the intersection of climate and development yields multiple dividends:

Nutrition

Improved dietary diversity and reductions in child stunting, anemia, and micronutrient deficiencies.

Education

Increased school enrollment, attendance, and academic performance, especially among girls.

Gender Equity

Economic empowerment of women through involvement in school meal preparation and regenerative farming.

Environmental Impact

Sequestration of carbon in soils, restoration of degraded land, and reduction of food waste through circular meal planning.

Innovative Financing Approaches

RST financing may be deployed as concessional loans, potentially blended with:

- Other forms of concessional capital from MDBs, such as the Africa Development Bank, the World Bank, the Trade and Development Bank, etc.
- Grants from institutions such as the Green Climate Fund, Adaptation Fund, or UNICEF's Nutrition Initiative, as well as several philanthropies focused on nutrition programs and education infrastructures.
- Private socially focused capital focused to receive below market rate of returns through socially oriented investments (combination of grants concessional capital, and private capital in a blended financer structure)
- In-kind support from the World Food Programme (WFP) and similar initiatives for school meal design and logistics.
- Technical assistance from FAO, IFAD, or local NGOs with expertise in agroecology and school feeding systems.

Blended financing enables countries to de-risk large-scale transitions to regenerative models while ensuring continuity and sustainability of school feeding operations.

At the Midstream layer, blended finance structures crowd in private capital by mitigating risk. Public–private facilities, outcomes-based procurement bonds, and blended funds pool concessional grants with investor capital. Returns are tied to RSM performance (for example, number of meals served or hectares under regenerative cultivation), and MDB-backed guarantees absorb first-loss risk[59], as evidenced in Section 4.2. These vehicles leverage RSM's stable, sovereign-backed demand signal to extend maturities and improve financing terms. Together, budget commitments, climate/SDG loan windows, and blended instruments grow the "funding pie" beyond conventional budgets and ensure the national RSM program has the capital needed for scale[60].

[59] *Sustainable Financing Initiative (SFI) for School Health and Nutrition, 2025*
[60] *The Rockefeller Foundation, 2024*

Climate Adaptation

Positioning school procurement to reward regenerative agriculture explicitly builds resilience to climate shocks. Governments can incentivize drought-tolerant seeds, water-efficient practices, soil health, and other practices that buffer against crop loss during flooding and droughts, through regenerative school meals procurement criteria. As discussed in the case study in Section 5.1, Brazil's national school meals program mandates that at least 30% of procurement comes from smallholder farmers, effectively incentivizing sustainable, diversified production[61]. By embedding such criteria, regenerative school meals create guaranteed market demand for climate-resilient goods, encouraging farmers to invest in adaptation and reduced input use. Over time, these practices stabilize local food supply and reduce dependency on costly imports or emergency aid. This is critical: conventional agricultural methods are diminishing soil health, which adversely affects yields. Further, a warming climate marked by changed rainfall patterns could cut crop yields by over 25%, with extreme weather devastating production. By mitigating these risks, regenerative school meals help smooth agricultural output and buffers the economy against volatility. A more stable domestic food system lowers fiscal risk (fewer import bills and relief outlays), improving macroeconomic stability and sovereign credit metrics. In short, regenerative farming delivers increased resilience and reduced emissions – which are both central to any national climate adaptation strategy.

Furthermore, aligning regenerative school meals targets with national climate strategies, NBSAPs, and NDCs help countries channel Green Climate Fund or Adaptation Fund resources into agriculture and nutrition projects. In practice, integrating climate indicators into regenerative school meals monitoring (e.g., soil health, yields under stress) allows performance-based grants or green bonds to be issued against those metrics.

[61]*World Bank Group, 2024*

6 Metrics and Accountability

Key performance indicators (KPIs) and measurement, reporting, and verification (MRV) systems form the backbone of results- and performance-based financing of RSM. For financiers to provide concessional terms against commitments by borrowers to pursue certain RSM objectives, they need to have confidence that the reported outcomes or actions reflect the actual state of affairs and that they achieve some degree of "additionality" over "business as usual" conditions. Confidence can be instilled partly by following emerging standards and best practices in KPI definition and target calibration, as well as by building transparency and accountability into the architecture of the underpinning data pipelines and MRV systems. The targets also need to be credible to have purchase with both investors and issuers, which means they must be feasible and conform with the existing data and reporting infrastructure.

Ideally, the choice of KPIs should also align with the incentives of those actors responsible for achieving them since KPI-linking can entail non-trivial costs and risks, from paying for MRV systems to investing political capital to overcome intra-institutional coordination failures and principal-agent problems. Fortunately, there is a growing array of frameworks and guidelines that have been developed in recent years to aid in the selection and development of KPIs for sustainable finance, such as the International Capital Market Association's (ICMA) Sustainability-linked Bond Principles (SLBP)[62] and "Illustrative KPI Registry"[63], which contain a list of KPIs that have been vetted and validated by leading market participants. These tend to emphasize five core criteria for selecting KPIs in the context of sustainable financing transactions:

These tend to emphasize five core criteria for selecting KPIs in the context of sustainable financing transactions:

Strategic Relevance

They are core to the issuer's economic, social, and governance issues; they remain relevant under a range of plausible risk scenarios; and they are adapted to the institutional and political economy realities on the ground and seek to maximize political buy-in and sustain action.

Ambitiousness

They are assessed for additionality against forward-looking targets using "business-as-usual" forecasts, and they have sufficient comparable and historical data to benchmark targets and assess ambition.

Feasibility

They are assessed for achievability based on historical precedent in terms of performance by other countries on similar targets, they are aligned with policy priorities and commitments, and are backed up by specific programs and projects, and conform with existing data and reporting infrastructure.

Integrity

They are measurable or quantifiable on a consistent methodological basis and are externally verifiable, and they are underpinned by transparent and durable data architectures, and enable ready scrutiny of end-to-end data pipelines that feed the KPIs.

Financial Materiality

They are relevant to the issuer's credit profile, addressing key weaknesses and potential threats to credit fundamentals; they support debt sustainability and bolster creditworthiness; and they enhance the transparency and predictability of policies and interventions that have a bearing on creditworthiness.

[62] *International Capital Market Association (ICMA), 2024*

[63] *International Capital Market Association (ICMA), 2024*

Applying these criteria to the RSM use case presents several trade-offs. Although an ambitious school feeding policy has clear strategic relevance in terms of strengthening economic growth potential and mitigating social risks related to food insecurity, the economic benefits of school feeding and regenerative farming bear fruit over the medium-to-long term. In the interim, these interventions can incur substantial fiscal costs due to investments in high-integrity data infrastructure, increased programmatic education spending, investment to support the regenerative transition, and output losses related to the shift in agricultural practices. These timelines may be out of sync with shorter-term political horizons.

RSM Key Performance Indicators

Just as there is no universally accepted definition of regenerative agriculture, so too are there no corresponding indicators that apply neatly in every context. The heterogeneity of agricultural practices, food systems, and biomes renders most measures of regenerative agriculture incommensurable. The International Capital Market Association's (ICMA) KPI Registry will introduce a regenerative agriculture KPI in its 2025 update measured as the 'share of agricultural area subject to agro-ecological management approaches', yet it does not define precisely what these practices are. Likewise, there are no clear or consistent metrics of school feeding, although conceptually the programs are easier to compare across countries.[64] This lack of standardization complicates the task of developing "market ready" KPIs because their targets are harder to calibrate in terms of benchmarking ambition and feasibility. The other major barrier is spotty and low-quality data and inadequate management information systems that undermine transparency and trust in the integrity of the KPIs – and by extension investor appetite for KPI-linked instruments.

However, the obstacles are not insurmountable. At a conceptual level, the design challenge for RSM KPIs lies in identifying and integrating the relevant dimensions of programmatic coverage and cost, nutritional quality, land use practices and environmental outcomes as well as socioeconomic impacts on producers. Columns (a) and (b) of the following table presents non-exhaustive lists of illustrative KPIs and metrics across these key dimensions. The indicators and metrics are drawn from a combination of authoritative sources on school feeding – e.g., Global Survey of School Meal Programs[65] – and regenerative agriculture – e.g., Framework for Regenerative Organic Certified.[66] Blending different combination ingredients from each column can produce a suitable RSM KPI, such as those suggested in column (c).

The appropriate blend for any given transaction or program will ultimately depend on country-specific political and institutional contexts, as well as the degree of infrastructure readiness to maintain data integrity and program governance.

[64] *IMF Finances, International Monetary Fund, 2025*
[65] *Global Reports of School Meal Programs Around the World, Global Child Nutrition Foundation (GCNF), 2024*
[66] *Regenerative Organic Certified® Framework, Regenerative Organic Alliance, 2023*

The targets and KPIs ideally align with political commitments and international agreements towards school meals, regenerative agriculture, or both. For example, 109 countries have signed up to the School Meals Coalition (SMC), with over 50 governments having established national commitments to that end[59]. Commitments to food systems transformation include global and regional initiatives such as the Africa Fertilizer and Soil Health Action Plan or the COP28 UAE Declaration on Sustainable Agriculture & Resilient Food Systems.

At the same time, the targets and KPIs will likely need to be adapted to prevailing policy priorities and political realities if they are to achieve and sustain buy-in and backing of key decision makers. For example, these considerations may dictate that procurement policies prioritize local over regenerative sourcing, or opt for "entry-level" regenerative practices (e.g., enhanced soil health through mulching, cover crops, some rotation or intercropping) over "advanced" regenerative agriculture (e.g., biophysical outcomes through integrated, highly diversified cropping systems, enhanced farmer wellbeing, income, equity through organizational strengthening and market access).

There is no "one-size-fits-all" approach and there are multiple pathways for achieving a secured, future-fit supply of nutritious food for children.

Infrastructure readiness can pose a binding constraint on the ability to adopt KPI-linked instruments. The barriers can be tackled to an extent through innovative data engineering, financial instrument design, and "design thinking".

Building integrity and transparency into the design of the KPI data architecture can help to assuage investors' concerns about data manipulation or errors. For example, end-to-end processing tools such as application programming interfaces (APIs) or immutable blockchain-based ledgers can ensure that critical parts of the data pipeline are tamper-proof. Third-party services and open-source data sources such as geospatial analytics offer increasingly extensive, granular, and multidimensional data sets, especially when combined with artificial intelligence (AI) tools (see Uruguay sustainability-linked bond case study below). Satellite imagery and remote sensing also have use cases for tracking regenerative agriculture – for example, in detecting cover crops or tillage. Instrument design can also address these challenges by plugging different KPIs into different parts of the transaction structure

[59]*Sustainable Financing Initiative (SFI) for School Health and Nutrition, 2025*

according to level of "market readiness", as suggested in the Debt-for-regenerative school meals Swap instrument in Section 5.1. In that example, school meals KPIs, which are easier to operationalize and standardize than regenerative agriculture KPIs – and consequently more acceptable to investors – are placed in the market-facing side of the transaction structure. The regenerative agriculture KPIs are embedded in the producer-facing end of the structure to determine the allocation of proceeds.
Lastly, "design thinking" techniques such as sprints can be employed to create KPIs and MRV systems that are adapted and optimized for the country's context and issuer's state of readiness, rather than relying on rigid commercial off-the-shelf solutions.

Table 2: Regenerative School Meal KPIs

Schools Meals KPIs	Regenerative Agriculture KPIs / Metrics	Regenerative School Meals (RSM) KPIs
Coverage (#/%) of government schools/ administrative units under national school feeding program **Coverage** (#/%) of children receiving school meals per school day over a given year	**Practice** % of agricultural area subject to agroecological management approaches such as organic agriculture or agro-forestry, regenerative agriculture, multicropping and crop rotation, integrated pest and nutrient management **Practice** % of regeneratively managed land as defined by one or more markers (e.g., cover crops, no tillage, rotational grazing/crops, animal integration, no deforestation)	**Coverage** % of school meal budgets allocated to regenerative sourcing **Coverage** rates of nutrition for enrolled students
Funding % of government budget allocated to school feeding program		**Performance** number of menu days per school year that include diverse or locally-sourced items
Quality (#/%) measures of nutritional adequacy/deficiency, variety, palatability and appeal, or other nutritional standards	**Outcome** soil health measures (e.g., soil organic carbon/matter, pH level, etc.) for a quantity of soil from the most representative plot of land sampled during the reporting period	**Quality** RSM food nutrient density
Outcome Number of school kitchens or storage facilities built/upgraded and operational **Outcome** school enrollment rates (%)	**Outcome** biodiversity measures (e.g., site species richness / abundance) for a given area and surrounding ecosystem **Outcome** economic indicators of regen-ag producers (e.g., yields, costs, output prices, incomes, profits, etc.)	**Outcome** volume of nutritious food delivered to schools (tons/year) **Outcome** % of contracted suppliers compliant with regenerative practices.

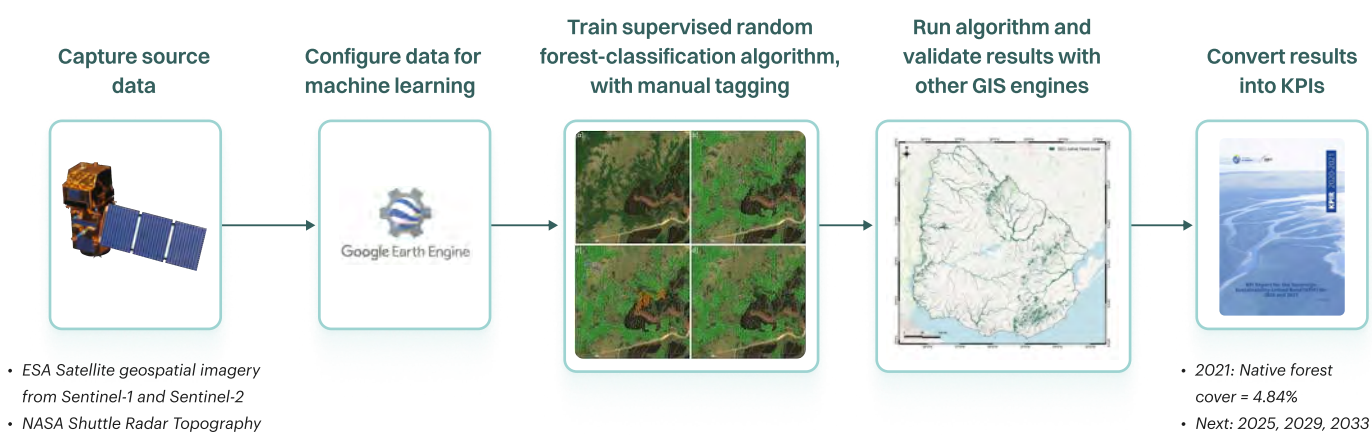
CASE STUDY

URUGUAY SLB FOREST COVER KPI[67]

In October 2022, Uruguay issued a pioneering sovereign sustainability-linked bond (SLB) that contained both climate and nature targets. It incorporated a native forest cover KPI that was based on geospatial data from two space agencies (images from the European Space Agency's Sentinel satellite, topographic elevation from NASA's Shuttle Radar Topography Mission). A machine learning algorithm classified the images into different forest types with the aim of isolating native tree clusters.

The analysis was carried out by a team of six data scientists and engineers coordinated by General Forestry Directorate (DGF) using the Google Earth Engine cloud computing platform to perform the calculations and GIS software (QGIS and ArcGIS) to process the results.

EXTERNAL VERIFICATION (KPIS) AND SECOND PARTY OPINION (SPO) OF FRAMEWORK



Sourcing, validating, processing, and managing data with which to compile school meals and regenerative agriculture KPIs presents numerous methodological and operational challenges, compounding conceptual issues of how to define the KPIs outlined above. For instance, tracking soil health through regular soil sampling and lab analysis to measure microbial activity entails significant transaction costs. Upgrading data infrastructure, plugging data gaps, and adopting MRV systems to achieve KPI "market readiness" can be costly and time-consuming, especially for budget and capacity constrained governments. Technology such as satellite imagery and remote sensing systems and third-party providers can be complicated to procure and onboard, adding time to market. Outlays to set-up and maintain the MRV and to externally verify the KPIs add to the cost of issuance.

However, there are ways these costs can be managed. A cottage industry of MRV providers has emerged offering a variety of frameworks and monitoring systems, with technology advances in field data collection, remote sensing, and AI helping to drive down costs. Donors and development banks will cover MRV-related expenses in certain instances. Programs such as the European Space Agency's Project LEON[68] ("Leveraging Earth Observation for Nature Finance") help to create affordable and accessible open-source GIS. Innovation programs such as NatureFinance's KPI Accelerator can speed up the design and operationalization of KPIs using design sprints and other innovation techniques.

[67] *Uruguay's Sovereign Sustainability-Linked Bond (SSLB) Framework, Ministry of Finance, 2022*
[68] *Leveraging Earth Observation for Nature Finance (LEON), University of Oxford and Assimila Ltd., 2025*

Financial Materiality Assessment

The value proposition for both issuers and investors of RSM KPIs and linked finance can be enhanced by elucidating their financial materiality in terms of sovereign creditworthiness and debt sustainability. This involves mapping the KPIs to key drivers of the sovereign risk and debt sustainability analysis (DSA), which are employed by credit rating agencies and international financial institutions (IFIs) and other creditors to set financing terms – an illustrative Financial Materiality Assessment (FIMA) for illustrative regenerative agriculture and school feeding KPIs are exhibited in Figure 9. The broader macro-fiscal "uplift" from achieving the KPIs can be modelled and simulated via the multiple transmission channels through which KPIs influence the sovereign credit profile, which are drawn in accordance with economic theory and supported by empirical analysis.

NatureFinance has conducted an in-depth quantitative FIMA for forestry KPIs in Ghana[69]; the same logic and modelling could be readily applied to regen-ag and school meals.

Demonstrating that target achievement is not only social and environmentally beneficial but also credit positive can help to generate buy-in from the issuing authority since it more clearly aligns with institutional mandates and policy priorities to contain the government's cost of capital. In other words, RSM-linked financing constitutes prudent debt management, justifying the added transaction costs and lead times associated with results-/performance-based finance. Furthermore, linking RSM to creditworthiness can elevate the school meals agenda in international climate finance and sovereign debt discussions, where it is currently overlooked[70].

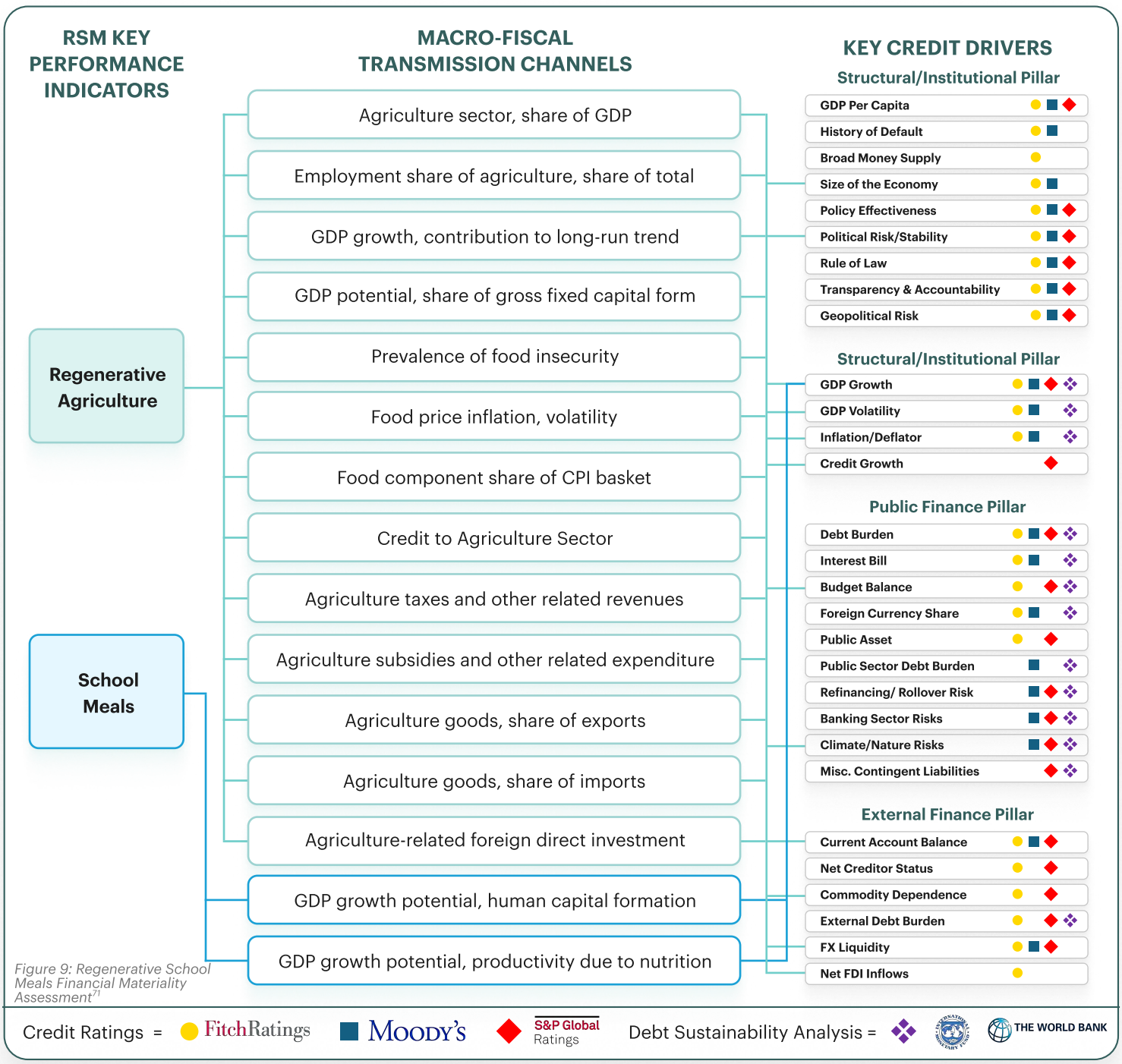
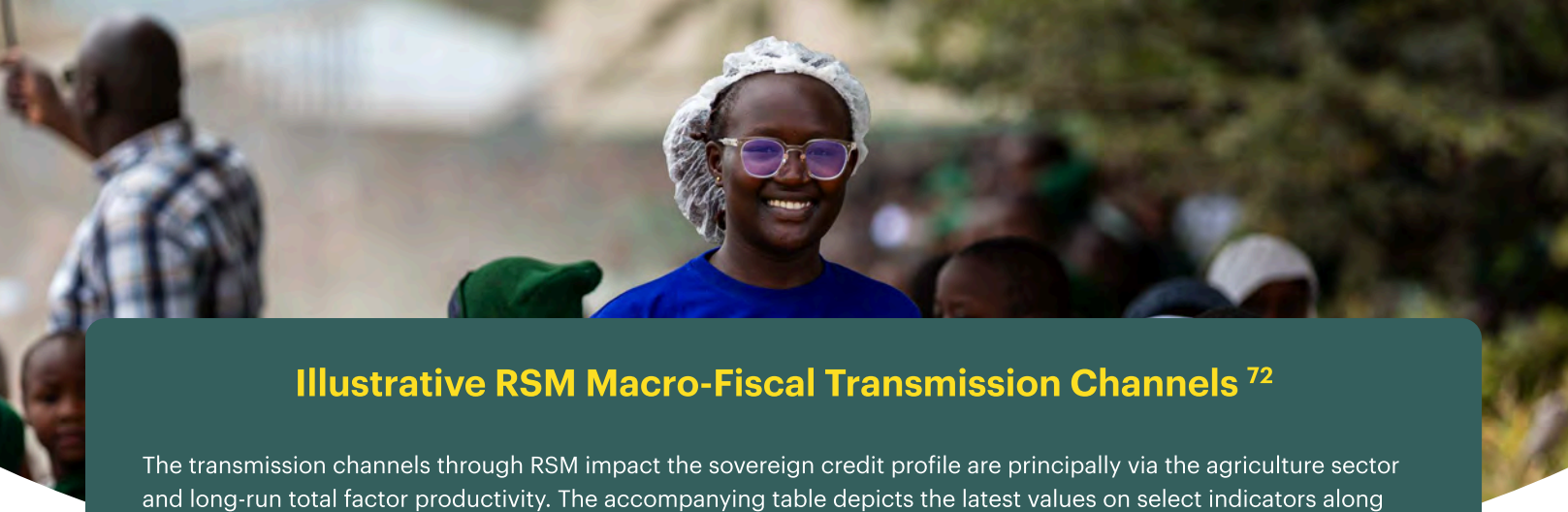


Figure 9: Regenerative School Meals Financial Materiality Assessment[71]

[69] *Nature as a Shock Absorber: A Financial Materiality Assessment of Forestry-linked Sovereign Indicators in Ghana, Nature Finance, 2025*
[70] *Climate Finance for Sustainable School Feeding: Exploring the Options, EDC and SFI, 2024*
[71] *Nature as a Shock Absorber, The Sustainable Sovereign Debt Hub, 2025*



Illustrative RSM Macro-Fiscal Transmission Channels [72]

The transmission channels through RSM impact the sovereign credit profile are principally via the agriculture sector and long-run total factor productivity. The accompanying table depicts the latest values on select indicators along with the interquartile range across all countries, which serves as a measure of materiality. According to this reading, regenerative agriculture stands out as especially material for Uganda's sovereign creditworthiness.

Transmission Channels	Uganda	Kenya	Tanzania
Agriculture Share of GDP (%)	24.09	21.81	24.09
Agriculture Share of Employment (%)	65.91	32.25	65.91
Agriculture Contribution to Real GDP Growth (10-y avg. %)	20.12	-24.86	20.12
Agriculture Share of GFCF* (%)	9.16	5.57	9.16
Prevalence of Food Insecurity (% population)	71.20	72.80	71.20
Food Price Volatility (10-year std*)	5.06	3.31	5.06
Food Share of CPI Basket (%)	0.27	0.36	0.27
Credit to Agriculture, Forestry and Fishing (% total)	11.17	3.35	11.17
Food Exports (% goods exports)	51.78	48.85	51.78
Food Imports (% goods imports)	12.07	17.62	12.07
Undernourishment (% population)	36.90	34.50	36.90

Figure 10: Transmission Channels[73]

**Gross fixed capital formation | Source: World Bank, FAO, WFP, GCNF, Official Sources*

[72] *Nature Multiple sources including documents from World Bank, FAO, WFP, GCNF*
[73] *Nature as a Shock Absorber, The Sustainable Sovereign Debt Hub, 2025*

7 Conclusion

The Financial Instruments for Regenerative School Meals Toolkit is a practical and powerful tool that governments can use to structure, sequence, and finance regenerative school meals within their existing fiscal systems. It is designed to ensure governments can move from concept to implementation, integrating regenerative school meals into medium-term investment planning and linking it with annual budget cycles and expenditure frameworks, and ensuring cross-ministerial coherence between agriculture, education, finance, and other relevant ministries and agencies. In short, the Toolkit offers a blueprint to align policy intent with actionable financing plans, making regenerative school meals an operational reality.

For countries, it aims to enable medium-term planning and budget alignment by connecting regenerative school meals goals to the budget process – for example, helping to structure programs within a medium-term fiscal framework so that regenerative agriculture and school feeding investments are phased and funded sustainably. Such integration ensures that it is institutionalized, allowing different ministries and agencies to coordinate around a shared investment plan and timeline. This budget-linked structuring institutionalizes regenerative school meals financing and helps create a programmatic investment stream with designated budget lines, performance targets, and scheduled disbursements.

The Toolkit is built for use by a range of institutional actors, each of whom plays a distinct role in structuring and deploying regenerative school meals financing. For finance authorities, the Toolkit offers a potential way to link regenerative school meals with sovereign debt management strategies, SDG-aligned budgeting, and fiscal policy frameworks. Ministries of finance can use it to align regenerative school meals investments with sustainable development priorities and debt planning – for example, by incorporating regenerative school meals outcomes into performance-linked financing instruments or SLBs. This ensures that financing for regenerative school meals supports fiscal stability and leverages opportunities such as climate funds or concessional loans, effectively embedding regenerative school meals into a country's overall financing and debt strategy.

For line ministries responsible for program delivery, the Toolkit serves as a "how-to" guide for converting detailed delivery plans into financing solutions. It guides ministries in breaking down regenerative school meals delivery objectives (e.g., farmer training, school meal procurement, monitoring) and structuring these components with appropriate financial instruments. For example, an agriculture ministry can sequence a subsidy program for regenerative agriculture alongside a school meals agency's procurement reform, with the Toolkit offering ways to identify how grants, guarantees, or budget transfers can be deployed at each step. By translating operational targets into funded activities, line ministries can sequence interventions so that resources flow when and where needed – all under a unified regenerative school meals financing logic.

For external partners, such as donors and MDBs, the Toolkit offers a common platform to align support with the government's regenerative school meals financing plan. Donor agencies and development banks can map their concessional finance, guarantees, and TA programs onto the Toolkit's framework, ensuring they fill the right gaps at the right times. Rather than funding scattered projects, external partners can coordinate their grants or loans to reinforce the national regenerative school meals pipeline – for example, using guarantees to backstop a farm credit scheme, or providing TA to strengthen a public procurement system as outlined in the financing architecture.

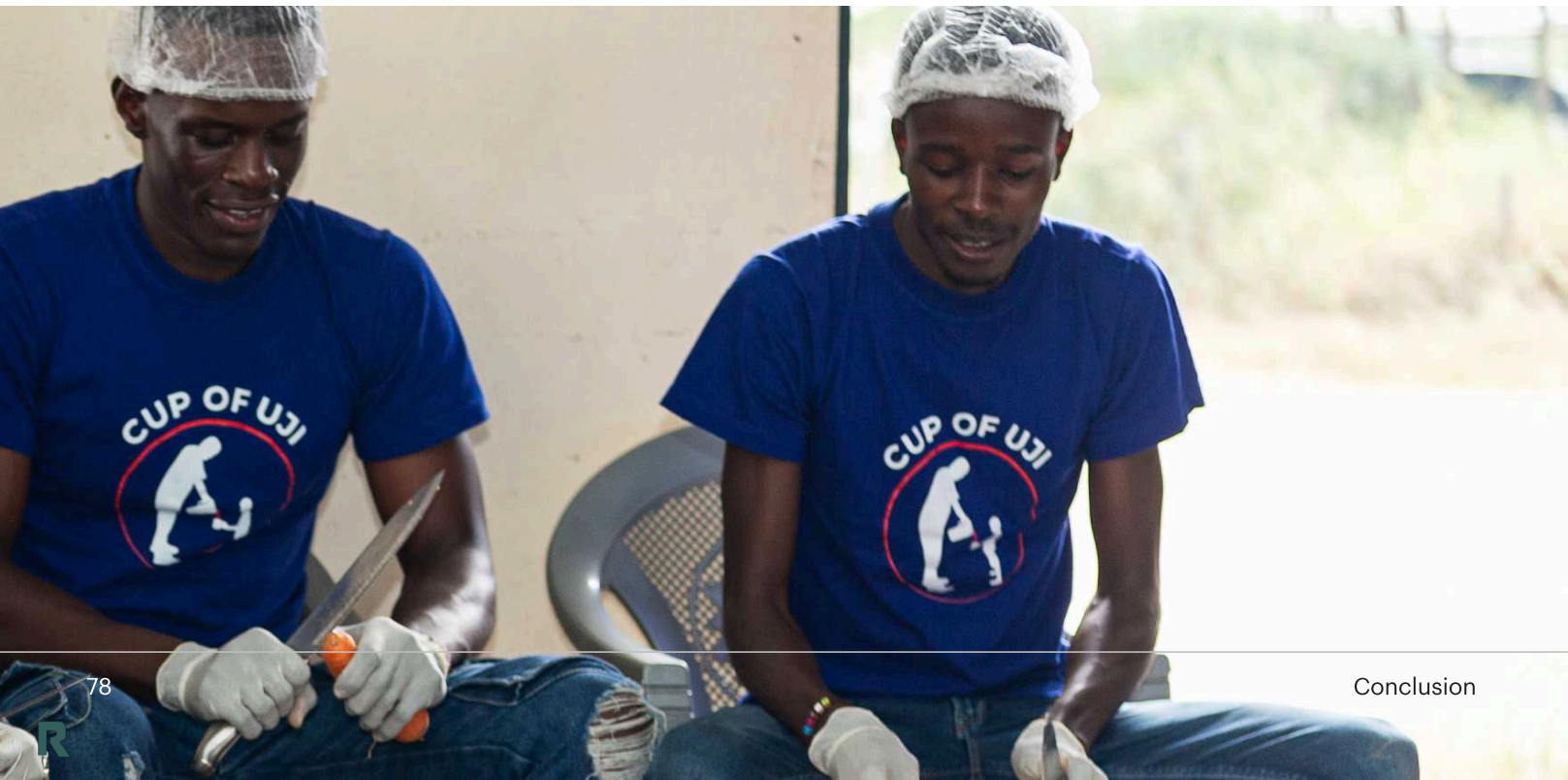
The Toolkit is intentionally modular, to support reforms and thematic goals agendas and planning processes. It offers suggestions for public financial management reforms such as program-based budgeting and performance-linked disbursement systems by providing a real-world use case where budgeting for results may be applied. Simultaneously, the Toolkit aligns with climate and SDG investment planning – it helps ensure that the suggested financing mechanisms for regenerative school meals are consistent with climate resilience goals and education and nutrition targets.

Crucially, the Toolkit enables governments to sequence regenerative school meals initiatives with an investment-grade structuring logic. This means regenerative school meals pilots or phased programs can be designed as scalable investments: each phase can be structured with clear risk-sharing arrangements, incentives, and metrics that are familiar to investors. By applying rigorous structuring principles, a government can start with pilot projects that demonstrate viability (for example, a results-based financing pilot in one region or a guarantee facility for farmer cooperatives) and then scale up. Each step builds capacity and confidence, ensuring that when larger funding is mobilized, the mechanisms to use it effectively are already tested and in place. This sequenced approach transforms regenerative school meals from a policy idea into a pipeline of bankable projects and programs that can attract and absorb financing over time.

Ultimately, the Toolkit aims to equip governments with the means to deploy resources in a structured, accountable manner. Its framework can be integrated into annual budget preparations and medium-term expenditure plans, ensuring regenerative school meals is factored into core fiscal decisions. It can inform the work of inter-ministerial steering committees overseeing regenerative school meals rollout, providing a common language and plan for finance and sector officials.

Through this work, the authors of the Toolkit aim to demonstrate that regenerative school meals, supported by the right financial architecture, can be scaled and sustained as an integral part of the public investment portfolio – delivering lasting social, economic, and environmental benefits through the routine operations of government.

Images source: Athi River Primary School in Kenya

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